YUKON ENERGY

YUKON ENERGY CORPORATION

&

THE YUKON ELECTRICAL COMPANY LIMITED
An *ATCO* Company

Phase II Rate Application

Interrogatory Responses Filed

July 23, 2010

CITY OF WHITEHORSE
(CW)

ISSUE: **COS Study – Hydro – Whitehorse Unit #4 (WH4) – Classified 100% to Energy**

REFERENCE: **Application, Section 3.2, page 3-5**

PREAMBLE:

The Utilities state:

In 2009, unlike the 1996/97 GRA, Whitehorse Unit #4 is expected to make a positive net contribution to meeting customer demand under drought conditions at the time of the winter system peak. Overall, however, reliance during the winter peak on a net contribution of only 4 MW of the 20 MW total capacity of Whitehorse Unit #4 confirms that this unit continues to differ materially from other generation units for the purpose of cost classification. Accordingly, consistent with past practice and the purpose for which the unit was originally constructed and for simplicity, the Whitehorse Unit #4 continues to be classified 100% to energy.

QUESTION:

a) With reliance during the winter peak on a net contribution of 4 MW of the 20 MW total capacity of Whitehorse Unit #4, please explain why YEC would not allocate some percentage (for example, 20%) to demand and the remainder to energy?

b) Please explain how "this unit continues to differ materially from other generation units for the purpose of cost classification.

c) Please explain how being "consistent with past practice" should be a prime consideration considering Whitehorse Unit #4 is expected, unlike in the past, to make a positive net contribution to meeting customer demand.

d) Please confirm that in the 1992 Report (Appendix 7.1, p.7.1C-28), the Board agrees with the company's position that "cost causation relates to the original reason for constructing the generating facilities" only because the Board did "not have any evidence to indicate that these two differ." If not confirmed, please explain fully.

e) If (d) is confirmed, please comment on the appropriateness of relying on "the purpose for which the unit was originally constructed" when the current use for generation assets such as Whitehorse Unit #4 differs significantly from their original planned operations.

f) Please explain why "simplicity" should be a key premise in determining the proper classification of Whitehorse Unit #4.

g) Please provide the study requested by the Board in Recommendation #3 of the 1992 Report (Appendix 7.1, page 7.1C-61).

ANSWER:

(a)

While there may be some merit to the suggestion, reallocating some percentage of Whitehorse Unit #4 costs to demand to recognize the small net contribution that the unit makes to meeting peak winter demand would have very little change in the overall COS results. It is not easy to quickly change just this one asset as described, but even in the extreme example that all Yukon hydro assets are changed to 40% demand and 60% energy (i.e., well beyond the change requested in the question), the net effect on residential class allocated costs is only on the order of 1%.

(b)

The first three units installed at Whitehorse were designed to use effectively all firm winter water flows. The installation of the fourth unit was justified on the basis of added energy generation primarily in summer, not when the system was peaking or demand constrained.

(c)

As noted at page 3-5 of the Application, while the unit makes a net contribution to winter capacity of the Whitehorse Plant, the net contribution that can be relied upon from unit #4 (4 MW) is small compared to the total MW capacity of the unit (20 MW).

(d)

Confirmed.

(e)

As noted at page 3-5 of the Application, the current use of the asset is not materially different than the purpose for which it was originally constructed. The capability of a 4 unit Whitehorse plant is only modestly larger than a 3 unit plant in winter, but much larger in summer. Under this generation profile, the benefit of the 4^{th} unit is primarily energy, not capacity.

(f)

Simplicity is a criteria for determining the appropriateness of cost of service methods when adding complexity does not materially affected results.

(g)

Please see Appendix 7.1, page 7.1C-64 to 65.

ISSUE: **COS Study – Aishihik Plant (existing, excluding Aishihik 3rd Turbine) - Classified 100% of Energy**

REFERENCE: **Application, Section 3.2, p.3-5**

PREAMBLE:

The Utilities state:

Under the new capacity planning criteria recently adopted in Yukon Energy's 20-Year Resource Plan: 2006-2025 (driven by N-1 methods), Aishihik generation is considered to not contribute to the WAF system's ability to serve peak loads at critical times due to transmission constraints. As a result, there must be sufficient diesel generation installed (plus WH and Fish Lake winter capacity) to permit the full system loads to be carried. Consequently, Aishihik's contribution to system service is solely of an energy benefit (offsetting the use of the diesel plants to provide energy or peaking output). This methodology differs from the classification adopted in the 1996/97 GRA COS (before the new capacity planning criteria was adopted), when Aishihik plant costs were classified 60% energy and 40% demand.

QUESTION:

a) Please explain why a capacity planning criteria is determinative with regard to cost of service classification?

b) Particularly with regard to the N-1 criteria, why should the COS classification of the Aishihik plant cost be based on an emergency capacity planning criteria?

c) Please define "critical times".

d) Why is the Aishihik generation's contribution to the WAF system's ability to serve peak loads at these "critical times" principal to the determination of the classification of Aishihik plant costs?

e) Does Aishihik generation typically contribute to the WAF system's ability to serve peak loads? Please provide for the last 5 years and also forecast for 2008 and

2010, the net contribution of Aishihik generation to serve peak loads during the winter peak.

f) Why are the Utilities most concerned with capacity planning criteria when classifying the Aishihik plant, rather than the considerations that the Utilities have applies to classify Whitehorse Unit #4 (namely, being consistent with past practice, the purpose for which the unit was originally constructed and simplicity)?

g) Please provide another version of the cost of serve study based on the Aishihik plant costs being classified as 60% energy and 40% demand.

ANSWER:

(a) and **(b)**

A capacity planning criteria is not determinative with respect to classification of assets in the cost of service study, but it is an important factor. This is because capacity planning criteria is one of the items underlying the reason for making investments in the system.

One type of assessment that can be done to help determine the classification of assets in a cost of service study is looking at the cost characteristics of a “pure” load – either pure capacity (1 added MW at peak times, but for a very short duration) or pure energy (1 MW.h that has to be delivered at sometime during the year, but without any restrictions on when it can be delivered).

- Additions of pure capacity loads will drive the need for added diesel units on the system (who will run very infrequently if at all) due to capacity planning criteria, and potentially added investment in distribution systems. In Yukon, these types of loads will not drive investment in new hydro units, or any material investment in new or upgraded transmission.

- Additions of pure energy loads will drive added diesel fuel consumption in the short-run, or in the longer term would likely drive the development of added renewable power generation along with the transmission lines needed to deliver this renewable generation to the load.

The cost of service study attempts to classify assets largely to reflect these cost drivers. Pure capacity loads do not drive new investment along the lines of Aishihik; only loads that have substantial energy component drive these type of resources.

(c)

The Planning Criteria were recently discussed in the response to YUB-YEC/YECL-1-6 in the Mayo B Part 3 hearing. “Critical times” in relation to the emergency N-1 criteria may be defined as a serious sustained outage of a critical system component (e.g. on WAF the interruptions of the Aishihik transmission line), during the period of peak winter loads.

(d)

Please see (a).

(e)

Yes. Please see LE-YEC/YECL-1-2(a).

Per the table below, over the past 5 years Aishihik has provided, on average, 45% of WAF winter peak load and would be expected to contribute at this same level for the winter peak for 2010.

Year	Date	WAF Peak (MW)	AH Load (MW)	AH as % of WAF Peak
2005	12-Jan-05	56.27	22.76	40.4%
2006	26-Nov-06	61.36	29.7	48.4%
2007	10-Jan-07	59.00	27.9	47.3%
2008	21-Dec-08	63.52	29.13	45.9%
2009	21-Dec-09	64.91	29.24	45.0%

(f)

All of these items are considerations in the classification of assets. See (a) above. Both Aishihik and Whitehorse #4 are classified the same; 100% energy, as they are both focused on providing kW.h, not on ensuring the reliable capability of the system to meet peak loads at critical times.

(g)

Please see Attachment CW-YEC/YECL-1-2(g).

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: Residential Government
2009

Schedule 4-T-27
Page 27

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	88	102	190
Transmission - Transmission Line	0	0	58	58
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	18	10	0	27
Carrying Costs (Excluding Return and Income Tax)	31	16	0	47
Operating & Maintenance Costs	21	11	0	32
Customer Accounting & Public Information	37	0	2	39
Insurance	2	1	0	4
Revenue Offsets	-8	-3	0	-11
Administrative & General	24	8	0	31
Amortization of Contributions	-9	-5	0	-14
	------	------	------	------
Total	116	126	163	405
	======	======	======	======
Unit Cost	458.5 $/customer	289.2 $/kW	7.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: Residential Non-Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	5,599	6,502	12,102
Transmission - Transmission Line	0	0	3,714	3,714
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	993	625	0	1,618
Carrying Costs (Excluding Return	1,731	1,057	0	2,788
Operating & Maintenance Costs	1,180	706	0	1,885
Customer Accounting & Public Information	2,068	0	148	2,216
Insurance	135	80	0	214
Revenue Offsets	-444	-172	0	-616
Administrative & General	1,315	510	0	1,825
Amortization of Contributions	-575	-342	0	-917
	------	------	------	------
Total	6,402	8,064	10,365	24,830
	======	======	======	======
Unit Cost	453.1	289.9	7.5	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: General Service Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	1,526	2,429	3,955
Transmission - Transmission Line	0	0	1,387	1,387
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	40	173	0	213
Carrying Costs (Excluding Return and Income Tax)	66	292	0	359
Operating & Maintenance Costs	48	195	0	243
Customer Accounting & Public Information	80	0	55	136
Insurance	5	22	0	27
Revenue Offsets	-17	-48	0	-65
Administrative & General	52	141	0	193
Amortization of Contributions	-14	-60	0	-74
	------	------	------	------
Total	260	2,243	3,871	6,374
	======	======	======	======
Unit Cost	474.3 $/customer	295.8 $/kW	7.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: General Service - Non Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	3,369	5,362	8,732
Transmission - Transmission Line	0	0	3,063	3,063
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	184	387	0	571
Carrying Costs (Excluding Return and Income Tax)	307	653	0	960
Operating & Maintenance Costs	212	436	0	648
Customer Accounting & Public information	372	0	122	494
Insurance	24	49	0	73
Revenue Offsets	-80	-106	0	-186
Administrative & General	237	315	0	552
Amortization of Contributions	-48	-99	0	-147
	------	------	------	------
Total	1,207	5,004	8,547	14,759
	======	======	======	======
Unit Cost	475.5 $/customer	299.0 $/kW	7.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: Industrial
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	767	1,262	2,029
Transmission - Transmission Line	0	0	721	721
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	0	0	0	0
Carrying Costs (Excluding Return and Income Tax)	0	36	0	36
Operating & Maintenance Costs	0	64	0	64
Customer Accounting & Public Information	0	0	31	31
Insurance Expense	0	7	0	7
Revenue Offsets	-0	-7	0	-8
Administrative & General	0	22	0	22
Amortization of Contributions	0	0	0	0
	------	------	------	------
Total	0	889	2,014	2,903
	======	======	======	======
Unit Cost	0.0 $/customer	207.7 $/kW	6.9 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: Street Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	187	180	366
Transmission - Transmission Line	0	0	103	103
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	181	18	0	199
Carrying Costs (Excluding Return and Income Tax)	364	30	0	394
Operating & Maintenance Costs	248	20	0	268
Customer Accounting & Public information	0	0	4	4
Insurance	28	2	0	31
Revenue Offsets	-60	-5	0	-65
Administrative & General	177	15	0	191
Amortization of Contributions	-40	-3	0	-43
	------	------	------	------
Total	898	264	286	1,448
	======	======	======	======
Unit Cost		284.2 $/kW	7.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC
Summary of Fully Allocated Costs by Rate Class: Sentinel Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	32	31	62
Transmission - Transmission Line	0	0	17	17
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	5	3	0	8
Carrying Costs (Excluding Return and Income Tax)	13	5	0	18
Operating & Maintenance Costs	0	3	0	3
Customer Accounting & Public information	0	0	1	1
Insurance	1	0	0	1
Revenue Offsets	-1	-1	0	-2
Administrative & General	4	3	0	6
Amortization of Contributions	-0	-0	0	-1
	------	------	------	------
Total	21	46	49	115
	======	======	======	======
Unit Cost		288.4 $/kW	7.5 c/kWh	
	======	======	======	======

ISSUE: COS – Mayo Hydro – Classified 100% to Energy

REFERENCE: Application, Section 3.2, p. 3-6

PREAMBLE:

The Utilities state:

In 1992, Mayo Hydro was substantially underutilized, supplying only the local Mayo and Keno loads. At that time the plant was classified 60% energy and 40% demand. It is also noted that the loads on the MD system are able, if needed, to be supplied by resident diesel assets which are in the rate base in each major community location (Mayo, Stewart Crossing, and Dawson). Consequently, the primary function for the Mayo hydro system is to provide energy to offset what would otherwise be the requirement to operate these diesel units.

QUESTION:

a) Does Mayo Hydro generation typically contribute to the MD system's ability to serve peak loads?

b) Please provide the net contribution of Mayo Hydro generation to serve peak loads during the winter peak for the years since the commissioning of the MD transmission line. Please also provide the forecast net contribution of Mayo Hydro generation that served, or is expected to serve, MD peak loads during the winter peaks for 2009 and 2010.

c) How many times since the commissioning of the MD transmission line have the resident diesel assets located in Mayo, Stewart Crossing and Dawson, supplied the full load on the MD system? Please document these occurrences.

d) Please comment on the reasonableness of basing the classification of the Mayo hydro plant on the existence of diesel units that could, but typically don't, supply the load of the entire MD system. Please explain fully.

e) Is it consistent or reasonable for the Utilities to adopt as their key principle in determining the classification of Mayo hydro plant that the resident diesel units could supply the load for the entire MD system, while actively seeking to avoid "the need for expensive diesel generation?" Please explain fully.

f) Please provide another version of the cost of service study based on the Mayo plant costs being classified as 60% energy and 40% demand.

ANSWER:

(a)

Yes, it normally does.

However, the appropriate test is not what the plant normally does, but factors such as what the plant is designed and built to do, or what system characteristics drive its costs, with consideration for the related costs, savings, benefits and underlying investment. For example, today the system normally operates with 100% hydro generation, but there are times when a modest amount of diesel generation is required for peaking, and very limited, but very key, times when all available diesel generation is required for emergency dispatch. The cost driver for installing and maintaining the complement of diesel units is peak demand, and as such that is how their costs are allocated, even though they are not normally used.

In the case of Mayo, the hydro plant does typically supply both products, energy and demand, but the presence of the hydro plant does not drive any cost savings in terms of diesel plant (you still need a diesel plant in Mayo and Dawson) but does drive material savings in diesel fuel from not having to run these plants. In this way, the economic benefit profile of having the hydro plant, versus not having the plant, is heavily dependent on energy cost savings (kW.h) not capacity contribution.

(b)

See the table below.

Since commissioning the MD transmission line in 2003 Mayo Hydro generation has provided on average 95% of the MD winter peak load and would be expected to contribute at approximately 94% for the winter peak for 2010.

Mayo Hydro as % of MD Load

Year	Date	MD Peak (MW)	MH Load (MW)	MH as % of MD Peak
2004	29-Jan-04	4.44	4.44	100.0%
2005	13-Jan-05	4.48	4.52	100.9%
2006	23-Nov-06	4.88	4.77	97.7%
2007	3-Dec-07	4.96	4.03	81.3%
2008	7-Feb-08	5.04	4.73	93.8%
2009	8-Jan-09	5.01	4.72	94.2%

(c)

Please see table provided below. Referencing data that starts in 2005, there are 3 instances where resident diesel assets have supplied the full load on the MD system.

Date	Duration and Purpose
October 17, 2007	1 hour – Outage coincident with preventative maintenance on MH1 resulted in using diesel to restore MD grid
September 21, 2009	5 hours – Mayo hydro units were out of service while divers were in the water clearing the trash rack
October 8 & 9 2009	9 hours – Mayo hydro units were out of service while divers were in the water clearing the trash rack

There are multiple instances where Dawson has supplied 100% diesel when a Mayo hydro unit has not been available for planned or unplanned outage purposes. There are also instances where the transmission line between Dawson and Mayo was not energized resulting in Stewart Crossing and Dawson City being on diesel generation while Mayo maintained at least one or both hydro units.

(d)

Please see (a).

(e)

Yes.

The quote in regard to avoiding “the need for expensive diesel generation” is referencing fuel. There is very little cost barrier to installing and maintaining diesel units in any community. The primary cost driver for developing hydro is to offset the need for using expensive diesel fuel. At a basic level, Mayo generation is displacing other generation (i.e., diesel) that would otherwise be required to meet base loads on the system.

(f)

Please see LE-YEC/YECL-1-7(a). As noted in that response, the cost of service version requested is in fact the version provided in Tab 3 of the Application.

ISSUE: **Cost of Service Study**

REFERENCE: **Application, Section 3.2, pages 3-7 to 3-8**

PREAMBLE:

The Utilities state:

Transmission – classified 100% to Energy (after all contributions) – The Companies propose to change the classifications used in the 1996/97 GRA for two reasons:

1) The material changes on the system since the 1996/97 GRA, including the closure of Faro Mine, the construction of Mayo Dawson transmission line and the anticipated interconnection of the grid through the completion of the CSTP.

2) Relative importance of the transmission system in providing the benefit of avoiding expensive diesel generation.

QUESTION:

a) Please provide a calculation of the benefit of avoided diesel generation that the transmission system provides.

b) Please provide a calculation of the total amount of transmission cost that the Utilities propose to allocate to energy.

ANSWER:

(a)

The existing transmission system delivers hydro power from generating stations in Mayo, Aishihik and Whitehorse to offset diesel generation in the other communities on the grid systems. Absent the transmission system, only the City of Whitehorse on the WAF grid and the village of Mayo on the Mayo-Dawson grid would be served by the low cost hydro power. Please see attached Table 1 for a calculation of the benefit of avoided diesel generation that the transmission system provides.

Table 1

Forecast Avoided Diesel Generation Benefit Provided by Transmission System in 2009

	Hydro Generation / Avoided Diesel Generaton (MWh)	Fuel Efficiency	Avoided Fuel Consumption (000 L)	Fuel Price ($/L)	Avoided Fuel Cost ($000)
WAF	64,857	3.55	18,269	0.992	18,123
MD	19,339	3.71	5,213	0.975	5,082
Total	**84,196**		**23,482**		**23,206**

Notes:

WAF grid avoided diesel generation is calculated as total WAF grid hydro generation less total generation required to serve Whitehorse wholesales.

MD grid avoided diesel generation is calculated as total MD grid hydro generation less total generation required to serve Mayo load.

As noted in Table 1, replacing the benefits of the transmission delivered power to the communities that would otherwise have to operate with diesel would cost on the order of $23 million in 2009 for fuel alone (not including variable O&M, etc.).

(b)

Calculation of the total amount of transmission cost that the Utilities propose to allocate to energy is provided on Schedule 4-T-19 of the Cost of Service Study. The schedule is reproduced below.

Schedule 4-T-19
Page 19

Yukon
2009 GRA
Combined YECL and YEC
2009
Allocation of Direct Transmission Line Costs

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Depreciation	0	0	2,101	2,101
Municipal and Franchise Taxes	0	0	124	124
Return on Ratebase	0	0	2,901	2,901
Income Taxes	0	0	43	43
General Plant Carrying Costs	0	0	1,160	1,160
Miscellaneous Reserve Carrying Costs	0	0	-14	-14
Maintenance Reserves Carrying Costs	0	0	0	0
Deferred Expenses (Transmission) Carrying Costs	0	0	0	0
Deferred Expenses (Other) Carrying Costs	0	0	160	160
Working Capital Carrying Costs	0	0	111	111
Rate Case Expense Carrying Costs	0	0	29	29
Unamortized Bad Debt & Land Gains	0	0	0	0
Unamortized DSM Costs	0	0	0	0
Unamortized Overhaul Costs	0	0	0	0
Transmission O&M	0	0	1,226	1,226
Insurance	0	0	315	315
Administrative General	0	0	1,805	1,805
Amortization of Contributions	0	0	-897	-897
	------	------	------	------
Total	0	0	9,063	9,063
	======	======	======	======

ISSUE: **COS Study – Transmission – Classified 100% to Energy**

REFERENCE: **Application Section 3.2, p. 3-8**

PREAMBLE:

The Utilities state:

…absent the transmission interconnections to any given community today, there would be a requirement to operate the presently installed diesel generating plants to serve load. This would materially increase the cost of power in Yukon, and would drive what is entirely an energy-related cost item – diesel fuel. Consequently, the cost profile in terms of benefits of installed transmission relates almost entirely to avoid energy-related diesel fuel costs.

QUESTION:

a) Please confirm that the transmission interconnections are, in fact, serving the peak requirements in "any given community." If not confirmed, please explain fully.

b) Please explain why it wouldn't be more logical to consider the transmission assets as serving the peak demand requirements of the system and diesel as simply the back-up.

c) Please explain why it is necessary to treat the diesel facilities as being so prominent that the avoidance of their use is considered the very reason the transmission lines exist?

d) Why propose the change to classification of transmission assets from 100% Demand (in the previous COS study (Appendix 7.1C, p.74)) to 100% Energy.

e) Wouldn't a more gradual change in classification be more appropriate, for example to 50/50 Demand/Energy? If not, please explain fully.

f) Please provide for the last 10 years and forecast for 2009 and 2010 the net contribution of WAF transmission line to supplying the peak loads during the annual winter peak.

g) How many times in the last 10 years have the resident diesel assets located in the major centres on the WAF system supplied the full load on the WAF system?

h) Please provide another version of the cost of service study based on the Transmission plant costs being classified to 100% Demand.

i) Please provide another version of the cost of service study based on the Transmission plant costs being classified to 50/50 Demand/Energy.

ANSWER:

(a) and **(b)**

Confirmed. The transmission system typically supplies both demand and energy to a community. However, as noted in CW-YEC/YECL-1-2(a), the purpose of transmission (and the driver for investment in transmission) is typically not to provide capacity services, or to save costs related to capacity. As demonstrated with the Mayo-Dawson line (where the diesel plant – the capacity-related generation – remains largely in place) the benefits and cost drivers for transmission investment in Yukon are almost entirely energy related.

(c)

The diesel generation alternative in Yukon is so prominent as it is a very costly and non-renewable source of generation, such that significant efforts are taken to avoid having to generate with diesel. The economics of the Mayo Dawson line, for example, were based almost 100% on avoiding diesel fuel generation.

(d)

See responses to (a), (b) and (c) above.

(e)

The approach noted would be a more gradual change, but does not reflect the realities of the system, which is today heavily oriented towards addressing energy cost drivers, much more so than capacity. The impact also would not be material. Specifically, moving the cost classification for transmission from 100% energy to 50% energy: 50% demand would increase the costs allocated to residential non-government customers by approximately 1% as compared to the companies' proposal.

(f)

The net contribution of WAF transmission line to supplying the peak loads during the annual winter peak would be equal to the generation as provided by Aishihik; please see response to CW-YEC/YECL-1-2(e) which provides Aishihik as % of WAF peak for the last 5 years as well as for 2009 and 2010.

(g)

There are no instances in the last 10 years where the diesel assets located in the major centres on the WAF system have supplied the full load on the WAF system. There is not enough diesel generation capacity on the WAF to meet the full WAF system load without some supporting hydro generation (at least from Whitehorse hydro). In the event of an outage the diesel assets are typically used to restore power to segments of the WAF which are subsequently transferred to, and supplied by, restored hydro generation.

(h)

Please see Attachment CW-YEC/YECL-1-5(h).

(i)

Please see Attachment CW-YEC/YECL-1-5(i).

ISSUE: **COS Study – Transmission – Classified 100% to Energy**

REFERENCE: **Application Section 3.2, p.3-8**

PREAMBLE:

The Utilities state:

In addition, transmission in Yukon is designed and sized to address considerations of length, voltage stability, and losses, and investment is not being driven to enhance existing transmission assets (e.g., twinning lines, or reconductoring) to serve growing peak loads. For this reason, the cost profile of transmission in Yukon is heavily oriented towards energy.

QUESTION:

a) Please provide a clear explanation as to why and how "transmission in Yukon is designed and sized to address considerations of length, voltage stability, and losses".

b) Please provide a clear explanation and evidence for the claim that "investment is not being driven to enhance existing transmission assets (e.g., twinning lines, or reconductoring) to serve growing peak loads.

c) Please explain why the answers to a) and b) above mean that "the cost profile of transmission in Yukon is heavily oriented towards energy."

ANSWER:

(a)

The development of transmission systems requires attention to a number of factors to ensure long term cost effectiveness. This leads to design trade-offs between conductor size and system stability. All of these factors have very significant cost implications.

- **Voltage selection** has a significant impact on transmission line costs as it determines pole size and spacing.

- **Conductor sizing** has a smaller but significant effect, i.e. larger conductor decreases line losses to deliver more energy over a longer distance.

- **Voltage stability** is a factor affecting substation design and costs affecting transformer and reactive power compensation equipment.

In Yukon, there is very little transmission investment driven by additions of peak loads that exceed existing transmission design. For example, the transmission line to Faro was designed so as to permit supply to the Faro mine. Without the Faro mine in service, additions of small increments of demand loads at Faro is not driving the need to upgrade the line.

(b)

The two largest transmission investments undertaken in the last 10 years are the Mayo Dawson Transmission Project and the Carmacks-Stewart Transmission Project. Both projects were justified based on the ability to connect communities (or in the case of CSTP a mine) to the grid system in order to provide access to lower cost surplus generation and reduce reliance on costly diesel generation. Aside from these major investments, other transmission investments included in Yukon Energy's 2008/2009 GRA were related to assessments, ongoing maintenance, pole treatments and upgrades (see Yukon Energy's 2008/2009 GRA, Tab 5, pages 5-18 to 5-19). There has been no projects to undertake major twinning or reconductoring initiatives.

Twinning of the Aishihik line was reviewed during the hearing to review Yukon Energy's 20-Year Resource Plan in 2006. This option was identified due to firm capacity benefits – i.e., had it been constructed its costs would likely have been classified to peak demand. Yukon Energy noted at that time that the project was not the lowest cost option for securing capacity when compared to either a new diesel plant in Whitehorse or the Mirrlees life extension projects.

(c)

Please see response to CW-YEC/YECL-1-5(a), (b) and (c) and Application at page 3-8. Current investment in transmission is oriented towards ensuring transmission connections are available to connect communities to the grid and reduce reliance on costly diesel generation for meeting baseload energy requirements. As noted in (b) above investment has not been focused on projects that would augment the ability of the transmission system to provide for growing peak loads.

ISSUE: **Secondary Sales**

REFERENCE: **Application, Section 3.2, page 3-9**

PREAMBLE:

The Utilities state:

In short, secondary sales rates bear no relation to a cost based standard in terms of the costs to the utilities to supply the service but rather a “value of service” concept based on the customer’s avoided costs of their alternative source of theat. The companies use these secondary sales revenues to reduce the firm rate revenues required to be collected from the retail and industrial customer classes.

QUESTION:

a) What are the costs (e.g. transmission losses, SCADA, metering, marketing, company investment, etc.) to provide secondary sales?

b) Please quantity these costs and calculate a revenue/cost ratio for secondary sales.

c) Where do these costs appear in the cost of service study and how are these costs allocated in the cost of service study?

d) Please explain fully how "value of service" rates are economically efficient and promote efficient usage of the system.

e) At the current "value of service" rate, does YEC/YECL sell all the secondary energy that is available? If not, please explain fully.

ANSWER:

(a)

Current incremental costs to provide secondary energy by Yukon Energy are minimal. Any cost of incremental transmission losses are very low because, by definition, the sales are only being made at a time of surplus hydro availability. There are no incremental SCADA costs. There are no notable additional metering costs or marketing costs, with the exception of approximately 20 meter reads and bills sent per month. The only significant company investment by Yukon Energy was an investment of $142k in a transformer for the Yukon Hospital Corporation for secondary sales use in 2003.

(b)

It is not possible to do the requested calculation, as there is very little to no costs to serve secondary sales. A ratio of revenue (which is very substantial) to the extremely low level of costs cannot be prepared in a meaningful manner.

(c)

As noted above, there are almost no incremental costs of serving secondary sales. Absent secondary loads, the utilities would not have any material savings. To the extent there are very small costs for meter reading and billing, these costs arise in the distribution function.

(d)

Please see response to CW-YEC/YEC-1-24.

The intent of the secondary sales retail rate is to maximize the amount of revenue available to offset ongoing fixed Yukon Energy costs while still leaving the secondary sales customer with some energy cost savings compared with what the customer would otherwise pay for heating fuel (typically heating oil). This is economically efficient and promotes efficient usage of the system in that surplus power that would otherwise be spilled is available to secondary sales customers at a rate that provides the customer with cost savings compared to what they would otherwise pay for heating fuel.

Ratepayers benefit overall as the revenues from secondary sales reduce the amounts that would otherwise need to be recovered through rates.

(e)

All available secondary energy is not sold. Up to now, secondary sales customers have been able to purchase virtually all of the secondary power they require throughout the year with very few interruptions of service. At times they have been unable to purchase all that they would like due to the unavailability of their own secondary energy equipment such as boilers due to equipment problems and planned maintenance. Due to the current forecast of reduced availability of secondary energy, YEC/YECL have been not been actively soliciting new secondary sales customers and have make sure that any new potential secondary sales customer that has approached them is aware of the forecast reduced availability of secondary energy in the future.

In order to market “all” available secondary energy, it would be necessary to continue connecting customers beyond the point where interruptions would be extremely typical occurrences. The existing secondary customers, and potential customers, have not indicated a desire to make the investment and operational changes required to use secondary energy when it will only be available for brief periods.

ISSUE: **COS Study – Proposed versus 1997**

REFERENCE: **Application, Section 3.2, page 3-8**

PREAMBLE:

The City wishes to understand more about the changes in the proposed COS Study versus the 1997 COS Study.

QUESTION:

a) Please provide a list of changes to the proposed cost of services study as compared to the cost of service study from 1997. Please provide a full explanation of each and show the monetary effect on the residential non-government class and the general service non-government class.

b) Please explain what changes between the time of the Workshop and the time of this Application to lead the Utilities to propose a more dramatic change in the transmission classification ratio (i.e. 100% Demand to 100% Energy).

c) Please explain why there is a $0 classification for "Transmission - Other" to Demand in Schedules 4-T-27 through 4-T-32, while there were positive amount in this line item in the 1997 COS (Schedules 5-32 through 5-38).

d) Please explain why the classification ratio of Production of Residential Non-government has changed to 34.1/65.9 Demand/Energy (Sch. 4-T-28) from 28.6/71.3 Demand/Energy in the 1997 COS study (Schedule 5-33).

e) Please explain why the classification ratio of Return & Income Tax to Residential Non-government has changed to 61.4/38.6 Customer/Demand (Sch, 4-T-28) from 66.2/33.8 Customer/Demand in the 1997 COS study.

f) Please explain why the classification ratio of Customer Accounting and Marketing to General Service Non-government have changed to 75.3/24.7 Customer/Energy (Sch. 4-T-30) from 100/0 Customer/Energy in the 1997 COS study (Schedule 5-35).

g) Please explain why the classification of Insurance to General Service Non-government has changed to a Customer/Demand split (Sch. 4-T-30) from a Customer/Demand/Energy allotment in the 1997 COS study (Schedule 5-35).

h) Please explain why the classification of O&M cost to Industrial has changed to 100% Demand (Sch. 4-T-31) from a Customer/Demand split in the 1997 COS study (Schedule 5-36).

i) Please explain why the classification of Administrative & General costs to Industrial has changed to 100% Demand (Sch. 4-T-31) from a Customer/Demand split in the 1997 COS study (Schedule 5-36).

j) Please explain why the classification of Amortization of Contributions to Industrial changed to $0 (Sch. 4-T-31) from a 100% Demand classification of $24,000 in the 1997 COS study (Schedule 5-36).

k) Please explain why the classification ratio of Return & Income Tax to Street Lights has changed to 91.0/9.0 Customer/Demand (Sch.4-T-32) from 78.0/22.0 Customer/Demand in the 1997 COS study (Schedule 5-37).

l) Please explain why the classification of Customer Accounting and Public Information to Street Lights has changed to 100% Energy (Sch. 4-T-32) from 100% Customer in the 1997 COS study (Schedule 5-37).

ANSWER:

(a)

The following changes were made to the cost of service study since 1997:

- Bulk power classification factors (production and transmission); please refer to YUB-YEC/YECL-1-1(a), (b), (c) and section 3.2.1 in the Cost of Service document in the Phase II filing.

- Distribution plant classification factors; please refer to YUB-YEC/YECl-1-7 (a) and Appendix 3.2 in the Cost of Service document in the Phase II filing.

- Revenue offsets were credited to rate classes based on distribution assets; change to rate class totals shown below.

Rate Class	**Revenue Offset 2009 method**	**Rev Offset calculated 1996/7 method**
Residential Government	$401	$401
Residential Non Government	$24,592	$24,601
General Service Government	$6,442	$6,438
General Service Non Government	$14,909	$14,903
Industrial	$2,946	$2,944
Street Lights	$1,432	$1,435
Sentinel Lights	$112	$112

Also please refer to page 3-11 line 13 in the Cost of Service document in the Phase II filing.

- Customer accounting classification was changed to 100% customer from 98% customer 2% energy; please refer to YUB-YEC/YECL-1-28(e). The Customer Accounting classification was adjusted to match the classifications used in Northland Utilities Hay River and Northland Utilities Yellowknife. These changes were approved in decisions 2-2009 (NWT) and 1-2009 (NUY).

(b)

There were no specific changes between the workshop and the time of this Application in relation to the change in transmission classification. See page 3.4A-11 of the Application which notes that Yukon Energy proposed this treatment for WAF transmission as far back as in the 2007 Minto Mine PPA Application "to reflect the approach adopted for other new transmission projects designed to displace diesel energy generation (rather than to meet system winter peak demands)."

(c)

In the 1996/7 filing, the YECL Transmission Substation PP&E was classified as Transmission Line – Other. In the 2009 filing, the YECL Transmission Substation was added to the YEC Transmission PP&E so that it could all be classified in the same way. In 1996/7 due to conditions that were applied to the Transmission Line PP&E to accommodate the Faro mine, the YECL PP&E was detailed separately. This exception was not required for the current filing.

(d)

The Production Residential Non Government ratio of Demand to Energy change from 1996/7 is a result of higher costs ($11,863 in 2009 vs. $10,755 in 1996) and the Bulk Power production classification factors that were updated for the 2009 filing which shifted some costs from a demand classification to an energy classification (Aishihik and Mayo plants shifted from 40% demand to 100% energy).

(e)

The Return and Income Tax Residential Non Government ratio of Customer to Demand change from 1996/7 is a result of the Distribution Asset classification factors that were updated for the 2009 filing (A net shift of cost from customer to demand). This created by pole plant shifting from 75% customer to 56% customer. This was offset by conductor and transformer plant which shifted from 30% customer to a 52% customer (conductor) & 56% customer (transformer) classification). This resulted in the shift in the ratio of customer to demand from 1996/7.

(f)

The Customer Accounting and Public Information General Service Non Government ratio of Customer to Energy in 1996/7 was incorrect. Public information costs are allocated 85% to energy. The 1996/7 model had a formula error that did not correctly calculate the public information costs by classification. The formula was updated for the 2009 filing to calculate the correct amount.

(g)

The classification of Insurance to General Service Non Government in 1996/7 included insurance costs that were identified as PLPD. PLPD insurance is allocated on energy. The 2009 filing did not have any insurance identified as PLPD. The general insurance is allocated on Distribution Plant which is all classified as customer and demand.

(h)

Distribution O&M costs are allocated on Distribution Plant. The Industrial rate class has $3,000 of Distribution Plant classified to customer and $2,302,000 of Distribution Plant classified to demand. The allocation of O&M costs to the customer classification would be less than .13% versus 99.87% to demand, and would not show on the model output due to the small amount that is calculated.

(i)

The Administrative and General costs are allocated to rate classes on the basis of the Sum of All Service Costs excluding A&G, but including revenue offsets. The Industrial rate class did not have any costs assigned to the customer classification and no A&G costs were calculated and assigned due to this.

(j)

The Amortization of Contributions is dependent on contributions being assigned to the rate class, The Industrial rate class does not have any contributions assigned in 2009, and therefore no amortization was calculated.

(k)

The Street Light customer classified PP&E is directly assigned (PP&E amount has changed since 1996/7), the demand PP&E (i.e. transformers, land rights, substation equipment, poles and conductors) amount has changed as well because the Distribution classification factor study ratios have changed for poles, conductor and transformers (a net shift of cost from customer to demand created by pole plant shifting from 75% customer to 56% customer which was offset by conductor and transformer plant which shifted from 30% customer to a 52% customer (conductor) & 56% customer (transformer) classification). This resulted in the shift in the ratio of customer to demand from 1996/7.

(l)

There are no Customer Accounting costs assigned to lights because there is little billing work required, and the lights are generally not metered. Public Information costs are allocated on 15% Customer count and 85% on energy, since no customers are related to Street Lights, costs were only allocated on Energy.

ISSUE: **Allocation Methods**

REFERENCE: **Application Section 3.2, Table 3.1, page 3-12**

PREAMBLE:

The utilities provide the following table:

Demand Load Characteristics at the Meter, By Class

		2009	1996/97
Residential Non-Government	CP load factor	56.5%	53.0%
	NCP load factor	48.2%	45.6%
Residential Government	CP load factor	56.5%	49.2%
	NCP load factor	48.2%	42.3%
General Service Non-Government	CP load factor	77.4%	61.5%
	NCP load factor	63.6%	49.2%
General Service Government	CP load factor	77.4%	66.5%
	NCP load factor	63.6%	53.2%
Industrial	CP load factor	77.4%	99.9%
	NCP load factor	N/A	N/A[5]
Streetlights	CP load factor	46.7%	48.0%
	NCP load factor	46.7%	48.0%
Space Lights	CP load factor	46.7%	47.7%
	NCP load factor	46.7%	47.7%

QUESTION:

a) Please provide the calculations for all the above-noted percentages.

ANSWER:

(a)

Please see the attached table.

Demand Load Characteristics at the Meter, By Class

1996/97

Rate Class	Energy Sales (kWh)	Customer Numbers	Average Annual Energy Bill (kWh)	Difference Adjustment	CP Load Factor Adjustment	Reconciliation Adjustment	CP (kW)	CP Load Factor
	A	B	C=A/(B*12)	D=(C^0.885)* 0.005925	E	F	G=(B*D) /(E/F)	H=A/(G*8760)
Residential-NG	120,779,403	11,712	859	2.341	1.036	0.9823	26,000	53.0%
Residential-G	4,252,287	479	740	2.050	1.036	1.0400	986	49.2%
General Service-NG	76,386,087	1,990	3,199	7.492	1.036	0.9856	14,184	61.5%
General Service-G	52,715,902	746	5,889	12.858	1.036	0.9776	9,051	66.5%
Industrial	184,028,804						21,031	99.9%
Streetlights	2,787,625						663	48.0%
Space Lights	786,001						188	47.7%

Rate Class	Energy Sales (kWh)	CP (kW)	CP Load Factor Adjustment	NCP Load Factor Adjustment	NCP (kW)	NCP Load Factor
	A	B	C	D	E=B*C/D	F=A/(E*8760)
Residential-NG	120,779,403	26,000	1.036	0.8900	30,265	45.6%
Residential-G	4,252,287	986	1.036	0.8900	1,148	42.3%
General Service-NG	76,386,087	14,184	1.115	0.8920	17,730	49.2%
General Service-G	52,715,902	9,051	1.115	0.8920	11,314	53.2%
Industrial	184,028,804	21,031				N/A
Streetlights	2,787,625	663			663	48.0%
Space Lights	786,001	188			188	47.7%

2009

Rate Class	Energy Sales (kWh)	Customer Numbers	Average Annual Energy Bill (kWh)	Difference Adjustment	CP Load Factor Adjustment	Reconciliation Adjustment	CP (kW)	CP Load Factor
	A	B	C=A/(B*12)	D=(C^0.885)* 0.005925	E	F	G=(B*D) /(E/F)	H=A/(G*8760)
Residential-NG Residential-G	139,798,064	14,381	810	2.222	1.131	1.000	28,253	56.5%
General Service-NG General Service-G	164,908,629	3,086	4,453	10.041	1.274	1.000	24,321	77.4%
Industrial								77.4%
Streetlights	3,799,560						929	46.7%
Space Lights	645,660						158	46.7%

Rate Class	Energy Sales (kWh)	Customer Numbers	Average Annual Energy Bill (kWh)	Difference Adjustment	NCP Load Factor Adjustment	Reconciliation Adjustment	NCP (kW)	NCP Load Factor
	A	B	C=A/(B*12)	D=(C^0.885)* 0.005925	E	F	G=(B*D) /(E/F)	H=A/(G*8760)
Residential-NG Residential-G	139,798,064	14,381	810	2.222	0.966	1.000	33,079	48.2%
General Service-NG General Service-G	164,908,629	3,086	4,453	10.041	1.047	1.000	29,594	63.6%
Industrial								N/A
Streetlights	3,799,560						929	46.7%
Space Lights	645,660						158	46.7%

ISSUE: **Revenue/Cost Ratios**

REFERENCE: **Table 3.2, page 3 – 13**

PREAMBLE: **The Utilities provide the following table:**

Table 3.2:
Revenue to Cost (R/C) Ratios by Rate Class – 1997 and 2009 (%)

Customer Class	1997 Final Approved	2009
Residential Government	100%	105%
Residential Non Government	81%	79%
General Service Government	143%	144%
General Service Non Government	110%	117%
Industrial	100%	109%
Street Lights	110%	69%
Sentinel Lights	110%	148%

QUESTION:

a) Please provide a table of revenue/cost ratios by rate component (fixed monthly, demand and energy rates) for each rate offered to each rate class, e.g., for the General Service Class provide the revenue/cost ratio for each rate component of rates 2160, 2170, 2260, 2270, 2360, 2370, 2460, 2470, 2180, 2280, 2380, 2480, 61, 66, 67, 75, 76 and secondary sales 32 and 43.

ANSWER:

(a)

The cost of service model does not provide details to the level requested therefore revenue/cost ratios are not possible.

ISSUE: **Cost of Service Study, Billing determinants**

REFERENCE: **Application 6-2, lines 9 – 15**

PREAMBLE:

The Utilities state:

Preparation of a new cost of service study will require a number of matters to be addressed. First, there will need to be an approved revenue requirement for each of the two utilities on a consistent test year basis as well as the determination of billing determinants and load characteristics by customer class. The key methods (such as classification of generation and transmission assets) will also need to be reviewed to ensure that the cost of service approach properly tracks the cost imposed on the current system (with its adjustments since 1997) on each customer class.

QUESTION:

a) Are the billing determinants referenced in the above statement the ones shown in Table 4-T-34 of the cost of service study? If not, please provide the billing determinants for which the Utilities seek approval.

b) Are the billing determinants in Table 4-T-34 actual or forecast numbers of customers, demand and energy? If forecast, please provide the 2009 actuals and provide an explanation for any differences between forecast and actual.

c) Please provide a table that reconciles the requested rates multiplied by the billing determinants used in the cost of service study to the combined 2009 revenue requirements of the Utilities.

ANSWER:

(a)

The billing determinants in Schedule 4-T-34 are used to calculate the unit cost for each rate class. The billing determinants are found in the COS_Calc_YEC1.xls and COS_Calc_YECL1.xls spreadsheets in the Load Forecast worksheets and are sourced from the EDLA Yukon 2009.xls spreadsheet. A CD with the complete model containing these spreadsheets will be mailed separately. Please email scott.duncan@atcoelectric.com with contact information (name, address, numbers of CD copies) to request a copy.

(b)

The billing determinants used in the Phase II filings were approved in the Phase I filing in YUB Board Order 2009-2 (YECL) and 2009-10 (YEC). Billing determinants actuals are not available, billing determinant actuals are a Phase I matter and are not relevant to the current Phase II filing which uses the approved Phase I determinants.

(c)

For Option A, please refer to CW-YEC/YECL-21(a) Schedule 1. For Option B, please refer to the application, Schedule YECL B 4.7.

ISSUE: **Economy and Efficiency**

REFERENCE: **Application, page 1-10, lines 22-25**

PREAMBLE:

The Utilities state:

Economy and Efficiency Rate Principles/Directives: Promoting economy and efficiency by sending customers a price signal at higher levels of consumption in an increasing cost environment. The rate design proposal considers how best to adjust runoff rates to reflect 2009 incremental costs based on current fuel prices in the current costing environment. The need to adjust runoff rates to reflect approved 2009 incremental costs based on current fuel prices reflects the following considerations:

QUESTION:

a) Is the economy and efficiency that the Utilities seek being applied equally among all customer classes (residential, commercial and industrial)? Please explain and demonstrate.

b) As demonstrated in (a) above, if one or more classes of customers are not expected to have to practice the same level of economy and efficiency as the other rate class(es), please explain why?

c) How will customer behavior change in response to the Utilities' "efficiency price signals"? Please provide separate explanations for the proposed Options A and B.

d) How will the behavioral changes result in economy and efficiency for the customers? Please provide separate explanations for the proposed Options A and B.

e) Please explain how is that YEC makes the connection from "economy and efficiency" as described in OIC 1995/90 to YEC's proposal that run-off rate must be based on the incremental cost of diesel.

f) Does YECL agree with YEC's position as put forth in (e) above? Please explain fully.

g) Is it YEC's position that the current rate structure complies with OIC 1995/90? Please explain fully.

h) Is it YEC's position that the proposed Option A rate design complied with OIC 1995/90? Please explain fully.

i) Is it YEC's position that the proposed Option B rate design complies with OIC 1995/90? Please explain fully.

j) Is it YECL's position that the current rate structure complies with OIC 1995/90? Please explain fully.

k) Is it YECL's position that its proposed rate design complies with OIC 1995/90? Please explain fully.

l) The Utilities state: "retail runoff block adjustments do not need to be differed and can be undertaken now". Is it YEC's position that retail runoff block adjustments must be undertaken now?

m) If retail runoff block adjustments do not need to be undertaken at this time, please explain what the harm would be, if any, in waiting until a future GRA to implement these types of change when the OICs have expired? Please explain fully.

n) Please provide YECL's full responses to (l) and (m) above.

ANSWER:

(a) and **(b)**

Yukon Energy Response

Economy and Efficiency is being applied among all of the smaller non-government customer classes equally (residential and smaller GS customers up to 20,000 kW.h/month). For these customers, the rate design is based on a three block structure with increasing rates for each larger block terminating in a runoff block that is priced in relation to diesel energy.

For the larger customers (industrial, wholesale, and larger GS above 20,000 kW.h/month), the concept of economy and efficiency is also intended to apply consistently, once all the needed measures are implemented.

- For wholesale, the measure that achieves this is the ERA, which is proposed to be re-benchmarked in this application to the price of diesel generation, and will apply in any month where diesel is on the margin.

- For industrial, Rate Schedule 39 as presently in place contains provisions for a "base load energy" to be established (once diesel is on the margin) to provide the same type of runoff rate as for other customer classes, also benchmarked to the price of diesel generation.

- For large GS customers (over 20,000 kW.h/month) (approximately 100 customers, of which approximately half are government, such as hospitals), this type of provision is intended to be developed in the next GRA. It was simply not possible in the time available for this hearing to have a full rate design for this situation resolved.

The rate policy direction as set out in OIC 1995/90 (section 4 (3)) applies only to retail customers and requires that the Board fix a runoff rate block for each non-government retail customer class on the basis of rate design principles to promote economy and efficiency. This rate policy direction does not specify that economy and efficiency "be applied equally among all rate classes"; however, to the extent that runoff rates for non-government retail customers (non-government residential and non-government general service) are set based on the same basis (i.e., in this case the same percentage of incremental costs [80% for Option A rate proposal and 50% for Option B rate proposal]) then an equal efficiency signal is being sent to all non-government retail customers. Different block sizes may mean slightly different percentages of customer in each non-government retail class are exposed to an efficiency price signal; however, as noted the OIC direction does not require that equal efficiency signals be applied to different rate classes, only that a runoff rate be set that provides for economy and efficiency in each retail rate class.

Yukon Electrical Response

In response to YUB-YEC/YECL-1-22, YECL stated that its view of economy and efficiency shall reflect the principle of fairness, which means that to the extent practicable rate design should seek to ensure that customers pay for the costs that they impose on the system. This includes (1) rates for electricity that are set equal to the short run incremental costs should result in an amount of consumption which maximizes the benefit to ratepayers of utilizing its production resources. When price equals the incremental cost, the production cost of the last unit should equal the value of that unit to the customer (2). In general, a utility should strive to ensure that no rate class should pay more for service than the cost of serving them.

Based on the above, with respect to the first point, economy and efficiency is not being sought equally among all rate classes due to the differences in rate structures and components between rate classes. For example, streetlight rates do not have an energy block to facilitate sending an energy price signal to this rate class.

With respect to the second point regarding cost causality, while YECL recognizes that current OICs restrict the ability to move more closely to full cost recovery, economy and efficiency is not being sought among all customer classes.

(c) and **(d)**

Please see discussion on elasticities provided in response to CW-YEC/YECL-1-16. Over the short term customer response to any price signals is not expected to be elastic; however, based on standard experience in the utility industry, over the longer term it may be expected that customers can take measures to increase efficiency of electricity use (e.g., replacement of existing appliances with more efficient appliances).

(e)

Please see CW-YEC/YECL-1-19.

(f)

Please refer to CW-YEC/YECL-1-19 for YECL’s comments.

(g)

No. As retail rates have had no redesign in 12 years, during a period where diesel prices roughly tripled and the Yukon systems have moved closer and closer to diesel being on the margin, there is no basis to conclude today that rates appropriately reflect economy and efficiency.

Table 4.5 on page 4YEC-22 of the Application provides rates for the incremental cost of diesel in each rate zone based on 1997 fuel prices and updated based on 2009 fuel prices; this demonstrates the clear difference in the incremental cost of diesel in the Hydro zone in 1997 at 10.45 cents/kWh compared to 32.74 cents/kWh in 2009.

(h) and **(i)**

Please see response to CW-YEC/YECL-1-19.

(j)

The current rate structure, which is the outcome from the 1996/1997 GRA and approved in Order 1996-7, complies with OIC 1995/90.

OIC 1995/090 states: “The Board must fix runoff rates for each non-government retail customer class on the basis of rate design principles to promote economy and efficiency…” To the extent that the OIC 1995/090 does not specify what level of rates shall reflect the incremental cost of diesel, YECL believes that the current rate design complies with OIC 1995/090. While YECL agrees that incremental diesel generation shall be a meaningful price signal, it does not agree to what level the incremental cost shall be reflected.

(k)

The proposed rate structure complies with OIC 1995/90. Please refer to PAGE 4YECL-4 of the Application, which is also provided below.

> “In accordance with OIC 1995/90, the rate design adjustments proposed in the Application:

- Reflect rate design principles established in Canada for utilities as well as past practice in Yukon;

- Continue to ensure that firm retail rates are equalized throughout Yukon within each rate class other than for runoff rates; and

- Adjust, on the basis of rate design principles, where and to the extent practicable based on the level of incremental diesel generation that is being triggered due to increasing consumption, retail runoff rates to provide for economy and efficiency by reflecting short term incremental generation cost as a price signal at higher levels of consumption.

Adjust the wholesale rate as required to enable Yukon Energy to recover its costs that are not recovered from its other customers."

(l) and **(m)**

Please see response to CW-YEC/YECL-1-19.

(n)

As stated in response to YUB-YEC/YECL-1-22, YECL's understanding of the term economy and efficiency is based on the explanation as set out on Page 4YEC-10, footnote no. 5, of the Application, "based on Board precedent, economy and efficiency in the Yukon context is expressed by sending a price signal for consumption on the margin based on the short run incremental cost of diesel." YECL believes that a balanced approach to rate design must be taken in this Application that sends customers a reasonable price signal that tells them that costs increase as consumption increases and the economic considerations regarding the price of incremental cost of diesel generation today. YECL does not believe sending a price signal greater than 50% of the incremental cost of diesel is appropriate at this time. This is explained in more detail in response to YUB-YEC/YECL-1-24.

YECL believes that the reasons stated in the Application, Page 4YECL-10, are appropriate reasons why a rate design adjustment was considered at this time.

A lesser percentage of 50% of incremental cost was considered more reasonable at this time due to:

- Limits related to inter-class rate balancing (i.e., OIC 2008/149);
- Reducing rate shock impact across customer classes; and
- Avoidance of undue discrimination.

Allowing further adjustments to rates when more accurate signals showing how costs move with usage is identified.

ISSUE: **Rate Design**

REFERENCE: **Application, Tab 4, page 4 YEC - 17**

PREAMBLE:

YEC states:

1) **Rate adjustments can be made, subject to not resulting in rebalancing or unequal revenue increases between rate classes (per OIC 2008/149)**

   a) OIC 2008/149 in essence prevents inter-class rate rebalancing for these retail classes (i.e., there cannot be changes in overall revenues, at 2009 approved forecast loads, for any of the classes relative to Table 4.1); this requires, for example, that if the runoff rate is raised for a class that an offsetting rate decrease must be made in the first block [and/or the customer or demand charge] for that class to keep the overall class revenue rate unchanged.

   b) Subject to this requirement, OIC 2008/149 does not prevent the Companies from intra class adjustments (i.e., adjusting the runoff rate upwards to reflect incremental costs and lowering the lower block rate on an equal basis).

2) **New non-runoff rate blocks can be considered subject to ensuring that rates within each such new non-government retail rate block are the same throughout Yukon.**

   a) Variation is allowed for separate runoff energy rates for non-government retail customers in different communities or rate zones provided such rates are fixed for each community or zone based on the same rate design principles.

   b) OIC 1995/50 (section 4.(2)) requires that there be at least 2 energy rate blocks for each non-government retail customer class: at least one equalized rate block and a runoff energy block that provides for economy and efficiency.

   c) Provided any additional energy rate block in the rate class is equalized throughout Yukon, the OIC allows for multiple equalized rate blocks, e.g., this would allow in the residential non-government class for a first block set at 700 kWh and a higher second block set at 1000 kWh, 1,500 kWh or 2,000 kWh, with the third rate block for use in excess of the second block limit) then being the runoff rate.

3) A runoff rate must be set for each non-government retail class that provides for economy and efficiency

a) The runoff rate block applies to all consumption over a particular level.

b) Such runoff rates cannot initiate with usage below 1000 kWh/month for residential or 200 kWh per month for general service

c) Past Board direction has provided that economy and efficiency is promoted in Yukon runoff rate design through runoff rates that reflect at least the short-run incremental generation costs. In all prior GRA reviews this was based on the cost of diesel in each rate zone plus provision for short run incremental O&M costs for diesel generation.

QUESTION:

a) Please confirm that the above-cited passage is YEC's interpretation of the constraints imposed by OICs 2008/149 and 1995/90. If not confirmed, please explain fully. If confirmed, please explain how YECL's interpretation differs.

b) Does YEC interpret that it is constrained from applying these principles of economy and efficiency to the design of rates and rate blocks other than the runoff rates? If yes, please explain fully why YEC believes itself to be constrained from applying principles of economy and efficiency to all its rates and rate blocks.

ANSWER:

(a)

To the extent that the noted quote appears in Tab 4YEC, it is YEC’s view of the rate policy direction provided by OIC 1995/90, OIC 2008/149 and OIC 2007/94; however, the above are also cited in Tab 1 which is a joint effort of the companies, and are fact-specific statements regarding how rate policy OICs currently operate or have been interpreted in past Board Orders and Board recommendations.

(b)

As a concept "economy and efficiency" can be applied through different rate designs so long as the rates comply with the other principles as set out in the OICs.

In this sense the following would constrain applying principles of economy and efficiency to design of rates and rate blocks other than runout rates:

- Per OIC 2007/94, industrial rates must conform with Attachment A to that OIC until January 1, 2013.

- Per OIC 2008/149, retail rate adjustments must not result in rebalancing or unequal revenue increases between classes. There is very few constraints on how to redesign rates within a class, so long as the total amounts paid do not reflect a rebalancing between classes.

- Per OIC 1995/90, there must be at least 2 rate blocks for retail rates with one rate block equalized throughout Yukon and one runout rate block that applies to all consumption over a particular level and provides for economy and efficiency (and need not be equalized throughout Yukon).

ISSUE: **Principles of Rate Design**

REFERENCE: **Application, Appendix 7.1, page 7.1A-11, Tab 4 YEC final and Tab 4 YECL Final**

PREAMBLE:

The City wishes to understand the proposed rate design principles underlying Options A and B residential rate design. The Utilities provided the following excerpt, attributed to Bonbright:

Yukon Briefing - November 4, 2009

Rate Design Principles (Bonbright)

- Recover revenue requirement;
- Recognize the cost of service as determined by cost studies and the cost of existing and future facilities to provide service;
- Avoid undue discrimination between rate classes and individual customers within each customer class;
- Consider the rate levels, structures and policies of other utilities, particularly those with similar load and service characteristics;
- Promote ease of understanding and acceptance by customers as well as ease of administration and economy of billing; and
- Recognize the level and structure of existing rates and their historical development.

The following is an excerpt from James C. Bonbright's Principles of Public Utility Rates (Second Edition, March 1988), citing the ten attributes of a sound rate structure:

Revenue-related Attributes:

1) Effectiveness in yielding total revenue requirements under the fair-return standard without any socially undesirable expansion of the rate base or socially undesirable level of product quality and safety.

2) Revenue stability and predictability, with a minimum of unexpected changes seriously adverse to utility companies.

3) Stability and predictability of the rates themselves, with a minimum of unexpected changes seriously adverse to ratepayers and with a sense of historical continuity (Compare "The best tax is an old tax.").

Cost-related Attributes:

4) Static efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:
    a) In the control of the total amounts of service supplied by the company; and
    b) In the control of the relative uses of alternative types of service by ratepayers (on-peak versus off-peak service or higher quality versus lower quality service).

5) Reflection of all of the present and future private and social costs and benefits occasioned by a service's provision (i.e., all internalities and externalities).

6) Fairness of the specific rates in the apportionment of total costs of service among the different ratepayers so as to avoid arbitrariness and capriciousness and to attain equity in three dimensions: (1) *horizontal* (i.e., equals treated equally); (2) *vertical* i.e., unequals treated unequally); and (3) *anonymous* (i.e., no ratepayers demands can be diverted away uneconomically from an incumbent by a potential entrant).

7) Avoidance of undue discrimination in rate relationships so as to be, if possible, Compensatory i.e., subsidy free with no inter-customer burdens).

8) Dynamic efficiency in promoting innovation and responding economically to changing demand and supply patterns.

Practical-related Attributes:

9) The related, practical attributes of simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application.

10) Freedom from controversies as to proper interpretation.

QUESTION:

a) Please confirm that the excerpt provided the Utilities in the November 4, 2009 briefing to the Yukon Government is not a quote from Bonbright but rather the Utilities' interpretation of Bonbright's attributes of a sound rate structure. If not confirmed, please explain fully.

b) Please provide a justification for the proposed Option A rate design based on Bonbright's ten attributes of a sound rate structure.

c) Please discuss what, if any, of Bonbright's ten attributes are not satisfied by Option A.

d) Please provide a justification for the proposed Option B rate design according to Bonbright's ten attributes of a sound rate structure.

e) Please discuss what, if any, of Bonbright's ten attributes are not satisfied by Option B.

f) Please discuss how the proposed Option A rate design promotes "stability and predictability of the rates, with a minimum of unexpected changes seriously adverse to ratepayers" (Bonbright's attribute No. 3).

g) Please discuss how the proposed Option B rate design promotes "stability and predictability of the rates, with a minimum of unexpected changes seriously adverse to ratepayers" (Bonbright's attribute No. 3).

h) Options A & B propose blocks for certain residential rate classes (1180 Hydro Gov, 1280 Sm Diesel Gov, 1380 Lg Diesel Gov, 1480 Old Crow Gov) that are not either consistently increasing or decreasing in nature, for example, the second rate block is greater than the first, but the third rate block is less than the second.
   i. Please provide the rationale for this inconsistency in the rate blocks.
   ii. Please indicate if YEC or YECL have had residential rate blocks of this type approved in the past. If yes, please specify.
   iii. Please explain if or how the proposed inconsistent rate blocks can be reconciled with Bonbright's rate design principle No. 3 which requires "stability and predictability of the rates themselves and have a sense of historical continuity."

i) Bonbright's attribute No. 10 states that there should be "freedom from controversies as to proper interpretation." The City notes YEC and YECL's disagreement in the interpretation of OIC 1995/90 as to how rate design should be implemented. Please reconcile how Option A can satisfy this attribute, given the differing interpretations between the Utilities.

ANSWER:

(a)

Yukon Electrical Response
Confirmed.

(b) and **(c)**

Yukon Energy Response
See also response to YUB-YEC/YECL-1-21.

Bonbright's criteria are above ordered under 3 headings: revenue related attributes, cost related attributes and practical related attributes.

In terms of revenue related attributes, the rate design provides for rates sufficient to collect the 2009 Consolidated Firm Rate Revenue requirement of $50.833 million and rate revenue requirement as approved specifically for Yukon Energy and Yukon Electrical.

The proposed Option A Rate also in its design reflects stability and predictability considerations. OIC 1995/90 requires runoff rates that reflect economy and efficiency (and based on past precedent this is based on the incremental cost of diesel). Setting the runoff rate at 80% of incremental cost (instead of the full incremental cost) of diesel allows for the required step towards economy and efficiency to be taken in a moderated fashion. Further, by adding an additional equalized rate block rate impacts are moderated and in effect smaller energy users receive net benefits due to lower rates. Should the IER be terminated at some future time, the first block rate decrease would moderate the impacts that would result.

The Option A rate design provides for a better efficiency price signal (compared to the current runout rate based off 1996/97 fuel prices and compared to Option B which is based on only 50% of the incremental cost of diesel).

However, as noted in the application, Bonbright principles related to the fair apportionment of total costs of service to ratepayers cannot be satisfied at this time due to the effects of OIC 2008/149 which prohibits rate rebalancing that would result in differing percentage rate changes for customer classes cannot be undertaken until after the OIC expires on December 31, 2012.

In terms of the practical-related attributes lists, Option A is based on a familiar Yukon stepped rate design with the exception that an additional equalized block as been added to address rate stability/rate shock considerations. In this sense the general framework of increasing rate blocks with one runoff block designed to provide an efficiency signal is familiar to ratepayers (and in this sense not controversial) and should be both understandable and acceptable and is within the ability of the utilities to administer.

All Bonbright criteria are addressed by Option A, with the exception of apportionment of costs, which is prohibited at the present time by OIC 2008/149.

(d)

Yukon Electrical Response

YECL's proposed Option B was designed based on the current rate design framework provided by OIC 1995/90, OIC 2008/149 and OIC 2207/94, as well as how the Companies and the Board have been guided by this framework in the past. As a result, there may be certain aspects of YECL's proposed rate design that are not entirely consistent with certain Bonbright's competing objectives. YECL attempted to balance, to the extent possible, the current rate design framework and some of the key principles espoused by Bonbright.

(e)

Yukon Electrical Response

Points 6 and 7 may not be consistent with OIC 2008/149 regarding inter-class rebalancing.

Yukon Energy Response

No rate option can satisfy all of the criteria simultaneously, by definition. Yukon Energy's view of Option B as set out by YEC in Tab 4YEC, is a rate design with the primary attribute of criteria 2 in mind (rate stability), in this case the maintenance of rates largely unchanged at this time for nearly all customers.

In terms of Bonbright's criteria, Option B most notably fails criteria 4 and 5, which seek to ensure that private decisions made about electrical consumption provide for a balance of encouraging "justified types and amounts of use" while "discouraging wasteful use" and seeking to ensure all costs and externalities are part of the price signal.

In Yukon, the power system is fundamentally comprised of two "tiers" of generation:

- Low cost renewable heritage generation, which has a limited quantity available, and is being effectively fully consumed at the load levels existing or forecast in the near future.

- High cost, GHG emitting diesel generation which will become an increasingly prominent portion of grid supply. New renewable developments, such as new hydro and wind, may become available to offset portions of this diesel generation, but these new sources will almost certainly be much higher cost than the heritage generation and will not offset 100% of the diesel generation that will become part of grid supply.

The framework of OIC 1995/90 recognizes this reality, by its imposition of a "blocking" structure. In short, the OIC serves to ensure that, for a reasonable quantity of power (e.g., for not less than 1000 kW.h per month of usage for residential customers) the benefits of the heritage generation will be shared throughout Yukon to all non-government customers. This is consistent with Bonbright's concept of "justified types and amounts of use". The OIC also requires a runoff block focus on efficiency, or what Bonbright has described as "ensuring all costs and externalities are part of the price signal" particularly as part of discouraging any "wasteful use". The OIC runoff rate framework, combined with past utility proposals and Board decisions, aligns with the higher cost resources (particularly diesel) that become increasingly part of the grid load into the future.

It is YEC's view that, Option B fails to reflect any of these principles. First, Option B does not reflect the higher cost "internalities" (and no attempt has been made to incorporate non-financial externalities) of the future supply sources being driven by load growth, by failing to propose an efficient runoff rate design. Second, the option also does not reflect the rate benefits of recent initiatives and investment in enhancing the heritage assets (such as the benefits of CSTP) within the first block, where Yukon policy targets that such benefits should accrue and be shared throughout Yukon for all ratepayers.

(f)

Yukon Energy Response

Please see part (b) and (c) above.

(g)

Yukon Electrical Response

As noted in response to CW-YEC/YECL-1-12 YECL believes that its proposed Option B, which is based on a lesser percentage of 50% of incremental cost, is considered more reasonable at this time, as it will help provide stability and allow further adjustments to rates when more accurate signals showing how costs move with usage are identified.

Please refer to YUB-YEC/YECL-1-24 for YECL's explanation of its proposed Option B including the estimated rate impact for residential and general service rate classes.

(h)

Yukon Energy Response

The rate schedules noted in the question apply only to a very small class of Government Residential ratepayers. These rates are only at the levels noted due to the practical requirement that the first block must recover the necessary level of revenue from the class after the higher block rates have been designed, and that there was a desire to maintain continuity between Non-Government and Government rates to the extent possible.

This situation is not uncommon and has been approved in the past – e.g., the present rates for Government Residential have lower runoff rates than first block rates (while most other classes have higher priced runoff rates than first block rates), due to the same factor (the first block must recover the total target revenue from the class, after the second block rates have been set based on efficiency principles).

Yukon rates have not previously implemented a specific three block structure (previous rate design as been 2-block structure with the first block equalized and the second (runoff) block based on the incremental cost of diesel).

Yukon Electrical Response

i) The inconsistency refers to the increasing or decreasing values of the blocks, but the approach is consistent with OIC's 1995/090 and 2008/149.
ii) YECL is not aware of it having similar blocks in the past.
iii) Please refer to part (g).

(i)

Yukon Energy Response

Neither Option A nor Option B would be difficult to apply or give rise to any controversy in terms of interpretation of the rate schedule. Any ratepayer reviewing the rate schedule would be well aware of the price for power, by month.

Any regulatory rate proceeding is designed to address differing views, which are taken into account by regulatory tribunals in approving a single rate design.

ISSUE: **Principles of Rate Design - General Service**

REFERENCE: **Application, Tab 4 YEC final and Tab 4 YECL Final**

PREAMBLE:

The City wishes to understand the proposed rate design principles regarding Options A and B General Service.

QUESTION:

a) Please explain why YEC has proposed rate blocks for certain general service rates (2160 Hydro NG, 2260 SM Diesel NG, 2360 Lg Diesel NG, 2170 Hydro Municipal, 2270 Sm Diesel Municipal, 2370 Lg Diesel Municipal, 2180 Hydro Gov, 2280 SM Diesel Gov, 2380 Lg Diesel Gov) that are not either consistently increasing or decreasing in nature. (For example, the second rate block is greater than the first, but the third rate block is less than the second).

b) Has YEC had general service rate blocks of this nature approved in the past? If so, please specify.

c) Please explain the role of YEC trying to satisfy OIC 1995/90 in the proposing of these inconsistent rate blocks.

d) Please explain how the proposed inconsistent rate blocks in Option A are reconciled with Bonbright's rate design principle No.3 (cited in the preamble of the previous question) which requires 'stability and predictability of the rates themselves and have a sense of historical continuity.'

e) Please explain why YECL has proposed rate blocks for certain general service rates (2160 Hydro NG, 2360 Lg Diesel NG, 2170 Hydro Municipal, 2370 Lg Diesel Municipal, 2180 Hydro Gov, 2380 Lg Diesel Gov) that are not either consistently increasing or decreasing in nature).

f) Has YECL had general service rate blocks of this nature approved in the past? If so, please specify.

g) Please explain the role of YECL trying to satisfy OIC 1995/90 in the proposing of these inconsistent rate blocks.

h) Please explain how YECL's proposed inconsistent rate blocks are reconciled with Bonbright's rate design principle No.3 (cited in the preamble of the previous question) which requires stability and predictability of the rates themselves and have a sense of historical continuity.

ANSWER:

(a) and **(b)**

With respect to government rate classes, see CW-YEC/YECL-1-14(h).

With respect to non-government rates, the situation reflects consistently increasing blocks, with the exception of the few very large customers who use into the new runoff block “Block 3A”. For a description of the rate design criteria applied to Block 3A, please see Tab 4YEC, page 28, lines 18-24.

The current approach is designed to achieve a number of rate design goals and is considered the first necessary step in a staged approach to rate design for the largest customers in the general service class, that combines the requirement for a further rate block (to mitigate impacts of the higher incremental runoff rate on first and second block energy rates) and provides for an orderly process for separating the non-homogenous general service class into two subclasses at a future date.

To address rate design requirements for large users (e.g., those general service customers with typical monthly use in excess of 20,000 kW.h), the approach in this Application defers establishing a separate rate class for large users. At this time, as an interim measure until the next GRA, the proposed rate design provides for a fourth energy rate block for use in excess of 20,000 kW.h/month. The proposed energy rate for this fourth “large user” rate block reflects status quo current effective runoff rates in each zone (with Rider J and R). The overall result is that the establishment of a separate runoff rate block charge for general service large users is deferred.

(c) and **(d)**

The application discusses how the GS non-government rate block structure is consistent with the rate policy direction provided in OIC 1995/90.

1. New non-runoff blocks can be considered subject to ensuring that rates within each such new non-government retail rate block are equalized throughout Yukon.

2. Variation is allowed for separate runoff energy rate blocks in different communities or rate zones provided such rates are fixed for each community or zone based on the same rate design principles.

3. A runoff rate must be set that provides for economy and efficiency (this rate applies to all consumption over a particular level and cannot initiate for usage below a particular level).

For all but approximately 109 of the largest GS customers who consume over 20 MW.h in a month (on the order of 3% of overall GS customers), the rate design in all practical respects parallels the residential three block rate design with the third block linked to either 50% (Option B) or 80% (Option A) of the incremental cost of diesel.

(e)

The first 3 energy blocks increase while the fourth block, consumption >20,000 kW.h, decreases. The companies realize there is greater diversity in the General Service rate classes and that by having a runoff block equivalent to the 3rd block rate, very few customers with consumption >20,000 kW.h would experience a large rate impact. This leads to the future consideration of a possible separate General Service Large User rate class as stated on PAGE4YECL-5. Also, please refer to YUB-Companies-12(b) for an explanation why YECL believes the manner in which its proposed blocking arrangement has been designed is appropriate.

(f)

Under the current approved rates, General Service Non-Government rates have a 2 block (tier) energy structure with an increasing 2nd energy block. The structure for the Government rates are also 2 tiered with some rates having a higher 2nd block, while other General Service Government rates have a decreasing 2nd block due to the nature of linking the second block to the incremental cost of diesel. This Application proposes to increase the number of energy blocks from 2 to 3.

(g)

Large General Service customers (monthly consumption > 20,000 kW.h) are being impacted by changes to the first 20,000 kW.h while keeping the same impact as the current rates > 20,000 kW.h. The companies believe the blocking structure and rates meet OIC 1995/010 at this time until the future consideration of a possible separate General Service Large User rate class as stated on PAGE4YECL-5.

(h)

The companies have stated that it is the balancing of these principles (PAGE7.1B-12 slide 25) and not the priority or reconciliation of these principles that is the end goal. YECL believes that the net outcome for large users, who are primarily in the Hydro Zone, are relatively the same in Option B, thus providing stability for these customers. Please refer to YUB-YEC/YECL-1-24a which sets out the rate impact for residential and general service customers under Option B.

ISSUE: **Rate Design**

REFERENCE: **Application, Tab 4 YEC and Tab 4 YECL**

PREAMBLE:

The City wishes to understand the Utilities' consideration of the effect the proposed changes to rate design will have on customer behaviour.

QUESTION:

a) Please confirm that YEC's forecasts for billing determinants for all rate classes are the same for existing rates as compared to the scenario where Option A rates are adopted. If not confirmed, please explain.

b) Please confirm YEC and YECL's forecasts for billing determinants for all rate classes are the same for existing rates as compared to the scenario where Option B rates are adopted. If not confirmed, please explain.

c) Please provide all studies undertaken to help understand or project the price elasticity of demand for the residential non-government class.

d) If no studies have been undertaken, please provide the support and rationale for the position that billing determinants will not change as a result of the Board adopting Option A rates.

e) If no studies have been undertaken, please provide the support and rationale for the position that billing determinants will not change as a result of the Board adopting Option B rates.

f) Does YEC generally consider Yukon residential customers to be environmentally sensitive, aware of price and rate changes and prudent consumers?

g) Please provide YECL's response to (f).

h) Given YEC's assumption in (a), please comment on the fairness or unfairness of imposing rate increases on residential second block customers that YEC assumes these customers have no ability to respond to by reducing their consumption.

i) Please confirm that the objective of providing a proper price signal through rates is to elicit a behavioural response from customers. If not confirmed, please explain the purpose of providing a proper price signal.

j) What does YEC seek to accomplish in proposing a rate design such as Option A to attempt to move toward the proper "price signal" while at the same time assuming there will be no change in consumer behaviour resulting from it?

k) Please provide YECL's answer to (j) as it pertains to Option B.

l) Please explain why YEC has set the proposed Option A residential run-off rate at only80% of the incremental cost of diesel rather than 100% as proposed by some intervenors at the December 15, 2009 workshop.

m) Please explain why YEC has set the proposed Option B residential run-off rate at only50% of the incremental cost of diesel rather than 100% as proposed by some intervenors at the December 15, 2009 workshop.

ANSWER:

(a)

Confirmed.

(b)

Confirmed.

(c) to **(e)**

Yukon Energy Response

No specific studies have been undertaken by the Companies on price elasticity of demand for electricity in Yukon. The appropriate studies require availability of extensive historical data on non-inflationary electricity price changes, net of any subsidies to reduce the overall bills. Surveys on theoretical behavior of consumers if there is a price change are not reliable for determining the appropriate elasticity values.

A number of studies on price elasticity for electric consumption undertaken in the US have demonstrated that for basically all types on consumers, the range of elasticities varies dramatically by market. Power use is far more elastic in California, for example (particularly for heating) than in North Dakota.

It is important to note that electrical consumption patterns are difficult to change in the short run, but they are price elastic in the long run. Studies undertaken for Manitoba Hydro in 2004 further support that long run elasticities are higher than short run elasticities (which are at best very low), which is in line with the fundamental theory on price elasticity.

Yukon Electrical Response

No studies were undertaken.

The forecast billing determinants used for the 2009 test year in this application will not change. The approval of the forecast billing determinants during the Phase I applications for both companies is made prior to any Phase II rate design considerations.

(f)

Yukon residential customers are expected to vary greatly in their perspectives and understanding of the noted matters.

(g)

YECL can only speculate on how the consumption patterns of any customer or group of customers would change in response to a price change. In general, YECL considers

Yukon residential customers to be environmentally sensitive. YECL is uncertain how this would translate into a response to price and rate changes.

(h)

The question as noted contains incorrect suppositions and assertions. Part (a) of this question is in regards to elasticities. It does not indicate the degree to which customers have or do not have the *ability* to respond to price changes. Elasticities measure the degree to which customers have the *tendency* to respond to price changes. In any event, under Option A which is YEC's preferred approach, most second block residential customers in fact see bill decreases, not increases (70% of customers only use first block power, of the 30% who use second block power, 2/3 would see lower bills under YEC's Option A than at present – it is only the top 10% of users who would see higher bills). Further, even for large second block consumers (1500 kW.h - the 90th percentile for usage) while their bill will remain the same, their opportunity to save from conservation measures will go notably up from the situation at present. For example, if a 1500 kW.h customer reduced their load to 1250 kW.h/month, under present rates their bill would be reduced by $32.67 (including all taxes and riders), while under Option A rates their reduction would be $38.82, an increased savings of 18.8%. This type of effect can notably improve the potential for the customer to invest in energy efficiency initiatives and related measures and see economic returns. In short, even at the 1500 kW.h level – well into the second block – Option A provides benefits to customers beyond the current rate design or Option B.

It is also important to note that there are two types of efficiency that are discussed in terms of rate designs:

- Economic efficiency; and

- Environmental efficiency.

Economic efficiency is obtained by reflecting the true cost of generation in the electricity price (marginal price for power equals marginal cost for the generation to produce the power). This ensures the efficient pricing of resources and the customers receive a proper price signal as to the true cost of power they are consuming in each consumption block.

Environmental efficiency as a more general concept may relate to various interpretations as to the environmental awareness of customers (as noted in part (f) of the question), but is not sufficient nor appropriate as a test in terms of implementing OIC 1995/90.

(i)

Not confirmed. Sending the proper price signal gives the customer the signal or information to make an informed decision or choice. Customers must weigh the cost/benefit advantages and what it considers to be important (i.e., economics, price, practicality and environment).

(j)

Please see response to (h) above.

(k)

Please refer to YUB-YEC/YECL1-22 and 24.

(l)

Increasing retail runoff rates to reflect 80% of the incremental cost of diesel at this time stops short of moving fully to 100% at this time; however, as noted in CW-YEC/YECL-1-19(a) that option may still exist. In any event, Option A as proposed still achieves notable rate decreases to the first block rates in each retail class, while ensuring that appropriate price signals are provided to consumptions at higher levels to promote economy and efficiency.

As noted at page 4YEC-19 of the Application, initial consideration was given to using 100% of diesel as well as lesser percentages. However, given that runoff rates had not been adjusted since the 1996/97 GRA (and were based on dated and materially lower fuel prices) it was determined reasonable at this time to provide for a step-increase to begin to provide a reasonable linkage to incremental cost.

(m)

Please refer to YUB-YEC/YECL-1-22 and 24. Please see CW-YEC/YECL-1-19.

ISSUE: **Rate Design**

REFERENCE: **Application, Tab 4YECL, p.4YECL-4**

PREAMBLE:

YECL states:

A lesser percentage of 50% of incremental cost was considered more reasonable at this time due to:

- Limits related to inter-class rate balancing (i.e., OIC 2008/149);
- Reducing rate shock impact across customer classes;
- Avoidance of undue discrimination; and
- Allowing further adjustments to rates when more accurate signals showing how costs move with usage is identified.

QUESTION:

a) For each bullet, please why YECL believes the higher percentage (80% of incremental cost proposed in YEC Option A) is considered less reasonable.

b) Please fully explain YECL's concern with rate shock in YEC's proposed Option A rates.

c) Please expand on how YECL believes that the lesser percentage of 50% will help avoid undue discrimination.

d) Is YECL aware of the existence of undue discrimination in current rates that will be worsened by the proposed Option A rates?

ANSWER:

(a)

Please refer to YUB-YEC/YECL-1-24. YECL points out that in the Residential Non-Government class Option A block 1 energy rate decreases while the class is at 78.9% R/C and the customer charge is at 38.8% R/C. YUB-YEC/YECL-1-24 Figures 1-4 demonstrate the rate shock impact across customer classes.

(b)

Please see YUB-YEC/YECL-1-24 Figures 1-4 that illustrate rate shock impact across customer classes. YECL is concerned with the range of rate shock impact considering no inter-class rebalancing is allowed at this time.

(c)

The 50% of incremental cost of diesel as a runoff block allows the first energy block to remain at what is currently seen by all customers. As the runoff block increases, something must decrease and in Option A this is the block 1 energy charge. As inter-class rebalancing is allowed and fixed components move to 100% R/C all customers will see an increase in the first block charge, not a decrease.

(d)

Please refer to YUB-YEC/YECL-1-24 for an explanation of why YECL's proposed Option B rate design will result in less rate discrimination than Option A.

Current customer charges in Residential rates, no customer charge in General Service rates and General Service Demand rates are below 100% R/C ratios. YECL's proposed Option B increases the rate components after reflecting the increase caused by Rider J and R since inter-class rebalancing is not allowed. As noted in YUB-YEC/YECL-1-24, YECL believes that Option A produces inequitable price signals. Ultimately, a consumer's usage decision should reflect their tradeoff between the value that they receive from electricity and the price they have to pay. If the price of electricity a customer pays is linked to incremental costs that are not being incurred on the system, YECL views this as providing inefficient and inequitable price signals to customers.

ISSUE: **Rate Design**

REFERENCE: **Application, Tab 4 YECL**

PREAMBLE:

The City desires to understand YEC's position on YECL's comments.

QUESTION:

a) Please provide YEC's comment on the following comments by YECL, particularly, how YEC agrees or disagrees with each comment and why. Please explain fully.

   i. Important rate design matters need to be fully examined and understood in the context of ensuring a fair and reasonable approach is taken towards sending the right price signals to customers. Such issues include: understanding homogeneity of residential customers, estimating elasticity and customer discretionary use across the rate classes, understanding customer response to a proposed rate change, and reflecting more accurate cost based signals in the base rates when current OIC's expire (p.4YECL-11).

   ii. Proposing significant changes to the current residential blocking structure without assessing residential price elasticity's throughout customer consumption levels to predict energy and revenue impact to Yukon Electrical would not be prudent in a cost environment when surplus hydro generation serves the vast majority of customers' base load. In addition, once OIC 2008/149 expires and interclass rebalancing is allowed, Yukon Electrical will be in a position to address the fair apportionment of costs, which is a critical component in the rate making process to establish more effective "economy and efficient" rates (p.4YECL-14).

   iii. Proposing significant changes to the current general service rate structure and rate levels without assessing general service price elasticity's throughout customer consumption levels to predict energy and revenue impact to Yukon Electrical would not be prudent in a cost environment when surplus hydro generation serves the vast majority of customers throughout the day and foreseeable future (p.4YECL-18).

b) Please fully discuss why YECL does not accept YEC's proposed Option A rate structure and assumptions behind it.

c) Please explain how Option A can be put forward by YEC as a feasible rate design alternative in light of receiving no support for it from YECL.

d) Please discuss how, if at all, any difference between the two Utilities' respective interpretations of "economy and efficiency" may have factored into the difference of opinion regarding Option A.

e) Please discuss how, if at all, any difference between the two Utilities' respective reading of the necessary level of compliance with OIC 1995/90 may have factored in to the difference of opinion regarding Option A.

f) Please discuss how, if at all, any difference between the two Utilities' respective opinions regarding the relative importance of OIC 1995/90 compared to other rate design criteria may have factored in to the difference of opinion regarding Option A.

ANSWER:

(a)

In general, Yukon Energy agrees that relevant and important rate design matters need to be fully and fairly examined as part of any rate change. This is the specific and practical purpose of a major and costly Phase II proceeding as is now underway.

YECL’s comments indicate 4 such factors they believe to fit into the category of items that must be fully understood before any notable rate design changes are pursued (homogeneity, elasticity, customer response, and more cost-based signals after OICs expire). Of the four, there is no proposal on the table today to actually investigate the first 3 which fundamentally relate to elasticities. There has never been a Yukon specific elasticity study conducted, and it is not apparent that YECL proposes any such study (which is reasonable – even most large southern jurisdictions many times larger than Yukon cannot justify the cost or complexities of doing their own such studies on their customer loads). As a result, it is not apparent how or if YECL would ever see Yukon be in a place to re-establish rates that have traditionally existed, that are based on the principles directed by the Board in 1992 (after detailed study), and that properly meet the OIC requirements.

On the fourth item noted (cost-based signals, as linked to the current time-limited OICs), the basic contention is that rates should not be adjusted today in the manner proposed under Option A, and should only be so adjusted in future in circumstances where the government has permitted the Board (via expiry of the noted OIC) to rebalance rates so as to raise rates to residential-non-government customers, simply so rates to primarily government accounts can be lowered (in order to bring R/C ratios back closer to 100%). This is in no way a persuasive argument to YEC for delaying all action on starting to establish reasonable efficiency price signals today as an outcome of the current hearing process (via adoption of a rate similar to Option A). In the event the scenario set out by YECL does in fact occur, and non-government residential rates are suggested by YECL to be raised overall by a large number (approximately 25%), this objective may in fact make it more difficult to, at the same time, target efficiency in runoff rates since the confluence of rate impacts on certain customers may be beyond advisable levels.

In addition, Yukon Electrical's assertion that "surplus hydro generation serves the vast majority of customers throughout the day and foreseeable future" is patently incorrect. The full recent Mayo B Part III hearing, and Board Report on that proceeding, confirmed, in effect, that the era of "surplus" hydro is over. Major investment is now required in generation, such as Mayo B, and even with this new generation reasonably foreseeable loads in the next few years will drive diesel "on the margin". In addition, diesel continues to be on the margin today in all isolated communities, including Watson Lake. The basic premise for diesel being on the margin is that, simply put, there is no surplus baseload hydro available. In these foreseeable conditions almost any load changes by any customer or class either drives the need for diesel generation at the time of consumption, or requires release of stored water at the time of consumption that drives a need for added diesel generation at a later time when this water would otherwise have been available for generation, absent the noted load.

In short, Yukon Energy does not view YECL's comments to set out any persuasive or fact-based rationale for delaying all action today on providing efficiency signals to customers consistent with longstanding Yukon practice, and meeting the requirements of OIC 1995/90.

(b)

Please see YUB-YEC/YECL-1-24.

(c)

Please see CW-YEC/YECL-1-19 for a review of YEC's position on Option A. The determination as to the appropriate rate design is a matter for the Board to conclude. This determination must meet OIC requirements imposed on the Board, and is fundamentally a balancing of concerns and interest among the ratepayers in a class. In YEC's view Option A is the best alternative available to meet these various objectives, notwithstanding that YECL or other interested parties may have other views.

(d)

Please see CW-YEC/YECL-1-19(d).

(e)

Please see CW-YEC/YECL-1-19(e).

(f)

Please see CW-YEC/YECL-1-19(f).

ISSUE: **YEC/YECL Rate Design - Options A & B**

REFERENCE: **Tab 4 YEC final and Tab 4 YECL Final**

PREAMBLE:

The City wishes to understand the difference in position between YEC and YECL.

QUESTION:

a) Does YEC prefer Option A or Option B, or are both rate design options equally acceptable? Please provide a rationale for the answer.

b) Please fully discuss why YECL does not accept YEC's proposed Option A rate structure and assumptions behind it.

c) Please explain how Option A can be put forward by YEC as a feasible rate design alternative in light of receiving no support for it from YECL.

d) Please discuss how, if at all, any difference between the two Utilities' respective interpretations of "economy and efficiency" may have factored into the difference of opinion regarding Option A.

e) Please discuss how, if at all, any difference between the two Utilities' respective reading of the necessary level of compliance with OIC 1995/90 may have factored in to the difference of opinion regarding Option A.

f) Please discuss how, if at all, any difference between the two Utilities' respective opinions regarding the relative importance of OIC 1995/90 compared to other rate design criteria may have factored in to the difference of opinion regarding Option A.

ANSWER:

(a)

Yukon Energy strongly prefers Option A over Option B.

In summary, Yukon Energy's view on these two options is as follows:

- YEC views Option A is a far superior rate design today relative to Option B, as it restores a process for rate design adjustments (after a 12 year period when no rate adjustments could take place) rather than retaining a status quo that no longer reflects current system conditions or near term trends. In this regard, Option A complies clearly with the Order-in-Council directives to the Board and past practice for rate design in Yukon under such Orders-in-Council, and has a much stronger long-term price efficiency signal to ratepayers at a time when diesel generation is once again becoming relevant on the margin in the hydro rate zone as well as continuing to be relevant in the various diesel rate zones.

- YEC's key reason for providing Option B in Tab 4YEC was illustrate for the Board the range of options considered by the utilities in the time available for the filing. In YEC's view, however, Option B's only underlying attribute is that it leads as a result of the Phase II process to basically no change in rates for almost every customer in Yukon. After 12 years when diesel prices have more than tripled without any rate redesign occurring in Yukon, this seems like a poor outcome were it to arise after all of the costs and effort put into the current proceeding.

As noted in the application, it was not YEC's intention to limit the Board (or intervenors) to pick one of the two above options. After a long period without review of rate design matters, the utilities were not able within the time available to agree on one joint proposal. The utilities' submission documented the situation at the time of the filing.

To elaborate on the matter of Order-in-Council compliance as well as past practice in Yukon, the key consideration is that OIC 1995/90 requires that runoff rates must be based on principles that "promote economy and efficiency". This directive has consistently in Yukon (back to at least the 1992 Rate Design hearing) been understood to mean that runoff rates must reflect at least the short-run incremental costs of running diesel generation, if not higher (i.e., discussion at various times also considered adding in extra factors to account for long-run costs of diesel, such as capital investment). This same principle was even applied in 1993/94, notwithstanding that there was no forecast diesel generation on WAF or the Mayo system (loads in each case were much lower than today). Further, this OIC requirement is not unusual in the context of normal rate design principles – as reviewed in past YUB hearings and decisions, proper rate design considerations in any power jurisdiction (with or without an OIC requirement) should try to target runoff rates which are not below the utilities' short-run marginal cost.

Arguably, the OIC as consistently interpreted only permits rate designs as regards runoff rates that are no lower than 100% incremental diesel (and potentially somewhat higher). However, in developing Option A with runoff rates at 80% of approved short-term diesel generation costs, the utilities took into account the need for some transitional considerations (which is consistent with normal rate design principles), and also recognized that diesel prices today are somewhat below the level approved for the 2009 test years for the utilities. It is recognized that the Board could also consider, based on past practice, the option of setting runoff rates at 100% of the approved short-term diesel generation costs.

Option B was developed much later in the discussions between the utilities, and reflects an approach focused almost entirely on rate stability. In effect, few customers will see any rate impact at all from the implementation of Option B beyond a few impacts related to adjustments to non-runoff rates. For example, for residential customers the effect as shown in Appendix 4.1B YEC, Table B4.4, indicates that the only customers seeing any notable rate change from implementing Option B are those who use between 1000 and 2500 kW.h per month or more in the Small Diesel and Old Crow zones, who see reductions of up to 11% (Small Diesel) or 50% (Old Crow) - there are few to no customers actually in these ranges today in these rate zones.

(b)

In YECL's view Option B was provided as a reasonable rate design proposal under the circumstances that exist today in Yukon. In YECL's view, Option A leads to inappropriate price signals relating to costs that are seldom incurred (or even forecasted to occur) on the system today and in the near future. The difference that has arisen from the current costing environment is that in the past, due to the large industrial load associated with the Anvil Range Mine, diesel generation was on the margin throughout the year. That is not the case today. For a more detailed response regarding YECL's views on the two Options, please refer to YUB-YEC/YECL-1-24.

(c)

At the end of the day, it is the Board that must determine what rates are just and reasonable and meet all the appropriate tests of rate design and rate policy in the OICs and normal rate design principles. While the utilities clearly have useful input to this deliberation, each option as presented in the application is designed to collect the approved revenue requirement, and any alternative approved by the Board will also need to meet this requirement.

Yukon Energy's reasons for providing and preferring Option A are set out in response to (a) above. The option was developed through extensive joint discussion with YECL to balance the rate design principles and considerations relevant in Yukon today, and to assist the Board in its current review.

Yukon Energy understands YECL's primary objections to Option A to be related to two reasons: 1) YECL indicated that in their view it is not clear that baseload diesel generation is indeed part of the grid supply mix in the near future, and 2) Option A is viewed by YECL as providing an adverse rate impact on certain users, notably residential customers above 2500 kW.h and also General Service customers in the range of 20,000 kW.h/month. Yukon Energy's response to these 2 concerns is as follows:

1) Diesel generation remains the **only** source of supply in each of the diesel rate zones and there is no basis today for failing to recognize this reality.

2) The YUB's review and recommendations regarding YEC's Part 3 application for Mayo B reflect fully how soon the return of baseload diesel is expected to occur on the integrated hydro rate zone grid. Mayo B will be in service by late 2011, but, based on evidence reviewed by the Board during the Mayo B Part 3 hearing, this measure alone will not offset the return of baseload diesel given load growth currently expected to occur over this period. While many other measures are being pursued, including system enhancements and potential DSM programming, as well as the next set of new generation options, these also are

not expected to offset the imminent baseload diesel requirements in any near-term period.

3) Yukon Energy's Appendix 4.1A, Table A4.4 indicates that less than 2% of residential customers use above 2500 kW.h/month in a year (the new runoff rate block proposed in the current application). The average consumption is approximately 700 kW.h/month. While rate impacts for the few customers in the runoff rate block may be notable, it is not uncommon or unreasonable to design rates in a manner that accepts such outcomes. Further, these very large users have seen no change in rate design for over 12 years, during a period when other energy costs, such as heating oil and diesel have tripled.

4) With respect to GS customers, it is only customers at precisely 20,000 kW.h/month who see the largest impacts, and the rate impacts decline above this level (see Table A4.7 in Appendix 4.1YEC), such that the impacts similarly affects only a very small percentage of customers of the very large size range.

(d)

Yukon Energy Response

The utilities did experience a difference of view on the matter of "economy and efficiency" in two notable ways (see below), and this factored into the difference of opinion noted. However, this was not the sole factor underlying the divergence of views on Option A versus Option B; there were also differing views as to whether any material rate changes were advisable at the current time.

With respect to the two factors underlying the definition of "economy and efficiency":

- First, in Yukon Energy's view, the OIC definition of "economy and efficiency" is clearly intended (and has been consistently interpreted) to mean economic efficiency, from a quantitative point of view – i.e., the costs for incremental usage above certain thresholds should equal the cost for incremental supply. In YEC's view, this definition has not to date been read as a generic, qualitative judgment as to whether Yukoners are responsible users of power (in terms of being efficient or inefficient in their usage of electricity).

- Second, in Yukon Energy's view, economic efficiency must recognize the marginal cost of supply at the present and into the near future, which means diesel on the margin. The utilities differ in their view as to the likelihood of load growth, and the resulting likelihood of diesel being on the margin in the future.

- YECL is uncertain what the production requirements will be on an incremental basis in the near future to meet the proposed load forecast demands. This is the reason why YECL proposed a new Rider D to facilitate events when diesel generation is brought on line. The fact that diesel generation was not forecasted did not provide any reasons to YECL to reflect anything more than 50% of the cost of diesel today.

Yukon Electrical Response

Please refer to YUB-YEC/YECL-1-22 and 24.

(e) and **(f)**

The utilities agree that the Board is required to comply with OIC rate directives.

ISSUE: **YEC Rate Design - Option A**

REFERENCE: **Tab 4 YEC final and Tab 4 YECL Final**

PREAMBLE:

The City wishes to more fully understand the proposed Option A and Option B.

QUESTION:

a) Please provide the rationale for YEC believing that increasing the existing residential non-government run-off rate to the proposed level of 80% of the incremental cost of diesel should be implemented at one time rather than phasing in the change over several years.

b) Please provide YECL's definition for "economy and efficiency" as put forth in OIC 1995/90.

c) Please reconcile YECL's definition in (b) above with YECL's proposed rate design.

d) Please describe the level of urgency and importance YECL assigns to the idea of complying with OIC 1995/90?

e) If the answer to part (d) above is that complying with OIC 1995/90 is urgent and important, why does YECL's rate design proposal intend to set the residential non-government run-off rate at only 50% of the price of the incremental cost of diesel?

f) If the answer to part (d) above is that complying with OIC 1995/90 is not urgent and important, why does YECL propose that rates be changed at all? What benefit is derived from this change, as opposed to maintaining the same rates until the OIC's expire on December 31, 2012?

g) Please provide YEC's definition for "economy and efficiency" as put forth in OIC 1995/90.

h) Please reconcile YEC's definition above with YEC's proposed rate design Option A.

i) Please reconcile YEC's definition above with YEC's proposed rate design Option B.

j) Please describe the level of urgency and importance YEC assigns to the idea of complying with OIC 1995/90?

k) If the answer to part (j) above is that complying with OIC 1995/90 is urgent and important, why does YEC set the residential non-government run-off rate in Option B at only 50% of the price of the incremental cost of diesel?

l) If the answer to part (j) above is that complying with OIC 1995/90 is not urgent and important, why does YEC propose that rates be changed at all? What benefit is derived from this change, as opposed to maintain the same rates until the OIC's expire on December 31, 2012?

ANSWER:

(a)

In YEC's view, the proposal provided in Option A (i.e., to provide for a runoff rate increase to 80% of the 2009 incremental cost of diesel) is a step increase towards reflecting the full cost of diesel. As noted in the discussion at page 4YEC-19 of the Application, initial consideration was given to using 100% of 2009 incremental cost of diesel as well as lesser percentages. As noted in the Application at page 4YEC-9 and in response to CW-YEC/YECL-1-12(h) and (i), Option A (which sets the runoff rate at 80% the cost of diesel) and Option B (which sets the runoff rate at 50% the cost of diesel – effectively no change from the rates in place today) provide the Board with a range of potential rate adjustment options relevant for consideration at this time.

In YEC's view it is necessary to begin to make material progress towards restoring economy and efficiency in runoff rate design for retail customers for two reasons: (1) Rates have not been updated for 12 years, notwithstanding that OIC 1995/90 requires that runoff rates promote economy and efficiency (and the Board has previously determined that this is to be realized through runoff rates that reflect the incremental cost of diesel); and (2) with diminishing surpluses and expected requirements for baseload diesel generation in the near term and over the longer term on the system it is imperative that consumers begin to receive an appropriate price signal based on the systems changed costing environment. Setting runoff rates at 80% of incremental costs is a first necessary step over the near term in meeting these requirements.

(b)

Please refer to YUB-YEC/YECL-1-22 and YUB-YEC/YECL-1-24.

(c)

Please refer to YUB-YEC/YECL-1-22 and YUB-YEC/YECL-1-24.

(d)

OIC 1995/90 defines the Yukon Government policy regarding rate design. YECL and YEC have put forth a joint application that has 2 options that YECL feels meets OIC 1995/90. YECL considers that it must comply with OIC 1995/90. Not complying with OIC 1995/90 may result in the Board not approving the joint Phase II application.

(e)

Please refer to YUB-YEC/YECL-1-22 and YUB-YEC/YECL-1-24. YECL believes that it has put forth a rate design proposal which captures the spirit of “economy and efficiency”, reflects short-run incremental costs, is consistent with past history of Yukon rates and has a good foundation for future rate designs.

(f)

YECL believes that a moderate adjustment, based on the proposed Option B, at this time is appropriate without resulting in significant rate swings. YECL has also introduced its Rider D to facilitate the approved deferral treatment to recognize the differences between the actual purchases of energy requirements when diesel is on the margin and forecast collection of costs from customers.

(g)

YEC's definition of economy and efficiency is based on past practice and prior Board recommendations and precedents in Yukon. This includes the definition provided by the Board in its 1992 Report on Cost of Service and Rate Design. Recommendations related to economy and efficiency in runoff rate design were subsequently reviewed and approved by the Board in Order 1993-8 and 1996-7.

In the 1992 Report (at page 37) the Board noted "it considers the efficient use of electricity to be the optimal use of electricity over time, where consumers are making rational decision regarding the future and current use of electricity." Based on findings in this report (i.e., that runout rates for all zones should be adjusted to reflect short-run incremental costs"), and based on subsequent Board Orders accepting this premise, "economy and efficiency" has been promoted in Yukon runoff rate design through runoff rates that reflect at least the short run incremental generation costs. In all prior GRA reviews this was based on the cost of diesel in each rate zone plus provision for short run incremental O&M costs for diesel generation.

(h) and **(i)**

With regard to YEC's proposal in this application, please CW-YEC/YECL-1-19(a).

Neither Option A nor Option B perfectly reflect the incremental cost of diesel (both are too low); however, the options provide the Board with the range of potential rate adjustment options relevant for consideration at this time. As noted in (a) above, initial consideration was given to using 100% of 2009 incremental cost; however, given that runoff rates had not been adjusted since the 1996/97 GRA (and were based on dated and materially lower fuel prices) it was determined reasonable at this time to provide for a step-increase to begin to provide a reasonable linkage to incremental cost.

(j)

OIC 1995/90 is a rate policy regulation enacted by the Yukon Government pursuant to the Public Utilities Act. It sets out the legal framework for rate-setting and provides specific legal direction to the Yukon Utilities Board related to rate design and rate regulation in Yukon, and as such must be complied with.

Yukon Energy considers it important to make progress at this time in addressing these long outstanding rate matters. Please see CW-YEC/YECL-1-19(a).

(k) and **(l)**

Please see response to CW-YEC/YECL-1-19(a).

ISSUE: **Revenue Components for Option A**

REFERENCE: **Application, Tab 4YECL, Schedule YECL B 4.6, Schedule YECL B 4.7**

PREAMBLE:

The City wishes to understand the differences in revenue components for Options A and B and existing rates

QUESTION:

a) Please provide for Option A the same data in the same format as provided for Option B in Schedule YECL B 4.7.

b) Please provide for existing rates the same data in the same format as provided for Option B in Schedule YECL B 4.6, except showing the Rider J and Rider R rate and revenue component totals separately.

c) Please provide a table in the format of Schedule YECL B 4.7 that compares the revenue components for existing rates (i.e. customer revenue, demand revenue, block 1 energy revenue, block 2 energy revenue, etc.) inclusive of Rate Riders J and R by rate class with the respective rate components for Option A and that also calculates the proposed percentage change in the respective revenue components.

d) Please provide a table in the format of Schedule YECL B 4.7 that compares the revenue components for existing rates (i.e. customer revenue, demand revenue, block 1 energy revenue, block 2 energy revenue, etc.) inclusive of Rate Riders J and R by rate class with the respective rate components for Option B and that also calculates the proposed percentage change in the respective revenue components.

e) Please provide a table illustrating how Riders J and R are applied to the respective rate components for Option A, Option B, and existing rates.

f) Please provide a table illustrating the change in forecast revenue in each rate block in terms of dollar amount and percentage when comparing the existing rate components inclusive of Riders J and R with revenue components proposed for Option A.

g) Please provide a table illustrating the change in forecast revenue in each rate block in terms of dollar amount and percentage when comparing the existing rate components inclusive of Riders J and R with revenue components proposed for Option B.

ANSWER:

(a)

Please refer to CW-YEC/YECL-1-21(a) – Schedule 1.

(b)

Please refer to CW-YEC/YECL-1-21(b) – Schedule 1.

(c)

Please refer to CW-YEC/YECL-1-21(c) – Schedule 1. For proposed percentage change; please refer to part (f).

(d)

Please refer to CW-YEC/YECL-1-21(d) – Schedule 1. For proposed percentage change; please refer to part (g).

(e)

Please refer to CW-YEC/YECL-1-21(e) – Schedule 1.

(f)

Please refer to CW-YEC/YECL-1-21(f) – Schedule 1.

(g)

Please refer to CW-YEC/YECL-1-21(g) – Schedule 1.

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Proposed Rates (Opt. A)

Residential-Non Government

	2009					
Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	**Total Energy (kW.h)**
YECL						
1160 NG - H	11,570		94,533,720	14,592,158	9,489,207	118,615,084
1260 NG - SD	308		962,877	114,525	39,077	1,116,479
1360 NG - LD	682		5,309,797	542,499	275,763	6,128,058
1460 NG - OC	125		763,968	101,340	8,740	874,048
YEC						
1160 NG - H	1,443		9,179,779	884,575	839,605	10,903,958
1260 NG - SD	0		0	0	0	0
1360 NG - LD	0		0	0	0	0
1460 NG - OC	0		0	0	0	0
Total						
1160 NG - H	13,013		103,713,498	15,476,732	10,328,811	129,519,042
1260 NG - SD	308		962,877	114,525	39,077	1,116,479
1360 NG - LD	682		5,309,797	542,499	275,763	6,128,058
1460 NG - OC	125		763,968	101,340	8,740	874,048
Residential-Non Government	14,128		110,750,140	16,235,095	10,652,391	137,637,626

Proposed Rate (Opt. A)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 NG - H	14.65		10.90	15.22	22.39	0.000%	0.000%
1260 NG - SD	14.65		10.90	15.22	22.39	0.000%	0.000%
1360 NG - LD	14.65		10.90	15.22	22.39	0.000%	0.000%
1460 NG - OC	14.65		10.90	15.22	49.23	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
1160 NG - H	2,033,953		10,302,483	2,220,926	2,124,646	0	0	**16,682,009**
1260 NG - SD	54,073		104,936	17,431	8,749	0	0	**185,190**
1360 NG - LD	119,948		578,673	82,568	61,744	0	0	**842,933**
1460 NG - OC	22,019		83,259	15,424	4,303	0	0	**125,005**
Revenue - YEC								
1160 NG - H	253,738		1,000,432	134,632	187,989	0	0	**1,576,790**
1260 NG - SD	0		0	0	0	0	0	**0**
1360 NG - LD	0		0	0	0	0	0	**0**
1460 NG - OC	0		0	0	0	0	0	**0**
Revenue - Sub Total								
1160 NG - H	2,287,691		11,302,915	2,355,559	2,312,634	0	0	**18,258,799**
1260 NG - SD	54,073		104,936	17,431	8,749	0	0	**185,190**
1360 NG - LD	119,948		578,673	82,568	61,744	0	0	**842,933**
1460 NG - OC	22,019		83,259	15,424	4,303	0	0	**125,005**
Revenue ($)	2,483,732		12,069,783	2,470,981	2,387,430	0	0	**19,411,927**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Proposed Rates (Opt. A)

Residential-Government

Billing Determinants (2009)	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Total Energy (kW.h)
YECL						
1180 G - H	155		994,502	214,800	126,943	1,336,245
1280 G - SD	26		172,183	28,971	11,707	212,862
1380 G - LD	30		186,366	21,377	4,024	211,766
1480 G - OC	12		81,418	11,223	27,828	120,470
YEC						
1180 G - H	29		233,131	22,124	23,839	279,095
1280 G - SD	0		0	0	0	0
1380 G - LD	0		0	0	0	0
1480 G - OC	0		0	0	0	0
Total						
1180 G - H	184		1,227,633	236,925	150,782	1,615,340
1280 G - SD	26		172,183	28,971	11,707	212,862
1380 G - LD	30		186,366	21,377	4,024	211,766
1480 G - OC	12		81,418	11,223	27,828	120,470
Residential-Government	252		1,667,600	298,496	194,342	2,160,438

Proposed Rate (Opt. A)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 G - H	18.47		16.17	15.22	22.39	0.000%	0.000%
1260 G - SD	18.47		16.17	15.22	22.39	0.000%	0.000%
1360 G - LD	18.47		16.17	15.22	22.39	0.000%	0.000%
1460 G - OC	18.47		16.17	15.22	49.23	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
1160 G - H	34,384		160,854	32,693	28,423	0	0	**256,353**
1260 G - SD	5,763		27,850	4,409	2,621	0	0	**40,643**
1360 G - LD	6,657		30,143	3,254	901	0	0	**40,954**
1460 G - OC	2,660		13,169	1,708	13,701	0	0	**31,237**
Revenue - YEC								
1160 G - H	6,483		37,707	3,367	5,338	0	0	**52,895**
1260 G - SD	0		0	0	0	0	0	**0**
1360 G - LD	0		0	0	0	0	0	**0**
1460 G - OC	0		0	0	0	0	0	**0**
Revenue - Sub Total								
1160 G - H	40,866		198,562	36,060	33,760	0	0	**309,248**
1260 G - SD	5,763		27,850	4,409	2,621	0	0	**40,643**
1360 G - LD	6,657		30,143	3,254	901	0	0	**40,954**
1460 G - OC	2,660		13,169	1,708	13,701	0	0	**31,237**
Revenue ($)	55,945		269,724	45,431	50,983	0	0	**422,083**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
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General Service-Non Government

Billing Determinants (2009)	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Block 3A Energy (kW.h)	Total Energy (kW.h)
YECL							
2160 NG - H	1,737	336,399	24,820,709	31,981,777	2,939,429	19,702,121	79,444,037
2260 NG - SD	92	7,311	830,009	799,705	1,631	0	1,631,346
2360 NG - LD	157	18,643	1,855,569	1,751,425	142,271	435,183	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	0	0	364,777
2170 GM - H	165	52,808	2,008,485	3,927,867	677,205	7,795,064	14,408,622
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	679,371	39,077	110,718	1,085,471
2470 GM - OC	0	0	0	0	0	0	0
YEC							
2160 NG - H	299	46,355	2,358,146	4,480,301	355,599	1,923,883	9,117,929
2260 NG - SD	0	0	0	0	0	0	0
2360 NG - LD	0	0	0	0	0	0	0
2460 NG - OC	0	0	0	0	0	0	0
2170 GM - H	55	16,580	452,883	1,953,933	322,865	531,587	3,261,268
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	0	0	0	0	0	0	0
2470 GM - OC	0	0	0	0	0	0	0
Total							
2160 NG - H	2,037	382,754	27,178,855	36,462,078	3,295,029	21,626,004	88,561,966
2260 NG - SD	92	7,311	830,009	799,705	1,631	0	1,631,346
2360 NG - LD	157	18,643	1,855,569	1,751,425	142,271	435,183	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	0	0	364,777
2170 GM - H	220	69,388	2,461,368	5,881,800	1,000,071	8,326,651	17,669,889
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	679,371	39,077	110,718	1,085,471
2470 GM - OC	0	0	0	0	0	0	0
General Service-Non Government	2,539	484,399	32,759,765	45,761,496	4,478,079	30,498,556	113,497,895

Proposed Rate (Opt. A)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Block 3A Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2160 NG - H 2170 GM - H	0.00	6.00	8.31	14.90	22.39	12.86	0.000%	0.000%
2260 NG - SD 2270 GM - SD	0.00	6.00	8.31	14.90	22.39	15.22	0.000%	0.000%
2360 NG - LD 2370 GM - LD	0.00	6.00	8.31	14.90	22.39	12.86	0.000%	0.000%
2460 NG - OC 2470 GM - OC	0.00	6.00	8.31	14.90	22.39	31.72	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL									
2160 NG - H	0	2,018,397	2,062,384	4,765,285	658,138	2,533,693	0	0	**12,037,896**
2260 NG - SD	0	43,868	68,967	119,156	365	0	0	0	**232,355**
2360 NG - LD	0	111,858	154,181	260,962	31,855	55,964	0	0	**614,821**
2460 NG - OC	0	9,309	14,762	27,880	0	0	0	0	**51,951**
2170 GM - H	0	316,847	166,887	585,252	151,626	1,002,445	0	0	**2,223,058**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	28,506	21,297	101,226	8,749	14,238	0	0	**174,017**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue - YEC									
2160 NG - H	0	278,130	195,941	667,565	79,619	247,411	0	0	**1,468,666**
2260 NG - SD	0	0	0	0	0	0	0	0	**0**
2360 NG - LD	0	0	0	0	0	0	0	0	**0**
2460 NG - OC	0	0	0	0	0	0	0	0	**0**
2170 GM - H	0	99,480	37,631	291,136	72,290	68,362	0	0	**568,899**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	0	0	0	0	0	0	0	**0**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue - Sub Total									
2160 NG - H	0	2,296,526	2,258,325	5,432,850	737,757	2,781,104	0	0	**13,506,562**
2260 NG - SD	0	43,868	68,967	119,156	365	0	0	0	**232,355**
2360 NG - LD	0	111,858	154,181	260,962	31,855	55,964	0	0	**614,821**
2460 NG - OC	0	9,309	14,762	27,880	0	0	0	0	**51,951**
2170 GM - H	0	416,327	204,518	876,388	223,916	1,070,807	0	0	**2,791,957**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	28,506	21,297	101,226	8,749	14,238	0	0	**174,017**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue ($)	0	2,906,394	2,722,050	6,818,463	1,002,642	3,922,114	0	0	**17,371,663**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
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General Service-Government

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Block 3A Energy (kW.h)	Total Energy (kW.h)
				2009			
YECL							
2180 GFT - H	337	128,900	4,617,896	12,625,944	2,375,636	21,339,764	40,959,241
2280 GFT - SD	51	3,972	406,476	344,619	0	0	751,095
2380 GFT - LD	36	8,468	535,831	1,057,090	183,312	330,805	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	0	0	429,120
YEC							
2180 GFT - H	103	21,854	837,208	2,279,237	308,062	3,739,734	7,164,240
2280 GFT - SD	0	0	0	0	0	0	0
2380 GFT - LD	0	0	0	0	0	0	0
2480 GFT - OC	0	0	0	0	0	0	0
Total							
2180 GFT - H	440	150,753	5,455,104	14,905,181	2,683,698	25,079,498	48,123,481
2280 GFT - SD	51	3,972	406,476	344,619	0	0	751,095
2380 GFT - LD	36	8,468	535,831	1,057,090	183,312	330,805	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	0	0	429,120
General Service-Government	547	165,716	6,617,910	16,515,510	2,867,011	25,410,303	51,410,733

Proposed Rate (Opt. A)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Block 3A Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2180 GFT - H	0.00	10.00	18.81	14.90	22.39	12.86	0.000%	0.000%
2280 GFT - SD	0.00	10.00	18.81	14.90	22.39	15.22	0.000%	0.000%
2380 GFT - LD	0.00	10.00	18.81	14.90	22.39	12.86	0.000%	0.000%
2480 GFT - OC	0.00	10.00	18.81	14.90	22.39	31.72	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL									
2180 GFT - H	0	1,288,998	868,589	1,881,266	531,905	2,744,294	0	0	**7,315,052**
2280 GFT - SD	0	39,717	76,455	51,348	0	0	0	0	**167,520**
2380 GFT - LD	0	84,684	100,785	157,506	41,044	42,542	0	0	**426,561**
2480 GFT - OC	0	25,223	41,474	31,084	0	0	0	0	**97,782**
Revenue - YEC									
2180 GFT - H	0	218,535	157,472	339,606	68,975	480,930	0	0	**1,265,518**
2280 GFT - SD	0	0	0	0	0	0	0	0	**0**
2380 GFT - LD	0	0	0	0	0	0	0	0	**0**
2480 GFT - OC	0	0	0	0	0	0	0	0	**0**
Revenue - Sub Total									
2180 GFT - H	0	1,507,533	1,026,061	2,220,872	600,880	3,225,223	0	0	**8,580,570**
2280 GFT - SD	0	39,717	76,455	51,348	0	0	0	0	**167,520**
2380 GFT - LD	0	84,684	100,785	157,506	41,044	42,542	0	0	**426,561**
2480 GFT - OC	0	25,223	41,474	31,084	0	0	0	0	**97,782**
Revenue ($)	0	1,657,158	1,244,776	2,460,811	641,924	3,267,765	0	0	**9,272,433**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Proposed Rates (Opt. A)

Industrial

2009

Billing Determinants		**Number of Customers Billed/year**	**Demand kVA**	**Total Energy (kW.h)**
YECL				
	39	0	0	0
YEC				
	39	1	62400	29,023,000
Total				
	39	1	62,400	29,023,000
Industrial		1	62,400	29,023,000

Proposed Rate (Opt. A)		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kVA.)	Energy Charge (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)	Rider F Charge (¢ / kW.h)
	39	0.00	15.00	7.600	0.00%	0.00%	0.211

		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Rider F Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
	39	0	0	0	0	0	0	**0**
Revenue - YEC								
	39	0	936,000	2,205,748	0	0	61,239	**3,202,987**
Revenue - Sub Total								
	39	0	936,000	2,205,748	0	0	61,239	**3,202,987**
Revenue ($)		0	936,000	2,205,748	0	0	61,239	**3,202,987**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Proposed Rates (Opt. A)

Street Lights - Rate 61/66

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)	Highmast Customers Billed/year
YECL					
	61/66	4,825	8,578,680	3,438,012	160
YEC					
	61/66	567	685,400	274,112	0
Total					
	61/66	5,392	9,264,080	3,712,124	160
Street Lights - Rate 61/66		5,392	9,264,080	3,712,124	160

Proposed Rate (Opt. A)		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Highmast Charge ($/ cust/ mo.)	Rider J Charge Revenue	Rider R Charge (%)
	61/66	7.83	4.96		1.27	0.000%	0.000%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Highmast Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
	61/66	453,372	425,642		2,435	0	0	**881,450**
Revenue - YEC								
	61/66	53,316	34,007		0	0	0	**87,323**
Revenue - Sub Total								
	61/66	506,689	459,649		2,435	0	0	**968,773**
Revenue ($)		506,689	459,649		2,435	0	0	**968,773**

Street Lights - Rate 67

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)
YECL				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	15	72,000	28,440
YEC				
	67 - 250 W	0	0	0
	67 - 400 W	2	9,600	3,792
Total				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	17	81,600	32,232
Street Lights - Rate 67		64	222,600	87,660

Proposed Rate (Opt. A)		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
	67 - 250 W	19.05			0.000%	0.000%
	67 - 400 W	29.13			0.000%	0.000%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL							
	67 - 250 W	10,742			0	0	**10,742**
	67 - 400 W	5,243			0	0	**5,243**
Revenue - YEC							
	67 - 250 W	0			0	0	**0**
	67 - 400 W	699			0	0	**699**
Revenue - Sub Total							
	67 - 250 W	10,742			0	0	**10,742**
	67 - 400 W	5,942			0	0	**5,942**
Revenue ($)		16,685			0	0	**16,685**

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Sentinal Lights - Rate 75/76

2009

Billing Determinants	Number of Customers Billed/year	Demand W	Total Energy (kW.h)
Total			
75/76 - Normal - 100 W	393	471,700	188,680
75/76 - E & M - 100 W	314	376,800	150,720
75/76 - Meter - 100 W	7	8,400	0
75/76 - Normal - 175 W	150	315,000	129,600
75/76 - E & M - 175 W	0	0	0
75/76 - Meter - 175 W	17	35,700	0
75/76 - Normal - 250 W	1	3,000	1,164
75/76 - E & M - 250 W	0	0	0
75/76 - Meter - 250 W	0	0	0
75/76 - Normal - 400 W	2	9,600	3,816
75/76 - E & M - 400 W	0	0	0
75/76 - Meter - 400 W	0	0	0
75/76 - Normal - 400 W FL	85	408,000	162,180
75/76 - E & M - 400 W FL	5	24,000	9,540
75/76 - Meter - 400 W FL	3	14,400	0
Sentinal Lights - Rate 75/76	977	1,666,600	645,700

Normal: Normal 12-month unmeterd service
E & M: Energy and Maintenance only
(Cust. Pays installation costs)
Meter: 12-month service through customer meter

Proposed Rate (Opt. A)	Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
75/76 - Normal - 100 W	14.33			0.000%	0.000%
75/76 - E & M - 100 W	7.95			0.000%	0.000%
75/76 - Meter - 100 W	9.04			0.000%	0.000%
75/76 - Normal - 175 W	17.46			0.000%	0.000%
75/76 - E & M - 175 W	12.15			0.000%	0.000%
75/76 - Meter - 175 W	9.81			0.000%	0.000%
75/76 - Normal - 250 W	21.35			0.000%	0.000%
75/76 - E & M - 250 W	16.20			0.000%	0.000%
75/76 - Meter - 250 W	10.13			0.000%	0.000%
75/76 - Normal - 400 W	28.35			0.000%	0.000%
75/76 - E & M - 400 W	22.91			0.000%	0.000%
75/76 - Meter - 400 W	9.65			0.000%	0.000%
75/76 - Normal - 400 W FL	31.32			0.000%	0.000%
75/76 - E & M - 400 W FL	21.85			0.000%	0.000%
75/76 - Meter - 400 W FL	12.63			0.000%	0.000%

Revenue ($)	Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - Sub Total						
75/76 - Normal - 100 W	67,599			0	0	**67,599**
75/76 - E & M - 100 W	29,968			0	0	**29,968**
75/76 - Meter - 100 W	759			0	0	**759**
75/76 - Normal - 175 W	31,424			0	0	**31,424**
75/76 - E & M - 175 W	0			0	0	**0**
75/76 - Meter - 175 W	2,002			0	0	**2,002**
75/76 - Normal - 250 W	256			0	0	**256**
75/76 - E & M - 250 W	0			0	0	**0**
75/76 - Meter - 250 W	0			0	0	**0**
75/76 - Normal - 400 W	680			0	0	**680**
75/76 - E & M - 400 W	0			0	0	**0**
75/76 - Meter - 400 W	0			0	0	**0**
75/76 - Normal - 400 W FL	31,947			0	0	**31,947**
75/76 - E & M - 400 W FL	1,311			0	0	**1,311**
75/76 - Meter - 400 W FL	455			0	0	**455**
Revenue ($)	166,402			0	0	**166,402**

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Secondary Sales

Billing Determinants		Number of Customers Billed/year	Demand kW	2009 Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Total Energy (kW.h)
YECL						
	3200	23		6,954,050		6,954,050
YEC						
	3200			629,950		629,950
Total						
	3200	23		7,584,000	0	7,584,000
Secondary Sales		23		7,584,000	0	7,584,000

Proposed Rate (Opt. A)		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
	3200	0.00		7.20	0	0.00%	0.00%

		Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
	3200	0		500,692	0	0	0	**500,692**
Revenue - YEC								
	3200	0		45,356	0	0	0	**45,356**
Revenue - Sub Total								
	3200	0		546,048	0	0	0	**546,048**
Revenue ($)		0		546,048	0	0	0	**546,048**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
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TOTAL RATE REVENUE - Proposed Rate (Opt. A)

					2009					
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	2,229,994		11,069,351	2,336,349	2,199,442		0			**17,835,136**
Government	49,462		232,016	42,064	45,646		0			**369,188**
General Service										
Non-Government	0	2,528,784	2,488,478	5,859,762	850,734	3,606,341	0			**15,334,098**
Government	0	1,438,623	1,087,304	2,121,205	572,949	2,786,835	0			**8,006,915**
Industrial	0	0	0				0	0		**0**
Street Lights	471,793	425,642	0				0			**897,435**
Space Lights	162,780	0	0				0			**162,780**
Secondary Sales	0		500,692	0			0			**500,692**
Revenues - Primary - YECL	2,914,029	4,393,049	14,877,149	10,359,380	3,668,769	6,393,176				**42,605,553**
Revenues - Industrial - YECL	0	0	0					0		**0**
Revenues - Secondary - YECL	0	0	500,692	0						**500,692**
Revenues - Riders - YECL							0	0		**0**
Revenues - Other - YECL									827,000	**827,000**
Revenues - Total - YECL	2,914,029	4,393,049	15,377,841	10,359,380	3,668,769	6,393,176	0	0	827,000	**43,933,244**
Revenues - YEC										
Residential										
Non-Government	253,738		1,000,432	134,632	187,989		0			**1,576,790**
Government	6,483		37,707	3,367	5,338		0			**52,895**
General Service										
Non-Government	0	377,610	233,572	958,701	151,908	315,773	0			**2,037,564**
Government	0	218,535	157,472	339,606	68,975	480,930	0			**1,265,518**
Industrial	0	936,000	2,205,748	0			0	61,239		**3,202,987**
Street Lights	54,015	34,007	0				0			**88,022**
Space Lights	3,622	0	0	0			0			**3,622**
Secondary Sales	0		45,356	0			0			**45,356**
Revenues - Primary - YEC	317,859	630,152	1,429,183	1,436,307	414,210	796,703				**5,024,413**
Revenues - Industrial - YEC	0	936,000	2,205,748	0				61,239		**3,202,987**
Revenues - Secondary - YEC	0	0	45,356	0						**45,356**
Revenues - Riders - YEC							0			**0**
Revenues - Other - YEC									125,000	**125,000**
Revenues - Total - YEC	317,859	1,566,152	3,680,287	1,436,307	414,210	796,703	0	61,239	125,000	**8,397,756**
Revenues - Total										
Residential										
Non-Government	2,483,732		12,069,783	2,470,981	2,387,430		0			**19,411,927**
Government	55,945		269,724	45,431	50,983		0			**422,083**
General Service										
Non-Government	0	2,906,394	2,722,050	6,818,463	1,002,642	3,922,114	0			**17,371,663**
Government	0	1,657,158	1,244,776	2,460,811	641,924	3,267,765	0			**9,272,433**
Industrial	0	936,000	2,205,748	0			0	61,239		**3,202,987**
Street Lights	525,808	459,649	0				0	0		**985,457**
Space Lights	166,402	0	0				0			**166,402**
Secondary Sales	0		546,048	0			0			**546,048**
Revenues - Primary	3,231,888	5,023,201	16,306,332	11,795,686	4,082,979	7,189,879				**47,629,965**
Revenues - Industrial	0	936,000	2,205,748	0				61,239		**3,202,987**
Revenues - Secondary	0	0	546,048	0						**546,048**
Revenues - Riders							0			**0**
Revenues - Other									952,000	**952,000**
Revenues - Total	3,231,888	5,959,201	19,058,128	11,795,686	4,082,979	7,189,879	0	61,239	952,000	**52,331,000**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

Residential-Non Government

2009

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Total Energy (kW.h)
YECL					
1160 NG - H	11,570		94,533,720	24,081,364	118,615,084
1260 NG - SD	308		962,877	153,601	1,116,479
1360 NG - LD	682		5,309,797	818,261	6,128,058
1460 NG - OC	125		763,968	110,080	874,048
YEC					
1160 NG - H	1,443		9,179,779	1,724,179	10,903,958
1260 NG - SD	0		0	0	0
1360 NG - LD	0		0	0	0
1460 NG - OC	0		0	0	0
Total					
1160 NG - H	13,013		103,713,498	25,805,544	129,519,042
1260 NG - SD	308		962,877	153,601	1,116,479
1360 NG - LD	682		5,309,797	818,261	6,128,058
1460 NG - OC	125		763,968	110,080	874,048
Residential-Non Government	14,128		110,750,140	26,887,486	137,637,626

Existing Rate	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 NG - H	11.90		9.86	10.45	12.460%	10.526%
1260 NG - SD	11.90		9.86	12.36	12.460%	10.526%
1360 NG - LD	11.90		9.86	10.45	12.460%	10.526%
1460 NG - OC	11.90		9.86	25.77	12.460%	10.526%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL							
1160 NG - H	1,652,153		9,321,025	2,516,503	1,680,814	1,419,924	**16,590,419**
1260 NG - SD	43,923		94,940	18,985	19,668	16,615	**194,131**
1360 NG - LD	97,432		523,546	85,508	88,028	74,365	**868,880**
1460 NG - OC	17,886		75,327	28,368	15,149	12,798	**149,527**
Revenue - YEC							
1160 NG - H	206,108		905,126	180,177	160,910	135,934	**1,588,255**
1260 NG - SD	0		0	0	0	0	**0**
1360 NG - LD	0		0	0	0	0	**0**
1460 NG - OC	0		0	0	0	0	**0**
Revenue - Sub Total							
1160 NG - H	1,858,261		10,226,151	2,696,679	1,841,724	1,555,858	**18,178,673**
1260 NG - SD	43,923		94,940	18,985	19,668	16,615	**194,131**
1360 NG - LD	97,432		523,546	85,508	88,028	74,365	**868,880**
1460 NG - OC	17,886		75,327	28,368	15,149	12,798	**149,527**
Revenue ($)	2,017,502		10,919,964	2,829,540	1,964,569	1,659,635	**19,391,211**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

Residential-Government

	2009				
Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	**Total Energy (kW.h)**
YECL					
1180 G - H	155		994,502	341,744	1,336,245
1280 G - SD	26		172,183	40,679	212,862
1380 G - LD	30		186,366	25,400	211,766
1480 G - OC	12		81,418	39,051	120,470
YEC					
1180 G - H	29		233,131	45,963	279,095
1280 G - SD	0		0	0	0
1380 G - LD	0		0	0	0
1480 G - OC	0		0	0	0
Total					
1180 G - H	184		1,227,633	387,707	1,615,340
1280 G - SD	26		172,183	40,679	212,862
1380 G - LD	30		186,366	25,400	211,766
1480 G - OC	12		81,418	39,051	120,470
Residential-Government	252		1,667,600	492,838	2,160,438

Existing Rate	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 G - H	15.00		14.34	10.45	12.460%	10.526%
1260 G - SD	15.00		14.34	12.36	12.460%	10.526%
1360 G - LD	15.00		14.34	10.45	12.460%	10.526%
1460 G - OC	15.00		14.34	25.77	12.460%	10.526%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL							
1160 G - H	27,924		142,612	35,712	25,698	21,710	**253,656**
1260 G - SD	4,680		24,691	5,028	4,286	3,621	**42,306**
1360 G - LD	5,406		26,725	2,654	4,334	3,661	**42,781**
1460 G - OC	2,160		11,675	10,064	2,978	2,516	**29,392**
Revenue - YEC							
1160 G - H	5,265		33,431	4,803	5,420	4,579	**53,498**
1260 G - SD	0		0	0	0	0	**0**
1360 G - LD	0		0	0	0	0	**0**
1460 G - OC	0		0	0	0	0	**0**
Revenue - Sub Total							
1160 G - H	33,189		176,043	40,515	31,118	26,288	**307,154**
1260 G - SD	4,680		24,691	5,028	4,286	3,621	**42,306**
1360 G - LD	5,406		26,725	2,654	4,334	3,661	**42,781**
1460 G - OC	2,160		11,675	10,064	2,978	2,516	**29,392**
Revenue ($)	45,435		239,134	58,261	42,717	36,086	**421,633**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

General Service-Non Government

2009

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Total Energy (kW.h)
YECL					
2160 NG - H	1,737	336,399	24,820,709	54,623,327	79,444,037
2260 NG - SD	92	7,311	830,009	801,336	1,631,346
2360 NG - LD	157	18,643	1,855,569	2,328,879	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	364,777
2170 GM - H	165	52,808	2,008,485	12,400,137	14,408,622
2270 GM - SD	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	829,166	1,085,471
2470 GM - OC	0	0	0	0	0
YEC					
2160 NG - H	299	46,355	2,358,146	6,759,783	9,117,929
2260 NG - SD	0	0	0	0	0
2360 NG - LD	0	0	0	0	0
2460 NG - OC	0	0	0	0	0
2170 GM - H	55	16,580	452,883	2,808,385	3,261,268
2270 GM - SD	0	0	0	0	0
2370 GM - LD	0	0	0	0	0
2470 GM - OC	0	0	0	0	0
Total					
2160 NG - H	2,037	382,754	27,178,855	61,383,111	88,561,966
2260 NG - SD	92	7,311	830,009	801,336	1,631,346
2360 NG - LD	157	18,643	1,855,569	2,328,879	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	364,777
2170 GM - H	220	69,388	2,461,368	15,208,522	17,669,889
2270 GM - SD	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	829,166	1,085,471
2470 GM - OC	0	0	0	0	0
General Service-Non Government	2,539	484,399	32,759,765	80,738,130	113,497,895

Existing Rate	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2160 NG - H 2170 GM - H	0.00	6.00	8.31	10.45	12.460%	10.526%
2260 NG - SD 2270 GM - SD	0.00	6.00	8.31	12.36	12.460%	10.526%
2360 NG - LD 2370 GM - LD	0.00	6.00	8.31	10.45	12.460%	10.526%
2460 NG - OC 2470 GM - OC	0.00	6.00	8.31	25.77	12.460%	10.526%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL							
2160 NG - H	0	2,018,397	2,062,601	5,708,138	1,219,726	1,030,404	**12,039,266**
2260 NG - SD	0	43,868	68,974	99,045	26,401	22,303	**260,591**
2360 NG - LD	0	111,858	154,198	243,368	63,474	53,622	**626,519**
2460 NG - OC	0	9,309	14,764	48,220	9,008	7,610	**88,910**
2170 GM - H	0	316,847	166,905	1,295,814	221,734	187,317	**2,188,617**
2270 GM - SD	0	0	0	0	0	0	**0**
2370 GM - LD	0	28,506	21,299	86,648	17,002	14,363	**167,818**
2470 GM - OC	0	0	0	0	0	0	**0**
Revenue - YEC							
2160 NG - H	0	278,130	195,962	706,397	147,089	124,258	**1,451,836**
2260 NG - SD	0	0	0	0	0	0	**0**
2360 NG - LD	0	0	0	0	0	0	**0**
2460 NG - OC	0	0	0	0	0	0	**0**
2170 GM - H	0	99,480	37,635	293,476	53,652	45,324	**529,567**
2270 GM - SD	0	0	0	0	0	0	**0**
2370 GM - LD	0	0	0	0	0	0	**0**
2470 GM - OC	0	0	0	0	0	0	**0**
Revenue - Sub Total							
2160 NG - H	0	2,296,526	2,258,563	6,414,535	1,366,815	1,154,663	**13,491,102**
2260 NG - SD	0	43,868	68,974	99,045	26,401	22,303	**260,591**
2360 NG - LD	0	111,858	154,198	243,368	63,474	53,622	**626,519**
2460 NG - OC	0	9,309	14,764	48,220	9,008	7,610	**88,910**
2170 GM - H	0	416,327	204,540	1,589,291	275,386	232,641	**2,718,184**
2270 GM - SD	0	0	0	0	0	0	**0**
2370 GM - LD	0	28,506	21,299	86,648	17,002	14,363	**167,818**
2470 GM - OC	0	0	0	0	0	0	**0**
Revenue ($)	0	2,906,394	2,722,336	8,481,106	1,758,086	1,485,201	**17,353,124**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

General Service-Government

			2009		
Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	**Total Energy (kW.h)**
YECL					
2180 GFT - H	337	128,900	4,617,896	36,341,345	40,959,241
2280 GFT - SD	51	3,972	406,476	344,619	751,095
2380 GFT - LD	36	8,468	535,831	1,571,207	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	429,120
YEC					
2180 GFT - H	103	21,854	837,208	6,327,033	7,164,240
2280 GFT - SD	0	0	0	0	0
2380 GFT - LD	0	0	0	0	0
2480 GFT - OC	0	0	0	0	0
Total					
2180 GFT - H	440	150,753	5,455,104	42,668,377	48,123,481
2280 GFT - SD	51	3,972	406,476	344,619	751,095
2380 GFT - LD	36	8,468	535,831	1,571,207	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	429,120
General Service-Government	547	165,716	6,617,910	44,792,823	51,410,733

Existing Rate	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2180 GFT - H	0.00	10.00	17.45	10.45	12.460%	10.526%
2280 GFT - SD	0.00	10.00	17.45	12.36	12.460%	10.526%
2380 GFT - LD	0.00	10.00	17.45	10.45	12.460%	10.526%
2480 GFT - OC	0.00	10.00	17.45	25.77	12.460%	10.526%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL							
2180 GFT - H	0	1,288,998	805,823	3,797,671	734,204	620,244	**7,246,940**
2280 GFT - SD	0	39,717	70,930	42,595	19,094	16,130	**188,466**
2380 GFT - LD	0	84,684	93,502	164,191	42,660	36,039	**421,077**
2480 GFT - OC	0	25,223	38,477	53,761	14,636	12,364	**144,462**
Revenue - YEC							
2180 GFT - H	0	218,535	146,093	661,175	127,815	107,976	**1,261,594**
2280 GFT - SD	0	0	0	0	0	0	**0**
2380 GFT - LD	0	0	0	0	0	0	**0**
2480 GFT - OC	0	0	0	0	0	0	**0**
Revenue - Sub Total							
2180 GFT - H	0	1,507,533	951,916	4,458,845	862,019	728,220	**8,508,533**
2280 GFT - SD	0	39,717	70,930	42,595	19,094	16,130	**188,466**
2380 GFT - LD	0	84,684	93,502	164,191	42,660	36,039	**421,077**
2480 GFT - OC	0	25,223	38,477	53,761	14,636	12,364	**144,462**
Revenue ($)	0	1,657,158	1,154,825	4,719,393	938,409	792,753	**9,262,538**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

Industrial

2009

Billing Determinants		**Number of Customers Billed/year**	**Demand kVA**	**Total Energy (kW.h)**
YECL	39	0	0	0
YEC	39	1	62400	29,023,000
Total	39	1	62,400	29,023,000
Industrial		1	62,400	29,023,000

Existing Rate		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kVA.)	Energy Charge (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)	Rider F Charge (¢ / kW.h)
	39	0.00	15.00	7.600	0.00%	0.00%	0.000

		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue		**Total Rate Revenue**
Revenue - YECL	39	0	0	0	0	0	0	**0**
Revenue - YEC	39	0	936,000	2,205,748	0	0	0	**3,141,748**
Revenue - Sub Total	39	0	936,000	2,205,748	0	0	0	**3,141,748**
Revenue ($)		0	936,000	2,205,748	0	0	0	**3,141,748**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

Street Lights - Rate 61/66

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)	Highmast Customers Billed/year
YECL					
	61/66	4,825	8,578,680	3,438,012	160
YEC					
	61/66	567	685,400	274,112	0
Total					
	61/66	5,392	9,264,080	3,712,124	160
Street Lights - Rate 61/66		5,392	9,264,080	3,712,124	160

Existing Rate		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Highmast Charge ($/ cust/ mo.)	Rider J Charge Revenue	Rider R Charge (%)
	61/66	6.36	4.03		1.03	12.460%	10.526%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Highmast Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
	61/66	368,244	345,721		1,978	89,206	75,360	**880,509**
Revenue - YEC								
	61/66	43,305	27,622		0	8,837	7,466	**87,230**
Revenue - Sub Total								
	61/66	411,549	373,342		1,978	98,044	82,826	**967,739**
Revenue ($)		411,549	373,342		1,978	98,044	82,826	**967,739**

Street Lights - Rate 67

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)
YECL				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	15	72,000	28,440
YEC				
	67 - 250 W	0	0	0
	67 - 400 W	2	9,600	3,792
Total				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	17	81,600	32,232
Street Lights - Rate 67		64	222,600	87,660

Existing Rate		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
	67 - 250 W	15.47			12.460%	10.526%
	67 - 400 W	23.66			12.460%	10.526%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL							
	67 - 250 W	8,725			1,087	918	**10,731**
	67 - 400 W	4,259			531	448	**5,238**
Revenue - YEC							
	67 - 250 W	0			0	0	**0**
	67 - 400 W	568			71	60	**698**
Revenue - Sub Total							
	67 - 250 W	8,725			1,087	918	**10,731**
	67 - 400 W	4,827			601	508	**5,936**
Revenue ($)		13,552			1,689	1,426	**16,667**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

Sentinal Lights - Rate 75/76

2009

Billing Determinants	**Number of Customers Billed/year**	**Demand W**	**Total Energy (kW.h)**	
Total				
75/76 - Normal - 100 W	393	471,700	188,680	Normal: Normal 12-month unmeterd service
75/76 - E & M - 100 W	314	376,800	150,720	E & M: Energy and Maintenance only
75/76 - Meter - 100 W	7	8,400	0	(Cust. Pays installation costs)
75/76 - Normal - 175 W	150	315,000	129,600	Meter: 12-month service through customer meter
75/76 - E & M - 175 W	0	0	0	
75/76 - Meter - 175 W	17	35,700	0	
75/76 - Normal - 250 W	1	3,000	1,164	
75/76 - E & M - 250 W	0	0	0	
75/76 - Meter - 250 W	0	0	0	
75/76 - Normal - 400 W	2	9,600	3,816	
75/76 - E & M - 400 W	0	0	0	
75/76 - Meter - 400 W	0	0	0	
75/76 - Normal - 400 W FL	85	408,000	162,180	
75/76 - E & M - 400 W FL	5	24,000	9,540	
75/76 - Meter - 400 W FL	3	14,400	0	
Sentinal Lights - Rate 75/76	977	1,666,600	645,700	

Existing Rate	Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
75/76 - Normal - 100 W	11.64			12.460%	10.526%
75/76 - E & M - 100 W	6.46			12.460%	10.526%
75/76 - Meter - 100 W	7.34			12.460%	10.526%
75/76 - Normal - 175 W	14.18			12.460%	10.526%
75/76 - E & M - 175 W	9.87			12.460%	10.526%
75/76 - Meter - 175 W	7.97			12.460%	10.526%
75/76 - Normal - 250 W	17.34			12.460%	10.526%
75/76 - E & M - 250 W	13.16			12.460%	10.526%
75/76 - Meter - 250 W	8.23			12.460%	10.526%
75/76 - Normal - 400 W	23.03			12.460%	10.526%
75/76 - E & M - 400 W	18.61			12.460%	10.526%
75/76 - Meter - 400 W	7.84			12.460%	10.526%
75/76 - Normal - 400 W FL	25.44			12.460%	10.526%
75/76 - E & M - 400 W FL	17.75			12.460%	10.526%
75/76 - Meter - 400 W FL	10.26			12.460%	10.526%

Revenue ($)	Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - Sub Total						
75/76 - Normal - 100 W	54,906			6,841	5,779	**67,527**
75/76 - E & M - 100 W	24,341			3,033	2,562	**29,936**
75/76 - Meter - 100 W	617			77	65	**758**
75/76 - Normal - 175 W	25,524			3,180	2,687	**31,391**
75/76 - E & M - 175 W	0			0	0	**0**
75/76 - Meter - 175 W	1,626			203	171	**2,000**
75/76 - Normal - 250 W	208			26	22	**256**
75/76 - E & M - 250 W	0			0	0	**0**
75/76 - Meter - 250 W	0			0	0	**0**
75/76 - Normal - 400 W	553			69	58	**680**
75/76 - E & M - 400 W	0			0	0	**0**
75/76 - Meter - 400 W	0			0	0	**0**
75/76 - Normal - 400 W FL	25,949			3,233	2,731	**31,913**
75/76 - E & M - 400 W FL	1,065			133	112	**1,310**
75/76 - Meter - 400 W FL	369			46	39	**454**
Revenue ($)	135,158			16,841	14,227	**166,225**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Existing Rates

Secondary Sales

				2009		
Billing Determinants		**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	**Total Energy (kW.h)**
YECL						
	3200	23		6,954,050		6,954,050
YEC						
	3200			629,950		629,950
Total						
	3200	23		7,584,000	0	7,584,000
Secondary Sales		23		7,584,000	0	7,584,000

Existing Rate		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
	3200	0.00		7.20	0	0.00%	0.00%

		Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
	3200	0		500,692	0	0	0	**500,692**
Revenue - YEC								
	3200	0		45,356	0	0	0	**45,356**
Revenue - Sub Total								
	3200	0		546,048	0	0	0	**546,048**
Revenue ($)		0		546,048	0	0	0	**546,048**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates

TOTAL RATE REVENUE - EXISTING RATE

	2009									
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Rider F Charge Revenue			**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	1,811,394		10,014,838	2,649,364	1,803,659	1,523,701				**17,802,956**
Government	40,170		205,703	53,458	37,297	31,508				**368,135**
General Service										
Non-Government	0	2,528,784	2,488,740	7,481,233	1,557,345	1,315,619				**15,371,721**
Government	0	1,438,623	1,008,733	4,058,218	810,594	684,777				**8,000,944**
Industrial	0	0	0	0	0	0	0			**0**
Street Lights	383,205	345,721	0		90,824	76,727				**896,477**
Space Lights	132,216	0	0	0	16,474	13,917				**162,607**
Secondary Sales	0		500,692	0	0	0				**500,692**
Revenues - Primary - YECL	2,366,985	4,313,128	13,718,013	14,242,272						**34,640,398**
Revenues - Industrial - YECL	0	0	0	0			0			**0**
Revenues - Secondary - YECL	0	0	500,692	0						**500,692**
Revenues - Riders - YECL					4,316,194	3,646,248				**7,962,442**
Revenues - Other - YECL									827,000	**827,000**
Revenues - Total - YECL	2,366,985	4,313,128	14,218,705	14,242,272	4,316,194	3,646,248	0	0	827,000	**43,930,532**
Revenues - YEC										
Residential										
Non-Government	206,108		905,126	180,177	160,910	135,934				**1,588,255**
Government	5,265		33,431	4,803	5,420	4,579				**53,498**
General Service										
Non-Government	0	377,610	233,596	999,874	200,741	169,582				**1,981,403**
Government	0	218,535	146,093	661,175	127,815	107,976				**1,261,594**
Industrial	0	936,000	2,205,748	0	0	0	0			**3,141,748**
Street Lights	43,873	27,622	0		8,908	7,526				**87,928**
Space Lights	2,942	0	0	0	367	310				**3,618**
Secondary Sales	0		45,356	0	0	0				**45,356**
Revenues - Primary - YEC	258,188	623,767	1,318,246	1,846,028						**4,046,230**
Revenues - Industrial - YEC	0	936,000	2,205,748	0			0			**3,141,748**
Revenues - Secondary - YEC	0	0	45,356	0						**45,356**
Revenues - Riders - YEC					504,160	425,906				**930,066**
Revenues - Other - YEC									125,000	**125,000**
Revenues - Total - YEC	258,188	1,559,767	3,569,351	1,846,028	504,160	425,906	0		125,000	**8,288,400**
Revenues - Total										
Residential										
Non-Government	2,017,502		10,919,964	2,829,540	1,964,569	1,659,635				**19,391,211**
Government	45,435		239,134	58,261	42,717	36,086				**421,633**
General Service										
Non-Government	0	2,906,394	2,722,336	8,481,106	1,758,086	1,485,201				**17,353,124**
Government	0	1,657,158	1,154,825	4,719,393	938,409	792,753				**9,262,538**
Industrial	0	936,000	2,205,748	0	0	0	0			**3,141,748**
Street Lights	427,079	373,342	0		99,732	84,252				**984,406**
Space Lights	135,158	0	0		16,841	14,227				**166,225**
Secondary Sales	0		546,048	0	0	0				**546,048**
Revenues - Primary	2,625,173	4,936,894	15,036,259	16,088,301						**38,686,628**
Revenues - Industrial	0	936,000	2,205,748	0			0			**3,141,748**
Revenues - Secondary	0	0	546,048	0						**546,048**
Revenues - Riders					4,820,354	4,072,154				**8,892,508**
Revenues - Other									952,000	**952,000**
Revenues - Total	2,625,173	5,872,894	17,788,055	16,088,301	4,820,354	4,072,154	0		952,000	**52,218,932**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

Residential-Non Government

2009

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Total Energy (kW.h)
YECL						
1160 NG - H	11,570		94,533,720	14,592,158	9,489,207	118,615,084
1260 NG - SD	308		962,877	114,525	39,077	1,116,479
1360 NG - LD	682		5,309,797	542,499	275,763	6,128,058
1460 NG - OC	125		763,968	101,340	8,740	874,048
YEC						
1160 NG - H	1,443		9,179,779	884,575	839,605	10,903,958
1260 NG - SD	0		0	0	0	0
1360 NG - LD	0		0	0	0	0
1460 NG - OC	0		0	0	0	0
Total						
1160 NG - H	13,013		103,713,498	15,476,732	10,328,811	129,519,042
1260 NG - SD	308		962,877	114,525	39,077	1,116,479
1360 NG - LD	682		5,309,797	542,499	275,763	6,128,058
1460 NG - OC	125		763,968	101,340	8,740	874,048
Residential-Non Government	14,128		110,750,140	16,235,095	10,652,391	137,637,626

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 NG - H	14.64		12.13	12.85	12.85	0.000%	0.000%
1260 NG - SD	14.64		12.13	15.20	15.20	0.000%	0.000%
1360 NG - LD	14.64		12.13	12.85	12.85	0.000%	0.000%
1460 NG - OC	14.64		12.13	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
1160 NG - H	2,031,917		11,463,556	1,875,390	1,219,556	0	0	**16,590,419**
1260 NG - SD	54,019		116,763	17,409	5,940	0	0	**194,131**
1360 NG - LD	119,828		643,888	69,722	35,441	0	0	**868,880**
1460 NG - OC	21,997		92,642	32,118	2,770	0	0	**149,527**
Revenue - YEC								
1160 NG - H	253,484		1,113,178	113,686	107,906	0	0	**1,588,255**
1260 NG - SD	0		0	0	0	0	0	**0**
1360 NG - LD	0		0	0	0	0	0	**0**
1460 NG - OC	0		0	0	0	0	0	**0**
Revenue - Sub Total								
1160 NG - H	2,285,401		12,576,734	1,989,075	1,327,463	0	0	**18,178,673**
1260 NG - SD	54,019		116,763	17,409	5,940	0	0	**194,131**
1360 NG - LD	119,828		643,888	69,722	35,441	0	0	**868,880**
1460 NG - OC	21,997		92,642	32,118	2,770	0	0	**149,527**
Revenue ($)	2,481,245		13,430,027	2,108,325	1,371,614	0	0	**19,391,211**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

Residential-Government

			2009			
Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	**Total Energy (kW.h)**
YECL						
1180 G - H	155		994,502	214,800	126,943	1,336,245
1280 G - SD	26		172,183	28,971	11,707	212,862
1380 G - LD	30		186,366	21,377	4,024	211,766
1480 G - OC	12		81,418	11,223	27,828	120,470
YEC						
1180 G - H	29		233,131	22,124	23,839	279,095
1280 G - SD	0		0	0	0	0
1380 G - LD	0		0	0	0	0
1480 G - OC	0		0	0	0	0
Total						
1180 G - H	184		1,227,633	236,925	150,782	1,615,340
1280 G - SD	26		172,183	28,971	11,707	212,862
1380 G - LD	30		186,366	21,377	4,024	211,766
1480 G - OC	12		81,418	11,223	27,828	120,470
Residential-Government	252		1,667,600	298,496	194,342	2,160,438

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 G - H	18.45		17.64	12.85	12.85	0.000%	0.000%
1260 G - SD	18.45		17.64	15.20	15.20	0.000%	0.000%
1360 G - LD	18.45		17.64	12.85	12.85	0.000%	0.000%
1460 G - OC	18.45		17.64	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
1160 G - H	34,342		175,392	27,606	16,315	0	0	**253,656**
1260 G - SD	5,756		30,367	4,404	1,780	0	0	**42,306**
1360 G - LD	6,649		32,868	2,747	517	0	0	**42,781**
1460 G - OC	2,656		14,359	3,557	8,820	0	0	**29,392**
Revenue - YEC								
1160 G - H	6,475		41,115	2,843	3,064	0	0	**53,498**
1260 G - SD	0		0	0	0	0	0	**0**
1360 G - LD	0		0	0	0	0	0	**0**
1460 G - OC	0		0	0	0	0	0	**0**
Revenue - Sub Total								
1160 G - H	40,818		216,508	30,450	19,379	0	0	**307,154**
1260 G - SD	5,756		30,367	4,404	1,780	0	0	**42,306**
1360 G - LD	6,649		32,868	2,747	517	0	0	**42,781**
1460 G - OC	2,656		14,359	3,557	8,820	0	0	**29,392**
Revenue ($)	55,878		294,101	41,158	30,495	0	0	**421,633**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

General Service-Non Government

	2009						
Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Block 3A Energy (kW.h)	**Total Energy (kW.h)**
YECL							
2160 NG - H	1,737	336,399	24,820,709	31,981,777	2,939,429	19,702,121	79,444,037
2260 NG - SD	92	7,311	830,009	799,705	1,631	0	1,631,346
2360 NG - LD	157	18,643	1,855,569	1,751,425	142,271	435,183	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	0	0	364,777
2170 GM - H	165	52,808	2,008,485	3,927,867	677,205	7,795,064	14,408,622
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	679,371	39,077	110,718	1,085,471
2470 GM - OC	0	0	0	0	0	0	0
YEC							
2160 NG - H	299	46,355	2,358,146	4,480,301	355,599	1,923,883	9,117,929
2260 NG - SD	0	0	0	0	0	0	0
2360 NG - LD	0	0	0	0	0	0	0
2460 NG - OC	0	0	0	0	0	0	0
2170 GM - H	55	16,580	452,883	1,953,933	322,865	531,587	3,261,268
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	0	0	0	0	0	0	0
2470 GM - OC	0	0	0	0	0	0	0
Total							
2160 NG - H	2,037	382,754	27,178,855	36,462,078	3,295,029	21,626,004	88,561,966
2260 NG - SD	92	7,311	830,009	799,705	1,631	0	1,631,346
2360 NG - LD	157	18,643	1,855,569	1,751,425	142,271	435,183	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	0	0	364,777
2170 GM - H	220	69,388	2,461,368	5,881,800	1,000,071	8,326,651	17,669,889
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	679,371	39,077	110,718	1,085,471
2470 GM - OC	0	0	0	0	0	0	0
General Service-Non Government	2,539	484,399	32,759,765	45,761,496	4,478,079	30,498,556	113,497,895

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Block 3A Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2160 NG - H 2170 GM - H	0.00	7.38	10.22	12.85	12.85	12.85	0.000%	0.000%
2260 NG - SD 2270 GM - SD	0.00	7.38	10.22	15.20	15.20	15.20	0.000%	0.000%
2360 NG - LD 2370 GM - LD	0.00	7.38	10.22	12.85	12.85	12.85	0.000%	0.000%
2460 NG - OC 2470 GM - OC	0.00	7.38	10.22	31.69	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL									
2160 NG - H	0	2,482,345	2,536,710	4,110,310	377,777	2,532,124	0	0	**12,039,266**
2260 NG - SD	0	53,951	84,828	121,564	248	0	0	0	**260,591**
2360 NG - LD	0	137,569	189,642	225,094	18,285	55,930	0	0	**626,519**
2460 NG - OC	0	11,449	18,157	59,304	0	0	0	0	**88,910**
2170 GM - H	0	389,677	205,270	504,811	87,035	1,001,825	0	0	**2,188,617**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	35,059	26,195	87,313	5,022	14,230	0	0	**167,818**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue - YEC									
2160 NG - H	0	342,060	241,006	575,810	45,702	247,258	0	0	**1,451,836**
2260 NG - SD	0	0	0	0	0	0	0	0	**0**
2360 NG - LD	0	0	0	0	0	0	0	0	**0**
2460 NG - OC	0	0	0	0	0	0	0	0	**0**
2170 GM - H	0	122,347	46,285	251,120	41,495	68,320	0	0	**529,567**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	0	0	0	0	0	0	0	**0**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue - Sub Total									
2160 NG - H	0	2,824,406	2,777,716	4,686,120	423,478	2,779,382	0	0	**13,491,102**
2260 NG - SD	0	53,951	84,828	121,564	248	0	0	0	**260,591**
2360 NG - LD	0	137,569	189,642	225,094	18,285	55,930	0	0	**626,519**
2460 NG - OC	0	11,449	18,157	59,304	0	0	0	0	**88,910**
2170 GM - H	0	512,024	251,555	755,931	128,529	1,070,144	0	0	**2,718,184**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	35,059	26,195	87,313	5,022	14,230	0	0	**167,818**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue ($)	0	3,574,458	3,348,093	5,935,325	575,563	3,919,686	0	0	**17,353,124**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

General Service-Government

2009

Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Block 3A Energy (kW.h)	**Total Energy (kW.h)**
YECL							
2180 GFT - H	337	128,900	4,617,896	12,625,944	2,375,636	21,339,764	40,959,241
2280 GFT - SD	51	3,972	406,476	344,619	0	0	751,095
2380 GFT - LD	36	8,468	535,831	1,057,090	183,312	330,805	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	0	0	429,120
YEC							
2180 GFT - H	103	21,854	837,208	2,279,237	308,062	3,739,734	7,164,240
2280 GFT - SD	0	0	0	0	0	0	0
2380 GFT - LD	0	0	0	0	0	0	0
2480 GFT - OC	0	0	0	0	0	0	0
Total							
2180 GFT - H	440	150,753	5,455,104	14,905,181	2,683,698	25,079,498	48,123,481
2280 GFT - SD	51	3,972	406,476	344,619	0	0	751,095
2380 GFT - LD	36	8,468	535,831	1,057,090	183,312	330,805	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	0	0	429,120
General Service-Government	547	165,716	6,617,910	16,515,510	2,867,011	25,410,303	51,410,733

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Block 3A Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2180 GFT - H	0.00	12.30	21.46	12.85	12.85	12.85	0.000%	0.000%
2280 GFT - SD	0.00	12.30	21.46	15.20	15.20	15.20	0.000%	0.000%
2380 GFT - LD	0.00	12.30	21.46	12.85	12.85	12.85	0.000%	0.000%
2480 GFT - OC	0.00	12.30	21.46	31.69	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL									
2180 GFT - H	0	1,585,287	991,049	1,622,691	305,318	2,742,594	0	0	**7,246,940**
2280 GFT - SD	0	48,846	87,234	52,386	0	0	0	0	**188,466**
2380 GFT - LD	0	104,150	114,995	135,858	23,559	42,515	0	0	**421,077**
2480 GFT - OC	0	31,021	47,322	66,119	0	0	0	0	**144,462**
Revenue - YEC									
2180 GFT - H	0	268,768	179,674	292,928	39,592	480,632	0	0	**1,261,594**
2280 GFT - SD	0	0	0	0	0	0	0	0	**0**
2380 GFT - LD	0	0	0	0	0	0	0	0	**0**
2480 GFT - OC	0	0	0	0	0	0	0	0	**0**
Revenue - Sub Total									
2180 GFT - H	0	1,854,055	1,170,723	1,915,619	344,910	3,223,226	0	0	**8,508,533**
2280 GFT - SD	0	48,846	87,234	52,386	0	0	0	0	**188,466**
2380 GFT - LD	0	104,150	114,995	135,858	23,559	42,515	0	0	**421,077**
2480 GFT - OC	0	31,021	47,322	66,119	0	0	0	0	**144,462**
Revenue ($)	0	2,038,072	1,420,274	2,169,982	368,469	3,265,742	0	0	**9,262,538**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

Industrial

2009

Billing Determinants		**Number of Customers Billed/year**	**Demand kVA**	**Total Energy (kW.h)**
YECL				
	39	0	0	0
YEC				
	39	1	62400	29,023,000
Total				
	39	1	62,400	29,023,000
Industrial		1	62,400	29,023,000

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kVA.)	Energy Charge (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)	Rider F Charge (¢ / kW.h)
	39	0.00	15.00	7.600	0.00%	0.00%	0.000

		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Rider F Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
	39	0	0	0	0	0	0	**0**
Revenue - YEC								
	39	0	936,000	2,205,748	0	0	0	**3,141,748**
Revenue - Sub Total								
	39	0	936,000	2,205,748	0	0	0	**3,141,748**
Revenue ($)		0	936,000	2,205,748	0	0	0	**3,141,748**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

Street Lights - Rate 61/66

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)	Highmast Customers Billed/year
YECL					
	61/66	4,825	8,578,680	3,438,012	160
YEC					
	61/66	567	685,400	274,112	0
Total					
	61/66	5,392	9,264,080	3,712,124	160
Street Lights - Rate 61/66		5,392	9,264,080	3,712,124	160

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Highmast Charge ($/ cust/ mo.)	Rider J Charge Revenue	Rider R Charge (%)
	61/66	7.82	4.96		1.27	0.000%	0.000%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Highmast Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
	61/66	452,889	425,188		2,432	0	0	**880,509**
Revenue - YEC								
	61/66	53,259	33,971		0	0	0	**87,230**
Revenue - Sub Total								
	61/66	506,148	459,159		2,432	0	0	**967,739**
Revenue ($)		506,148	459,159		2,432	0	0	**967,739**

Street Lights - Rate 67

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)
YECL				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	15	72,000	28,440
YEC				
	67 - 250 W	0	0	0
	67 - 400 W	2	9,600	3,792
Total				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	17	81,600	32,232
Street Lights - Rate 67		64	222,600	87,660

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
	67 - 250 W	19.03			0.000%	0.000%
	67 - 400 W	29.10			0.000%	0.000%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL							
	67 - 250 W	10,731			0	0	**10,731**
	67 - 400 W	5,238			0	0	**5,238**
Revenue - YEC							
	67 - 250 W	0			0	0	**0**
	67 - 400 W	698			0	0	**698**
Revenue - Sub Total							
	67 - 250 W	10,731			0	0	**10,731**
	67 - 400 W	5,936			0	0	**5,936**
Revenue ($)		16,667			0	0	**16,667**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

Sentinal Lights - Rate 75/76

2009

Billing Determinants	**Number of Customers Billed/year**	**Demand W**	**Total Energy (kW.h)**	
Total				
75/76 - Normal - 100 W	393	471,700	188,680	Normal: Normal 12-month unmeterd service
75/76 - E & M - 100 W	314	376,800	150,720	E & M: Energy and Maintenance only
75/76 - Meter - 100 W	7	8,400	0	(Cust. Pays installation costs)
75/76 - Normal - 175 W	150	315,000	129,600	Meter: 12-month service through customer meter
75/76 - E & M - 175 W	0	0	0	
75/76 - Meter - 175 W	17	35,700	0	
75/76 - Normal - 250 W	1	3,000	1,164	
75/76 - E & M - 250 W	0	0	0	
75/76 - Meter - 250 W	0	0	0	
75/76 - Normal - 400 W	2	9,600	3,816	
75/76 - E & M - 400 W	0	0	0	
75/76 - Meter - 400 W	0	0	0	
75/76 - Normal - 400 W FL	85	408,000	162,180	
75/76 - E & M - 400 W FL	5	24,000	9,540	
75/76 - Meter - 400 W FL	3	14,400	0	
Sentinal Lights - Rate 75/76	977	1,666,600	645,700	

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
75/76 - Normal - 100 W	14.32			0.000%	0.000%
75/76 - E & M - 100 W	7.94			0.000%	0.000%
75/76 - Meter - 100 W	9.03			0.000%	0.000%
75/76 - Normal - 175 W	17.44			0.000%	0.000%
75/76 - E & M - 175 W	12.14			0.000%	0.000%
75/76 - Meter - 175 W	9.80			0.000%	0.000%
75/76 - Normal - 250 W	21.33			0.000%	0.000%
75/76 - E & M - 250 W	16.18			0.000%	0.000%
75/76 - Meter - 250 W	10.12			0.000%	0.000%
75/76 - Normal - 400 W	28.32			0.000%	0.000%
75/76 - E & M - 400 W	22.89			0.000%	0.000%
75/76 - Meter - 400 W	9.64			0.000%	0.000%
75/76 - Normal - 400 W FL	31.29			0.000%	0.000%
75/76 - E & M - 400 W FL	21.83			0.000%	0.000%
75/76 - Meter - 400 W FL	12.62			0.000%	0.000%

Revenue ($)	Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - Sub Total						
75/76 - Normal - 100 W	67,527			0	0	**67,527**
75/76 - E & M - 100 W	29,936			0	0	**29,936**
75/76 - Meter - 100 W	758			0	0	**758**
75/76 - Normal - 175 W	31,391			0	0	**31,391**
75/76 - E & M - 175 W	0			0	0	**0**
75/76 - Meter - 175 W	2,000			0	0	**2,000**
75/76 - Normal - 250 W	256			0	0	**256**
75/76 - E & M - 250 W	0			0	0	**0**
75/76 - Meter - 250 W	0			0	0	**0**
75/76 - Normal - 400 W	680			0	0	**680**
75/76 - E & M - 400 W	0			0	0	**0**
75/76 - Meter - 400 W	0			0	0	**0**
75/76 - Normal - 400 W FL	31,913			0	0	**31,913**
75/76 - E & M - 400 W FL	1,310			0	0	**1,310**
75/76 - Meter - 400 W FL	454			0	0	**454**
Revenue ($)	166,225			0	0	**166,225**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

Secondary Sales

2009

Billing Determinants		Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Total Energy (kW.h)
YECL						
	3200	23		6,954,050		6,954,050
YEC						
	3200			629,950		629,950
Total						
	3200	23		7,584,000	0	7,584,000
Secondary Sales		23		7,584,000	0	7,584,000

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
	3200	0.00		7.20	0	0.00%	0.00%

		Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
	3200	0		500,692	0	0	0	**500,692**
Revenue - YEC								
	3200	0		45,356	0	0	0	**45,356**
Revenue - Sub Total								
	3200	0		546,048	0	0	0	**546,048**
Revenue ($)		0		546,048	0	0	0	**546,048**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. A Structure

TOTAL RATE REVENUE - Existing Rate (With J & R)

	2009									
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	2,227,761		12,316,848	1,994,639	1,263,708		0			**17,802,956**
Government	49,403		252,986	38,314	27,431		0			**368,135**
General Service										
Non-Government	0	3,110,050	3,060,802	5,108,395	488,366	3,604,108	0			**15,371,721**
Government	0	1,769,305	1,240,600	1,877,053	328,877	2,785,110	0			**8,000,944**
Industrial	0	0	0				0	0		**0**
Street Lights	471,289	425,188	0				0			**896,477**
Space Lights	162,607	0	0				0			**162,607**
Secondary Sales	0		500,692	0			0			**500,692**
Revenues - Primary - YECL	2,911,060	5,304,543	16,871,236	9,018,402	2,108,382	6,389,217				**42,602,840**
Revenues - Industrial - YECL	0	0	0					0		**0**
Revenues - Secondary - YECL	0	0	500,692	0						**500,692**
Revenues - Riders - YECL							0	0		**0**
Revenues - Other - YECL									827,000	**827,000**
Revenues - Total - YECL	2,911,060	5,304,543	17,371,927	9,018,402	2,108,382	6,389,217	0	0	827,000	**43,930,532**
Revenues - YEC										
Residential										
Non-Government	253,484		1,113,178	113,686	107,906		0			**1,588,255**
Government	6,475		41,115	2,843	3,064		0			**53,498**
General Service										
Non-Government	0	464,407	287,291	826,930	87,197	315,578	0			**1,981,403**
Government	0	268,768	179,674	292,928	39,592	480,632	0			**1,261,594**
Industrial	0	936,000	2,205,748	0			0	0		**3,141,748**
Street Lights	53,958	33,971	0				0			**87,928**
Space Lights	3,618	0	0	0			0			**3,618**
Secondary Sales	0		45,356	0			0			**45,356**
Revenues - Primary - YEC	317,535	767,146	1,621,259	1,236,388	237,759	796,210				**4,976,296**
Revenues - Industrial - YEC	0	936,000	2,205,748	0				0		**3,141,748**
Revenues - Secondary - YEC	0	0	45,356	0						**45,356**
Revenues - Riders - YEC							0			**0**
Revenues - Other - YEC									125,000	**125,000**
Revenues - Total - YEC	317,535	1,703,146	3,872,363	1,236,388	237,759	796,210	0	0	125,000	**8,288,400**
Revenues - Total										
Residential										
Non-Government	2,481,245		13,430,027	2,108,325	1,371,614		0			**19,391,211**
Government	55,878		294,101	41,158	30,495		0			**421,633**
General Service										
Non-Government	0	3,574,458	3,348,093	5,935,325	575,563	3,919,686	0			**17,353,124**
Government	0	2,038,072	1,420,274	2,169,982	368,469	3,265,742	0			**9,262,538**
Industrial	0	936,000	2,205,748	0			0	0		**3,141,748**
Street Lights	525,247	459,159	0				0	0		**984,406**
Space Lights	166,225	0	0				0			**166,225**
Secondary Sales	0		546,048	0			0			**546,048**
Revenues - Primary	3,228,596	6,071,689	18,492,494	10,254,789	2,346,141	7,185,427				**47,579,136**
Revenues - Industrial	0	936,000	2,205,748	0				0		**3,141,748**
Revenues - Secondary	0	0	546,048	0						**546,048**
Revenues - Riders							0			**0**
Revenues - Other									952,000	**952,000**
Revenues - Total	3,228,596	7,007,689	21,244,290	10,254,789	2,346,141	7,185,427	0	0	952,000	**52,218,932**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

Residential-Non Government

2009

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Total Energy (kW.h)
YECL						
1160 NG - H	11,570		94,533,720	21,353,217	2,728,147	118,615,084
1260 NG - SD	308		962,877	150,252	3,349	1,116,479
1360 NG - LD	682		5,309,797	769,237	49,024	6,128,058
1460 NG - OC	125		763,968	108,332	1,748	874,048
YEC						
1160 NG - H	1,443		9,179,779	1,429,773	294,407	10,903,958
1260 NG - SD	0		0	0	0	0
1360 NG - LD	0		0	0	0	0
1460 NG - OC	0		0	0	0	0
Total						
1160 NG - H	13,013		103,713,498	22,782,990	3,022,554	129,519,042
1260 NG - SD	308		962,877	150,252	3,349	1,116,479
1360 NG - LD	682		5,309,797	769,237	49,024	6,128,058
1460 NG - OC	125		763,968	108,332	1,748	874,048
Residential-Non Government	14,128		110,750,140	23,810,811	3,076,676	137,637,626

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 NG - H	14.64		12.13	12.85	12.85	0.000%	0.000%
1260 NG - SD	14.64		12.13	15.20	15.20	0.000%	0.000%
1360 NG - LD	14.64		12.13	12.85	12.85	0.000%	0.000%
1460 NG - OC	14.64		12.13	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
1160 NG - H	2,031,917		11,463,556	2,744,323	350,622	0	0	**16,590,419**
1260 NG - SD	54,019		116,763	22,840	509	0	0	**194,131**
1360 NG - LD	119,828		643,888	98,863	6,301	0	0	**868,880**
1460 NG - OC	21,997		92,642	34,334	554	0	0	**149,527**
Revenue - YEC								
1160 NG - H	253,484		1,113,178	183,755	37,837	0	0	**1,588,255**
1260 NG - SD	0		0	0	0	0	0	**0**
1360 NG - LD	0		0	0	0	0	0	**0**
1460 NG - OC	0		0	0	0	0	0	**0**
Revenue - Sub Total								
1160 NG - H	2,285,401		12,576,734	2,928,078	388,460	0	0	**18,178,673**
1260 NG - SD	54,019		116,763	22,840	509	0	0	**194,131**
1360 NG - LD	119,828		643,888	98,863	6,301	0	0	**868,880**
1460 NG - OC	21,997		92,642	34,334	554	0	0	**149,527**
Revenue ($)	2,481,245		13,430,027	3,084,115	395,824	0	0	**19,391,211**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

Residential-Government

			2009			
Billing Determinants	**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	**Total Energy (kW.h)**
YECL						
1180 G - H	155		994,502	309,674	32,070	1,336,245
1280 G - SD	26		172,183	39,189	1,490	212,862
1380 G - LD	30		186,366	25,400	0	211,766
1480 G - OC	12		81,418	19,656	19,396	120,470
YEC						
1180 G - H	29		233,131	29,218	16,746	279,095
1280 G - SD	0		0	0	0	0
1380 G - LD	0		0	0	0	0
1480 G - OC	0		0	0	0	0
Total						
1180 G - H	184		1,227,633	338,891	48,816	1,615,340
1280 G - SD	26		172,183	39,189	1,490	212,862
1380 G - LD	30		186,366	25,400	0	211,766
1480 G - OC	12		81,418	19,656	19,396	120,470
Residential-Government	252		1,667,600	423,136	69,701	2,160,438
					0.032262534	

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
1160 G - H	18.45		17.64	12.85	12.85	0.000%	0.000%
1260 G - SD	18.45		17.64	15.20	15.20	0.000%	0.000%
1360 G - LD	18.45		17.64	12.85	12.85	0.000%	0.000%
1460 G - OC	18.45		17.64	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
1160 G - H	34,342		175,392	39,799	4,122	0	0	**253,656**
1260 G - SD	5,756		30,367	5,957	227	0	0	**42,306**
1360 G - LD	6,649		32,868	3,264	0	0	0	**42,781**
1460 G - OC	2,656		14,359	6,230	6,147	0	0	**29,392**
Revenue - YEC								
1160 G - H	6,475		41,115	3,755	2,152	0	0	**53,498**
1260 G - SD	0		0	0	0	0	0	**0**
1360 G - LD	0		0	0	0	0	0	**0**
1460 G - OC	0		0	0	0	0	0	**0**
Revenue - Sub Total								
1160 G - H	40,818		216,508	43,554	6,274	0	0	**307,154**
1260 G - SD	5,756		30,367	5,957	227	0	0	**42,306**
1360 G - LD	6,649		32,868	3,264	0	0	0	**42,781**
1460 G - OC	2,656		14,359	6,230	6,147	0	0	**29,392**
Revenue ($)	55,878		294,101	59,006	12,647	0	0	**421,633**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

General Service-Non Government

2009

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Block 4 Energy (kW.h)	Total Energy (kW.h)
YECL							
2160 NG - H	1,737	336,399	24,820,709	31,981,777	2,939,429	19,702,121	79,444,037
2260 NG - SD	92	7,311	830,009	799,705	1,631	0	1,631,346
2360 NG - LD	157	18,643	1,855,569	1,751,425	142,271	435,183	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	0	0	364,777
2170 GM - H	165	52,808	2,008,485	3,927,867	677,205	7,795,064	14,408,622
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	679,371	39,077	110,718	1,085,471
2470 GM - OC	0	0	0	0	0	0	0
YEC							
2160 NG - H	299	46,355	2,358,146	4,480,301	355,599	1,923,883	9,117,929
2260 NG - SD	0	0	0	0	0	0	0
2360 NG - LD	0	0	0	0	0	0	0
2460 NG - OC	0	0	0	0	0	0	0
2170 GM - H	55	16,580	452,883	1,953,933	322,865	531,587	3,261,268
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	0	0	0	0	0	0	0
2470 GM - OC	0	0	0	0	0	0	0
Total							
2160 NG - H	2,037	382,754	27,178,855	36,462,078	3,295,029	21,626,004	88,561,966
2260 NG - SD	92	7,311	830,009	799,705	1,631	0	1,631,346
2360 NG - LD	157	18,643	1,855,569	1,751,425	142,271	435,183	4,184,447
2460 NG - OC	16	1,551	177,660	187,117	0	0	364,777
2170 GM - H	220	69,388	2,461,368	5,881,800	1,000,071	8,326,651	17,669,889
2270 GM - SD	0	0	0	0	0	0	0
2370 GM - LD	18	4,751	256,304	679,371	39,077	110,718	1,085,471
2470 GM - OC	0	0	0	0	0	0	0
General Service-Non Government	2,539	484,399	32,759,765	45,761,496	4,478,079	30,498,556	113,497,895

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Block 4 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2160 NG - H 2170 GM - H	0.00	7.38	10.22	12.85	12.85	12.85	0.000%	0.000%
2260 NG - SD 2270 GM - SD	0.00	7.38	10.22	15.20	15.20	15.20	0.000%	0.000%
2360 NG - LD 2370 GM - LD	0.00	7.38	10.22	12.85	12.85	12.85	0.000%	0.000%
2460 NG - OC 2470 GM - OC	0.00	7.38	10.22	31.69	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 4 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL									
2160 NG - H	0	2,482,345	2,536,710	4,110,310	377,777	2,532,124	0	0	**12,039,266**
2260 NG - SD	0	53,951	84,828	121,564	248	0	0	0	**260,591**
2360 NG - LD	0	137,569	189,642	225,094	18,285	55,930	0	0	**626,519**
2460 NG - OC	0	11,449	18,157	59,304	0	0	0	0	**88,910**
2170 GM - H	0	389,677	205,270	504,811	87,035	1,001,825	0	0	**2,188,617**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	35,059	26,195	87,313	5,022	14,230	0	0	**167,818**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue - YEC									
2160 NG - H	0	342,060	241,006	575,810	45,702	247,258	0	0	**1,451,836**
2260 NG - SD	0	0	0	0	0	0	0	0	**0**
2360 NG - LD	0	0	0	0	0	0	0	0	**0**
2460 NG - OC	0	0	0	0	0	0	0	0	**0**
2170 GM - H	0	122,347	46,285	251,120	41,495	68,320	0	0	**529,567**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	0	0	0	0	0	0	0	**0**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue - Sub Total									
2160 NG - H	0	2,824,406	2,777,716	4,686,120	423,478	2,779,382	0	0	**13,491,102**
2260 NG - SD	0	53,951	84,828	121,564	248	0	0	0	**260,591**
2360 NG - LD	0	137,569	189,642	225,094	18,285	55,930	0	0	**626,519**
2460 NG - OC	0	11,449	18,157	59,304	0	0	0	0	**88,910**
2170 GM - H	0	512,024	251,555	755,931	128,529	1,070,144	0	0	**2,718,184**
2270 GM - SD	0	0	0	0	0	0	0	0	**0**
2370 GM - LD	0	35,059	26,195	87,313	5,022	14,230	0	0	**167,818**
2470 GM - OC	0	0	0	0	0	0	0	0	**0**
Revenue ($)	0	3,574,458	3,348,093	5,935,325	575,563	3,919,686	0	0	**17,353,124**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

General Service-Government

2009

Billing Determinants	Number of Customers Billed/year	Demand kW	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	Block 3 Energy (kW.h)	Block 4 Energy (kW.h)	Total Energy (kW.h)
YECL							
2180 GFT - H	337	128,900	4,617,896	12,625,944	2,375,636	21,339,764	40,959,241
2280 GFT - SD	51	3,972	406,476	344,619	0	0	751,095
2380 GFT - LD	36	8,468	535,831	1,057,090	183,312	330,805	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	0	0	429,120
YEC							
2180 GFT - H	103	21,854	837,208	2,279,237	308,062	3,739,734	7,164,240
2280 GFT - SD	0	0	0	0	0	0	0
2380 GFT - LD	0	0	0	0	0	0	0
2480 GFT - OC	0	0	0	0	0	0	0
Total							
2180 GFT - H	440	150,753	5,455,104	14,905,181	2,683,698	25,079,498	48,123,481
2280 GFT - SD	51	3,972	406,476	344,619	0	0	751,095
2380 GFT - LD	36	8,468	535,831	1,057,090	183,312	330,805	2,107,037
2480 GFT - OC	20	2,522	220,500	208,620	0	0	429,120
General Service-Government	547	165,716	6,617,910	16,515,510	2,867,011	25,410,303	51,410,733

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Block 3 Energy Chg (¢ / kW.h)	Block 4 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
2180 GFT - H	0.00	12.30	21.46	12.85	12.85	12.85	0.000%	0.000%
2280 GFT - SD	0.00	12.30	21.46	15.20	15.20	15.20	0.000%	0.000%
2380 GFT - LD	0.00	12.30	21.46	12.85	12.85	12.85	0.000%	0.000%
2480 GFT - OC	0.00	12.30	21.46	31.69	31.69	31.69	0.000%	0.000%

	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 4 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL									
2180 GFT - H	0	1,585,287	991,049	1,622,691	305,318	2,742,594	0	0	**7,246,940**
2280 GFT - SD	0	48,846	87,234	52,386	0	0	0	0	**188,466**
2380 GFT - LD	0	104,150	114,995	135,858	23,559	42,515	0	0	**421,077**
2480 GFT - OC	0	31,021	47,322	66,119	0	0	0	0	**144,462**
Revenue - YEC									
2180 GFT - H	0	268,768	179,674	292,928	39,592	480,632	0	0	**1,261,594**
2280 GFT - SD	0	0	0	0	0	0	0	0	**0**
2380 GFT - LD	0	0	0	0	0	0	0	0	**0**
2480 GFT - OC	0	0	0	0	0	0	0	0	**0**
Revenue - Sub Total									
2180 GFT - H	0	1,854,055	1,170,723	1,915,619	344,910	3,223,226	0	0	**8,508,533**
2280 GFT - SD	0	48,846	87,234	52,386	0	0	0	0	**188,466**
2380 GFT - LD	0	104,150	114,995	135,858	23,559	42,515	0	0	**421,077**
2480 GFT - OC	0	31,021	47,322	66,119	0	0	0	0	**144,462**
Revenue ($)	0	2,038,072	1,420,274	2,169,982	368,469	3,265,742	0	0	**9,262,538**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

Industrial

2009

Billing Determinants		**Number of Customers Billed/year**	**Demand kVA**	**Total Energy (kW.h)**
YECL	39	0	0	0
YEC	39	1	62400	29,023,000
Total	39	1	62,400	29,023,000
Industrial		1	62,400	29,023,000

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kVA.)	Energy Charge (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)	Rider F Charge (¢ / kW.h)
	39	0.00	15.00	7.600	0.00%	0.00%	0.000

		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Rider F Charge Revenue	**Total Rate Revenue**
Revenue - YECL	39	0	0	0	0	0	0	**0**
Revenue - YEC	39	0	936,000	2,205,748	0	0	0	**3,141,748**
Revenue - Sub Total	39	0	936,000	2,205,748	0	0	0	**3,141,748**
Revenue ($)		0	936,000	2,205,748	0	0	0	**3,141,748**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

Street Lights - Rate 61/66

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)	Highmast Customers Billed/year
YECL					
	61/66	4,825	8,578,680	3,438,012	160
YEC					
	61/66	567	685,400	274,112	0
Total					
	61/66	5,392	9,264,080	3,712,124	160
Street Lights - Rate 61/66		5,392	9,264,080	3,712,124	160

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Highmast Charge ($/ cust/ mo.)	Rider J Charge Revenue	Rider R Charge (%)
	61/66	7.82	4.96		1.27	0.000%	0.000%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Highmast Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL								
	61/66	452,889	425,188		2,432	0	0	**880,509**
Revenue - YEC								
	61/66	53,259	33,971		0	0	0	**87,230**
Revenue - Sub Total								
	61/66	506,148	459,159		2,432	0	0	**967,739**
Revenue ($)		506,148	459,159		2,432	0	0	**967,739**

Street Lights - Rate 67

2009

Billing Determinants		Number of Customers Billed/year	Demand W	Total Energy (kW.h)
YECL				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	15	72,000	28,440
YEC				
	67 - 250 W	0	0	0
	67 - 400 W	2	9,600	3,792
Total				
	67 - 250 W	47	141,000	55,428
	67 - 400 W	17	81,600	32,232
Street Lights - Rate 67		64	222,600	87,660

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
	67 - 250 W	19.03			0.000%	0.000%
	67 - 400 W	29.10			0.000%	0.000%

Revenue ($)		Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	Total Rate Revenue
Revenue - YECL							
	67 - 250 W	10,731			0	0	**10,731**
	67 - 400 W	5,238			0	0	**5,238**
Revenue - YEC							
	67 - 250 W	0			0	0	**0**
	67 - 400 W	698			0	0	**698**
Revenue - Sub Total							
	67 - 250 W	10,731			0	0	**10,731**
	67 - 400 W	5,936			0	0	**5,936**
Revenue ($)		16,667			0	0	**16,667**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

Sentinal Lights - Rate 75/76

2009

Billing Determinants	**Number of Customers Billed/year**	**Demand W**	**Total Energy (kW.h)**	
Total				
75/76 - Normal - 100 W	393	471,700	188,680	Normal: Normal 12-month unmeterd service
75/76 - E & M - 100 W	314	376,800	150,720	E & M: Energy and Maintenance only
75/76 - Meter - 100 W	7	8,400	0	(Cust. Pays installation costs)
75/76 - Normal - 175 W	150	315,000	129,600	Meter: 12-month service through customer meter
75/76 - E & M - 175 W	0	0	0	
75/76 - Meter - 175 W	17	35,700	0	
75/76 - Normal - 250 W	1	3,000	1,164	
75/76 - E & M - 250 W	0	0	0	
75/76 - Meter - 250 W	0	0	0	
75/76 - Normal - 400 W	2	9,600	3,816	
75/76 - E & M - 400 W	0	0	0	
75/76 - Meter - 400 W	0	0	0	
75/76 - Normal - 400 W FL	85	408,000	162,180	
75/76 - E & M - 400 W FL	5	24,000	9,540	
75/76 - Meter - 400 W FL	3	14,400	0	
Sentinal Lights - Rate 75/76	977	1,666,600	645,700	

Existing Rate (With J & R)	Customer Charge ($/ cust/ mo.)	Demand Charge (¢ / W/ mo.)	Energy Chg (¢ / kW.h)	Rider J Charge Revenue	Rider R Charge (%)
75/76 - Normal - 100 W	14.32			0.000%	0.000%
75/76 - E & M - 100 W	7.94			0.000%	0.000%
75/76 - Meter - 100 W	9.03			0.000%	0.000%
75/76 - Normal - 175 W	17.44			0.000%	0.000%
75/76 - E & M - 175 W	12.14			0.000%	0.000%
75/76 - Meter - 175 W	9.80			0.000%	0.000%
75/76 - Normal - 250 W	21.33			0.000%	0.000%
75/76 - E & M - 250 W	16.18			0.000%	0.000%
75/76 - Meter - 250 W	10.12			0.000%	0.000%
75/76 - Normal - 400 W	28.32			0.000%	0.000%
75/76 - E & M - 400 W	22.89			0.000%	0.000%
75/76 - Meter - 400 W	9.64			0.000%	0.000%
75/76 - Normal - 400 W FL	31.29			0.000%	0.000%
75/76 - E & M - 400 W FL	21.83			0.000%	0.000%
75/76 - Meter - 400 W FL	12.62			0.000%	0.000%

Revenue ($)	Customer Revenue	Demand Revenue	Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - Sub Total						
75/76 - Normal - 100 W	67,527			0	0	**67,527**
75/76 - E & M - 100 W	29,936			0	0	**29,936**
75/76 - Meter - 100 W	758			0	0	**758**
75/76 - Normal - 175 W	31,391			0	0	**31,391**
75/76 - E & M - 175 W	0			0	0	**0**
75/76 - Meter - 175 W	2,000			0	0	**2,000**
75/76 - Normal - 250 W	256			0	0	**256**
75/76 - E & M - 250 W	0			0	0	**0**
75/76 - Meter - 250 W	0			0	0	**0**
75/76 - Normal - 400 W	680			0	0	**680**
75/76 - E & M - 400 W	0			0	0	**0**
75/76 - Meter - 400 W	0			0	0	**0**
75/76 - Normal - 400 W FL	31,913			0	0	**31,913**
75/76 - E & M - 400 W FL	1,310			0	0	**1,310**
75/76 - Meter - 400 W FL	454			0	0	**454**
Revenue ($)	166,225			0	0	**166,225**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

Secondary Sales

Billing Determinants		**Number of Customers Billed/year**	**Demand kW**	Block 1 Energy (kW.h)	Block 2 Energy (kW.h)	**Total Energy (kW.h)**
					2009	
YECL						
	3200	23		6,954,050		6,954,050
YEC						
	3200			629,950		629,950
Total						
	3200	23		7,584,000	0	7,584,000
Secondary Sales		23		7,584,000	0	7,584,000

Existing Rate (With J & R)		Customer Charge ($/ cust/ mo.)	Demand Charge ($ / kW/ mo.)	Block 1 Energy Chg (¢ / kW.h)	Block 2 Energy Chg (¢ / kW.h)	Rider J Charge (%)	Rider R Charge (%)
	3200	0.00		7.20	0	0.00%	0.00%

		Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Rider J Charge Revenue	Rider R Charge Revenue	**Total Rate Revenue**
Revenue - YECL								
	3200	0		500,692	0	0	0	**500,692**
Revenue - YEC								
	3200	0		45,356	0	0	0	**45,356**
Revenue - Sub Total								
	3200	0		546,048	0	0	0	**546,048**
Revenue ($)		0		546,048	0	0	0	**546,048**

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants on Existing Rates (with Rider J & R included) - Opt. B Structure

TOTAL RATE REVENUE - Existing Rate (With J & R)

	2009									
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 4 Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	2,227,761		12,316,848	2,900,360	357,986		0			**17,802,956**
Government	49,403		252,986	55,251	10,495		0			**368,135**
General Service										
Non-Government	0	3,110,050	3,060,802	5,108,395	488,366	3,604,108	0			**15,371,721**
Government	0	1,769,305	1,240,600	1,877,053	328,877	2,785,110	0			**8,000,944**
Industrial	0	0	0				0	0		**0**
Street Lights	471,289	425,188	0				0			**896,477**
Space Lights	162,607	0	0				0			**162,607**
Secondary Sales	0		500,692	0			0			**500,692**
Revenues - Primary - YECL	2,911,060	5,304,543	16,871,236	9,941,059	1,185,725	6,389,217				**42,602,840**
Revenues - Industrial - YECL	0	0	0					0		**0**
Revenues - Secondary - YECL	0	0	500,692	0						**500,692**
Revenues - Riders - YECL							0	0		**0**
Revenues - Other - YECL									827,000	**827,000**
Revenues - Total - YECL	2,911,060	5,304,543	17,371,927	9,941,059	1,185,725	6,389,217	0	0	827,000	**43,930,532**
Revenues - YEC										
Residential										
Non-Government	253,484		1,113,178	183,755	37,837		0			**1,588,255**
Government	6,475		41,115	3,755	2,152		0			**53,498**
General Service										
Non-Government	0	464,407	287,291	826,930	87,197	315,578	0			**1,981,403**
Government	0	268,768	179,674	292,928	39,592	480,632	0			**1,261,594**
Industrial	0	936,000	2,205,748	0			0	0		**3,141,748**
Street Lights	53,958	33,971	0				0			**87,928**
Space Lights	3,618	0	0	0			0			**3,618**
Secondary Sales	0		45,356	0			0			**45,356**
Revenues - Primary - YEC	317,535	767,146	1,621,259	1,307,368	166,778	796,210				**4,976,296**
Revenues - Industrial - YEC	0	936,000	2,205,748	0				0		**3,141,748**
Revenues - Secondary - YEC	0	0	45,356	0						**45,356**
Revenues - Riders - YEC							0			**0**
Revenues - Other - YEC									125,000	**125,000**
Revenues - Total - YEC	317,535	1,703,146	3,872,363	1,307,368	166,778	796,210	0	0	125,000	**8,288,400**
Revenues - Total										
Residential										
Non-Government	2,481,245		13,430,027	3,084,115	395,824		0			**19,391,211**
Government	55,878		294,101	59,006	12,647		0			**421,633**
General Service										
Non-Government	0	3,574,458	3,348,093	5,935,325	575,563	3,919,686	0			**17,353,124**
Government	0	2,038,072	1,420,274	2,169,982	368,469	3,265,742	0			**9,262,538**
Industrial	0	936,000	2,205,748	0			0	0		**3,141,748**
Street Lights	525,247	459,159	0				0	0		**984,406**
Space Lights	166,225	0	0				0			**166,225**
Secondary Sales	0		546,048	0			0			**546,048**
Revenues - Primary	3,228,596	6,071,689	18,492,494	11,248,428	1,352,503	7,185,427				**47,579,136**
Revenues - Industrial	0	936,000	2,205,748	0				0		**3,141,748**
Revenues - Secondary	0	0	546,048	0						**546,048**
Revenues - Riders							0			**0**
Revenues - Other									952,000	**952,000**
Revenues - Total	3,228,596	7,007,689	21,244,290	11,248,428	1,352,503	7,185,427	0	0	952,000	**52,218,932**

Illustration of how Rider J and R are applied to existing rates.

Charge	$11.90	/cust./month - customer charge
Rider J	12.460%	
Rider R	10.526%	

Formula= 11.90*(1+12.460%+10.526%)
Result =14.64

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants - Comparisons

COMPARISON OF RATE REVENUE BY PERCENTAGE (CW-YEC/YECL 21a Schedule 1 & CW-YEC/YECL 21c Schedule 1)

					2009					
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	0.10%		-10.13%	17.13%	74.05%					0.18%
Government	0.12%		-8.29%	9.79%	66.40%					0.29%
General Service										
Non-Government		-18.69%	-18.70%	14.71%	74.20%	0.06%				-0.24%
Government		-18.69%	-12.36%	13.01%	74.21%	0.06%				0.07%
Industrial										
Street Lights	0.11%	0.11%								0.11%
61/66	0.11%	0.11%		0.11%						0.11%
67	0.11%									0.11%
Space Lights	0.11%									0.11%
Secondary Sales			0.00%							0.00%
Revenues - Primary - YECL	0.10%	-17.18%	-11.82%	14.87%	74.01%	0.06%				0.01%
Revenues - Industrial - YECL										
Revenues - Secondary - YECL			0.00%							0.00%
Revenues - Riders - YECL										
Revenues - Other - YECL									0.00%	0.00%
Revenues - Total - YECL	0.10%	-17.18%	-11.48%	14.87%	74.01%	0.06%			0.00%	0.01%
Revenues - YEC										
Residential										
Non-Government	0.10%		-10.13%	18.42%	74.21%					-0.72%
Government	0.12%		-8.29%	18.42%	74.21%					-1.13%
General Service										
Non-Government		-18.69%	-18.70%	15.93%	74.21%	0.06%				2.83%
Government		-18.69%	-12.36%	15.93%	74.21%	0.06%				0.31%
Industrial		0.00%	0.00%							1.95%
Street Lights	0.11%	0.11%								0.11%
61/66	0.11%	0.11%								0.11%
67	0.11%									0.11%
Space Lights	0.11%									0.11%
Secondary Sales			0.00%							0.00%
Revenues - Primary - YEC	0.10%	-17.86%	-11.85%	16.17%	74.21%	0.06%				0.97%
Revenues - Industrial - YEC		0.00%	0.00%							1.95%
Revenues - Secondary - YEC			0.00%							0.00%
Revenues - Riders - YEC										
Revenues - Other - YEC									0.00%	0.00%
Revenues - Total - YEC	0.10%	-8.04%	-4.96%	16.17%	74.21%	0.06%			0.00%	1.32%
Revenues - Total										
Residential										
Non-Government	0.10%		-10.13%	17.20%	74.06%					0.11%
Government	0.12%		-8.29%	10.38%	67.18%					0.11%
General Service										
Non-Government		-18.69%	-18.70%	14.88%	74.20%	0.06%				0.11%
Government		-18.69%	-12.36%	13.40%	74.21%	0.06%				0.11%
Industrial		0.00%	0.00%							1.95%
Street Lights	0.11%	0.11%								0.11%
61/66	0.11%	0.11%		0.11%						0.11%
67	0.11%									0.11%
Space Lights	0.11%									0.11%
Secondary Sales			0.00%							0.00%
Revenues - Primary	0.10%	-17.27%	-11.82%	15.03%	74.03%	0.06%				0.11%
Revenues - Industrial		0.00%	0.00%							1.95%
Revenues - Secondary			0.00%							0.00%
Revenues - Riders										
Revenues - Other									0.00%	0.00%
Revenues - Total	0.10%	-14.96%	-10.29%	15.03%	74.03%	0.06%			0.00%	0.21%

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants - Comparisons

COMPARISON OF RATE REVENUE BY REVENUE (CW-YEC/YECL 21a Schedule 1 & CW-YEC/YECL 21c Schedule 1)

					2009					
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	2,232		-1,247,497	341,711	935,734					32,180
Government	59		-20,970	3,749	18,214					1,053
General Service										
Non-Government		-581,266	-572,324	751,367	362,367	2,233				-37,623
Government		-330,682	-153,296	244,151	244,072	1,726				5,971
Industrial										
Street Lights	503	454								958
61/66	484	454		3						941
67	17									17
Space Lights	174									174
Secondary Sales			0							0
Revenues - Primary - YECL	2,969	-911,494	-1,994,087	1,340,978	1,560,387	3,959				2,712
Revenues - Industrial - YECL										
Revenues - Secondary - YECL			0							0
Revenues - Riders - YECL										
Revenues - Other - YECL									0	0
Revenues - Total - YECL	2,969	-911,494	-1,994,087	1,340,978	1,560,387	3,959	0	0	0	2,712
Revenues - YEC										
Residential										
Non-Government	254		-112,747	20,946	80,082					-11,464
Government	8		-3,408	524	2,274					-603
General Service										
Non-Government		-86,797	-53,719	131,771	64,712	196				56,161
Government		-50,232	-22,202	46,678	29,383	298				3,925
Industrial										
Street Lights	58	36								94
61/66	57	36		0						93
67	1									1
Space Lights	4									4
Secondary Sales			0							0
Revenues - Primary - YEC	323	-136,994	-192,076	199,919	176,451	493				48,117
Revenues - Industrial - YEC										
Revenues - Secondary - YEC			0							0
Revenues - Riders - YEC										
Revenues - Other - YEC									0	0
Revenues - Total - YEC	323	-136,994	-192,076	199,919	176,451	493	0	61,239	0	109,356
Revenues - Total										
Residential										
Non-Government	2,486		-1,360,244	362,657	1,015,816					20,716
Government	67		-24,378	4,273	20,488					450
General Service										
Non-Government		-668,064	-626,043	883,138	427,079	2,429				18,539
Government		-380,914	-175,498	290,829	273,454	2,023				9,895
Industrial										
Street Lights	561	491								1,052
61/66	541	491		3						1,034
67	18									18
Space Lights	178									178
Secondary Sales			0							0
Revenues - Primary	3,292	-1,048,488	-2,186,162	1,540,897	1,736,838	4,452				50,829
Revenues - Industrial										
Revenues - Secondary			0							0
Revenues - Riders										
Revenues - Other									0	0
Revenues - Total	3,292	-1,048,488	-2,186,162	1,540,897	1,736,838	4,452	0	61,239	0	112,068

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Schedule of Determinants - Comparisons

COMPARISON OF RATE REVENUE BY PERCENTAGE (Schedule YECL B4.7 & CW-YEC/YECL 21d Schedule 1)

	2009									
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	0.10%		0.11%	-1.08%	8.84%					0.09%
Government	0.12%		1.63%	-8.61%	1.61%					-0.11%
General Service										
Non-Government		0.15%	0.10%	-0.88%	8.88%	0.06%				0.05%
Government		0.09%	0.09%	-1.63%	8.88%	0.06%				0.04%
Industrial										
Street Lights	0.11%	0.11%								0.11%
61/66	0.11%	0.11%		0.11%						0.11%
67	0.11%									0.11%
Space Lights	0.11%									0.11%
Secondary Sales			0.00%							0.00%
Revenues - Primary - YECL	0.10%	0.13%	0.13%	-1.12%	8.80%	0.06%				0.07%
Revenues - Industrial - YECL										
Revenues - Secondary - YECL			0.00%							0.00%
Revenues - Riders - YECL										
Revenues - Other - YECL									0.00%	0.00%
Revenues - Total - YECL	0.10%	0.13%	0.13%	-1.12%	8.80%	0.06%		#DIV/0!	0.00%	0.06%
Revenues - YEC										
Residential										
Non-Government	0.10%		0.11%	-0.26%	8.88%					0.28%
Government	0.12%		1.63%	-0.26%	8.88%					1.60%
General Service										
Non-Government		0.15%	0.10%	0.18%	8.88%	0.06%				0.52%
Government		0.09%	0.09%	0.91%	8.88%	0.06%				0.55%
Industrial		0.00%	0.00%					#DIV/0!		1.95%
Street Lights	0.11%	0.11%								0.11%
61/66	0.11%	0.11%								0.11%
67	0.11%									0.11%
Space Lights	0.11%									0.11%
Secondary Sales			0.00%	#DIV/0!						0.00%
Revenues - Primary - YEC	0.10%	0.13%	0.15%	0.28%	8.88%	0.06%				0.45%
Revenues - Industrial - YEC		0.00%	0.00%					#DIV/0!		1.95%
Revenues - Secondary - YEC			0.00%							0.00%
Revenues - Riders - YEC										
Revenues - Other - YEC									0.00%	0.00%
Revenues - Total - YEC	0.10%	0.06%	0.06%	0.28%	8.88%	0.06%		#DIV/0!	0.00%	1.01%
Revenues - Total										
Residential										
Non-Government	0.10%		0.11%	-1.03%	8.85%					0.11%
Government	0.12%		1.63%	-8.07%	2.85%					0.11%
General Service										
Non-Government		0.15%	0.10%	-0.73%	8.88%	0.06%				0.11%
Government		0.09%	0.09%	-1.29%	8.88%	0.06%				0.11%
Industrial		0.00%	0.00%					#DIV/0!		1.95%
Street Lights	0.11%	0.11%								0.11%
61/66	0.11%	0.11%		0.11%						0.11%
67	0.11%									0.11%
Space Lights	0.11%									0.11%
Secondary Sales			0.00%							0.00%
Revenues - Primary	0.10%	0.13%	0.13%	-0.96%	8.81%	0.06%				0.11%
Revenues - Industrial		0.00%	0.00%					#DIV/0!		1.95%
Revenues - Secondary			0.00%							0.00%
Revenues - Riders										
Revenues - Other									0.00%	0.00%
Revenues - Total	0.10%	0.11%	0.11%	-0.96%	8.81%	0.06%		#DIV/0!	0.00%	0.21%

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application
Schedule of Determinants - Comparisons

COMPARISON OF RATE REVENUE BY REVENUE (Schedule YECL B4.7 & CW-YEC/YECL 21d Schedule 1)

					2009					
Revenue ($)	Customer Revenue	Demand Revenue	Block 1 Energy Revenue	Block 2 Energy Revenue	Block 3 Energy Revenue	Block 3A Energy Revenue	Rider J & R Charge Revenue	Rider F Charge Revenue		**Total Rate Revenue**
Revenues - YECL										
Residential										
Non-Government	2,232		13,794	-31,352	31,653					16,327
Government	59		4,118	-4,754	169					-408
General Service										
Non-Government		4,569	2,954	-44,951	43,345	2,233				8,150
Government		1,640	1,095	-30,683	29,218	1,726				2,996
Industrial										
Street Lights	503	454								958
61/66	484	454		3						941
67	17									17
Space Lights	174									174
Secondary Sales			0							0
Revenues - Primary - YECL	2,969	6,663	21,961	-111,741	104,385	3,959				28,196
Revenues - Industrial - YECL										
Revenues - Secondary - YECL			0							0
Revenues - Riders - YECL										
Revenues - Other - YECL									0	0
Revenues - Total - YECL	2,969	6,663	21,961	-111,741	104,385	3,959	0	0	0	28,196
Revenues - YEC										
Residential										
Non-Government	254		1,247	-473	3,362					4,389
Government	8		669	-10	191					859
General Service										
Non-Government		682	277	1,487	7,747	196				10,389
Government		249	159	2,677	3,517	298				6,900
Industrial										
Street Lights	58	36								94
61/66	57	36		0						93
67	1									1
Space Lights	4									4
Secondary Sales			0							0
Revenues - Primary - YEC	323	968	2,352	3,681	14,817	493				22,634
Revenues - Industrial - YEC										
Revenues - Secondary - YEC			0							0
Revenues - Riders - YEC										
Revenues - Other - YEC									0	0
Revenues - Total - YEC	323	968	2,352	3,681	14,817	493	0	61,239	0	83,872
Revenues - Total										
Residential										
Non-Government	2,486		15,040	-31,825	35,015					20,716
Government	67		4,787	-4,764	360					450
General Service										
Non-Government		5,251	3,231	-43,464	51,092	2,429				18,539
Government		1,889	1,254	-28,006	32,735	2,023				9,895
Industrial										
Street Lights	561	491								1,052
61/66	541	491		3						1,034
67	18									18
Space Lights	178									178
Secondary Sales			0							0
Revenues - Primary	3,292	7,631	24,312	-108,060	119,202	4,452				50,829
Revenues - Industrial										
Revenues - Secondary			0							0
Revenues - Riders										
Revenues - Other									0	0
Revenues - Total	3,292	7,631	24,312	-108,060	119,202	4,452	0	61,239	0	112,068

ISSUE: **Street Lights**

REFERENCE: **Application, page 7-22, Issue No. 56**

PREAMBLE:

No.	Intervenor	Submission Date	Issue	Response
56	City of Whitehorse	15-Jan-10	Rate Design: The City notes that electric utilities in BC and Alberta offer investment (by customers) and non-investment rates for streetlights and sentinel lights should be made available to customers in the Yukon.	The Companies were not able to consider this option in this Application.

QUESTION:

a) Why were the Utilities not able to consider this option in this Application?

b) Did the Utilities contact customers of streetlights and sentinel lights to determine whether there was any need for an investment option?

c) Does YECL's parent company, ATCO Electric, offer an investment option for street and sentinel lighting?

d) Are there any other electric utilities in Canada that do not offer an investment option for street and sentinel lighting?

ANSWER:

(a)

The Utilities were not able to consider this option due to all the issues tabled and the time frame to address them in.

(b)

No.

(c)

Yes.

(d)

YECL has not completed a thorough review of all Canadian electric utility investment practices, however for the utilities that YECL has reviewed in the past YECL is not aware of any that do not offer an investment option.

ISSUE: **Secondary Sales**

REFERENCE: **Tab 5, page 5-7, lines 6-11 and YEC Mayo B Application page 28, footnote 38**

PREAMBLE:

The Utilities indicate that:

For secondary sales, as noted in Tab 1, the availability of secondary sales on each hydro grid system is presently diminishing and interruptions are becoming more common. The emphasis at the present time has shifted, since 2005 when the Maximum Company Investment provision was instituted for secondary sales, to maintaining the secondary program for existing customers but not expanding the program for new customers who will see limited availability. Consequently, utility investment in extensions for Secondary Energy customers is proposed to be terminated.

YEC's Mayo B Application stated:

In each case other than the very high load case there is also a net contribution of Mayo B to the ability of YEC to support secondary sales, conservatively estimated as varying from about 0.5 GW.h to 2.0 GW.h/year.

QUESTION:

a) Please reconcile the different forecasts in the two applications regarding future secondary sales.

b) Please confirm that the Board concluded at page 12 of its May 17, 2010 report to the Minister on Mayo B that: "In consideration of the above, the Board is of the view that YEC's load forecast is conservative. Accordingly, the Board finds that YEC's load forecast for the period used to evaluate the economics of the Mayo B Project is reasonable."

c) If more secondary sales are available in the future, as the evidence accepted in the Mayo B appears to indicate, how should the policy on secondary sales MIL be modified?

ANSWER:

(a)

There is no inconsistency between the two applications. The Mayo B application is based on the future loads, where there will be diesel on the margin and substantial periods when secondary is not available at all or only in very limited quantities. While the Mayo B project will help increase the availability of secondary energy, it will remain a product available in only limited quantities.

(b)

Confirmed.

(c)

The secondary sales MIL policy should not be modified for the noted situation. The key point is that there is an existing complement of large secondary customers who can make use of most of the power available today. As the availability declines in future, such that there is only parts of the year when secondary power is available, there is little interest in incenting new customers to sign up in this situation. The benefits of Mayo B in terms of supporting added secondary energy, is a beneficial aspect of the project, but it is very small in relation to the existing size of the program, at more than 20 GW.h.

ISSUE: **Secondary Sales**

REFERENCE: **Application, Section 7, page 7-22, No. 54**

PREAMBLE:

No.	Intervenor	Submission Date	Issue	Response
54	City of Whitehorse	15-Jan-10	Rate Design: The City believes that the rate for secondary power should be capped at a percentage of the base General Service power rate rather than based on the cost of diesel fuel. Given that secondary power is not derived from diesel, but rather surplus hydro generation.	See Tab 4, section 4.5.1 no changes to the secondary sales rates are proposed at this time.

The City notes that the current rate formula for secondary sales creates substantial variability in the secondary sales rate and causes great uncertainty in costs for the City.

QUESTION:

a) Please explain fully the logic behind linking the secondary sales rate formula to the cost of diesel.

b) Please provide the Utilities' comments on the idea of setting the secondary sales rate as a percentage of the general service block 1 base energy charge, in an effort to reduce its variability.

c) Please comment on the reasonableness of the proposal in (b) given that secondary power is not derived from diesel, but rather arises from surplus hydro generation.

d) Why are the Utilities not proposing any changes to the secondary sales rates?

e) Please provide the Utilities' comments on the idea of establishing a secondary sales deferral account that would refund to customers any over-collections from customers resulting from actual experience that differs markedly from the forecasted secondary sales?

ANSWER:

(a)

The intent of the secondary sales retail rate is to maximize the amount of revenue available to offset ongoing fixed utility costs that would otherwise be paid by firm power customers, while still leaving the secondary sales customer with energy cost savings compared with what the customer would otherwise pay for heating fuel (typically heating oil)[1]. Thus, secondary rates are set at 2/3 the forecast equivalent cost of heat energy derived from fuel oil. The rate is no more variable than the oil price that the customer would otherwise pay if secondary were not available.

Secondary sales rate design is based on value for service principles - it is not a cost-based rate. This was discussed in detail in the response to YUB-YEC-1-12.1 filed during the 2005 Requirement Revenues and Related Matters proceeding. In that response, the history and rationale for the rate were discussed and the following was noted:

- The original rate was based on a percentage of the avoided cost of heating with fossil fuel, namely fuel oil.

- In 1991, the Board approved a similar variable (monthly) rate for the sale of secondary power to the United Keno Hill Mine based on a 90% of avoided cost. The Board also approved a fixed rate for secondary sales to the Whitehorse Hospital at 4.01 cents/kWh.

- In the 1993/94 GRA both of the above-noted rates were consolidated to a single fixed rate of 3.3 cents/kWh.

[1] All revenue secured from secondary sales directly reduces the amounts needed to be recovered from firm rates. All firm retail customer classes benefit through paying lower rates than they would otherwise need to due to the lower Yukon Energy Revenue Requirement. Secondary Sales customers benefit through receiving some energy cost savings via service under Rate Schedule 32.

In 2005, Yukon Energy sought to re-base the rate in order to fix the customer savings at 30% of the avoided cost of heating with fuel oil, utilizing a quarterly adjustment mechanism. At that time Yukon Energy noted that an interruptible rate should fluctuate with the underlying price of oil in order to achieve fairness to both the interruptible customers and the firm power customers. The level of customer savings provided for in the new rate reflected past practice as well as customer cost savings per kWh during most of the 2000 to 2003 period (see Application, pages 4-7 and 4-8), an objective to maximize use of available surplus supply, previous statements as to the percentage of energy savings relative to the avoided cost of diesel fuel oil, and other considerations.

In general, rate shock issues due to higher rates for secondary energy are not relevant so long as such increases to the price of secondary energy are tied to the underlying price of oil and reflect “energy price shocks” with respect to world oil prices, over which Yukon Energy has no control. Secondary energy rates are not intended to protect customers from the heating price variations they would otherwise experience if they were heating with oil. Secondary energy is only designed to provide customers savings compared to those oil prices, whatever they may be at any given point in time. In this regard, reduction in the secondary rate to reflect any reductions in the price of oil is important to protect customer savings and continued use of secondary energy.

(b) and **(c)**

The approach proposed would not accord with a rate based on “value of service” principles – the value of the energy is inherently linked to what the customer would otherwise have to pay for heating oil.

(d)

As noted in (a) above. These rates were extensively reviewed in 2005, and today represent an appropriate balancing of the savings to secondary users, and value to firm power customers.

(e)

This is a Phase I issue linked to revenue requirements and not a Phase II matter. In the current proceeding, revenue requirements have been previously debated and reviewed by the Board and established by Board Order.

ISSUE: **Seasonal Rates**

REFERENCE: **Application, Section 7.2, Items 5 &31**

PREAMBLE:

The Utilities state:

The Companies have not proposed seasonal or time of use rates in this Application. The implementation of seasonal rates would only be considered in light of appropriate studies to indicate some form of sustained cost-based rationale that provided benefits in excess of the costs and administrative issues of implementing a more or complex rate structure.

Introducing seasonal or TOU rates would introduce complications (including complications related to billing customers such as additional costs, cancelled or re-bill implications,) and also introduced a level of complexity and confusion into Yukon rates that needs to be fully considered and tested before such rates could reasonably be advanced in any proposal to the YUB for review.

QUESTION:

a) Please explain why the Utilities propose to move ahead with rate design changes to the residential non-government class without any studies regarding customer response through elasticities, but will not move ahead without studies in this case of seasonal sales?

b) Please explain the potential connection between seasonal sales and secondary sales. For example, would an inexpensive single block rate in the summer time substantially reduce the availability of secondary sales? Please explain fully.

c) Please list and fully explain all complications / confusion that YEC believes would result from the introduction of seasonal or TOU rates.

d) Please explain why YEC believes seasonal rates would introduce a level of complexity and confusion into Yukon rates that is greater than the changes proposed in Option A?

ANSWER:

(a)

The quotation referenced in regards to "studies" on time of use rates is not about elasticities or customer response. It is made in regards to studies about the "cost-based rationale" for proceeding with time of use rates. The implementation of time of use rates need to reflect a cost-based rationale on the system, which can be very difficult to assess and analyze for hydro-based systems. This is one of the reasons few jurisdictions with a dominant hydro supply (e.g., Manitoba, Newfoundland) have rates that are "time of use" in that they vary by season.

In 2009 in Yukon, use of energy in winter does not have a materially different cost profile than use of energy in summer. Similarly, when the system is loaded as it was in the last GRA (i.e., with the Faro mine operating), the cost profile of energy use in summer was largely the same as the cost profile in winter – both uses largely drove increased requirements for diesel generation.

Under system loading conditions as they are expected to exist into the medium term (3-5 years), it is possible that there could be a cost based rationale underlying a conclusion that energy usage in summer is of a lower cost profile than energy use in winter. This would not be true, however, if the use of energy in summer (which may be served by hydro) only serves to use water from the system that could alternatively have been stored for use in winter. This underlying cost profile also varies depending on the water available on the system – e.g., in drought years, any use of power at any time of the year will either require diesel generation, or will require use of water that could alternatively be used at a different time of the year to offset diesel generation. In those drought situations, all energy consumed drives diesel requirements.

With respect to runoff rate design, there is no requirement today for studies on the cost based rationale for such inverted rates. This is for two reasons:

1) Adjustments to non-government retail runout rates are required to comply with direction provided by OIC 1995/90 regarding establishment of runoff blocks that reflect principles of economy and efficiency.

2) The design of runoff blocks and definition of economy and efficiency in relation to Yukon Rate policy has been subject to extensive past study and review, and a number of Board precedents are available that to define how this principles is to be achieved in rates. Please see response to CW-YEC/YECL-1-19.

(b)

There is no evidence that would suggest there would be different seasonal uptake that would displace secondary sales in summer if first block rates were lower.

(c)

Complexities would include the following:

- In the event TOU rates is intended to address varying rates daily (e.g., on peak versus off peak), there would be major changes required in metering infrastructure. It is not presently possible to meter most accounts in this manner.

- Billing concerns first and foremost arise with respect to billing cycles and tracking usage by customers during periods where the rates are changing (e.g., for seasonal rates). This includes dealing with estimated bills in cases where meters cannot be read at the cut-off date. In addition, cases where bills must be adjusted or restated for past periods when the rates were changing would require manual consideration. In addition, it becomes necessary to not only determine when the power was consumed (i.e., before or after the rate change) but also from which rate block during that period.

- Requirement to make changes to billing system (would require some cost-benefit analysis to determine whether such changes to the current billing system are economically efficient/feasible).

- The rates could drive a need to consider impacts on cost of service (new rates/rate classes would require adjustments to COS study and alter results – including possibly seeking to distinguish “winter” costs from “summer” costs).

- Requirement for consideration on ability to implement a seasonal rate structure within rate policy environment established by OIC 1995/90.

(d)

The question is not clear. There are no challenges evident in moving forward today with either Option A or Option B, in terms of complexity or confusion. Each is readily implemented in the billing and metering systems in place, and each reflects common understanding in Yukon that costs for power vary by usage blocks.

ISSUE: **Maximum Investment Level (MIL)**

REFERENCE: **Application, Section 5.3**

PREAMBLE:

The City wishes to determine the degree of customer acceptance of the proposed MILs.

QUESTION:

a) Do the Utilities agree that stakeholders concerned with the Utilities' MILs would consist of, at least, municipalities, residential customers, commercial customers, government, developers and contractors?

b) Please document the input that each of the stakeholders and any stakeholder group not listed in (a) above have had into the proposed MILs. How was each stakeholder group's input incorporated into the Application?

c) Please confirm that the Utilities are only requesting the Board's approval of MIL rates on the line labeled 2011. Please confirm that, in the absence of a further application, these MILs continue in effect.

d) Please provide a full explanation as to why YEC and YECL were not able to agree on MIL rates for future years?

e) What are the respective positions of YEC and YECL on future rates and the period over which the revised MILs should be phased in?

f) Please discuss in detail why these rates are intended to apply as of January 1, 2011 and not upon YUB approval.

g) What proportion of actual construction cost will be paid by customers and the utility for each year in Table 5.4? What will be the average required customer contribution in dollars for each rate each year in Table 5.4?

h) What will the forecast increase in customer rates required by the increased company MIL by rate class in each year in Table 5.4?

i) What are the intergenerational inequities inherent in the customer contribution levels at the current rate and at the levels proposed by the Utilities? Please explain fully.

ANSWER:

(a)

Yes.

(b)

On December 15, 2009, an Open House for Stakeholders was held whereby stakeholders were encouraged to provide comments in writing for consideration. Feedback was received from Leading Edge and the City of Whitehorse. Responses to these stakeholder's comments can be found under Tab 7 of the application.

(c)

YECL is requesting the Board's approval of the MILs from 2011 to 2015 as detailed in Tab 5, Appendix 5.4, of the application. YEC only supports approval of the 2011 values at this time.

(d)

Please see (e).

(e)

Yukon Energy Response

Yukon Energy views the proposed MIL levels for 2011 as an appropriate and timely update to the present levels, which have not been updated for many years. The time available for preparation of this Rate Application did not permit an agreement to be reached between the Companies in respect of:

a. The use of an "average cost" standard; or
b. Multi-year implementation of the Maximum Company Investment levels noted in Table 5.3.

Agreement exists in respect of the present Application, for one-time increases to take effect as part of this Application for connections starting January 2011.

In light of the lengthy time since at least Residential and Street Lighting Maximum Company Investment Levels were increased, and the clear distinction between present Yukon levels and the levels used in other jurisdictions for these classes of customers, increases in the Maximum Company Investment levels for these classes are appropriate. In the first step (2011), YECL's study proposes increasing these values by 30-40% to $1,250/site for Residential, $625/dwelling unit for Residential Multi-Dwelling, and $930/light for Street Lighting. As these items have not been increased in over 20 years, and the proposed values are approximately within the ranges used by neighbouring utilities, this one-time adjustment is timely and appropriate.

With respect to General Service, the YECL study proposal in year 1 has very little net effect on mid-size GS loads within the average range of 39 kW (noted in the YECL study as average loads, who will see an increase in investment of approximately 3%). As this value was updated more recently (in 2005) and is presently within the range of values used by neighbouring utilities, the first year change proposed in the YECL study (to $5,355 plus $275/kW) is reasonable. The change to the structure of the MIL (to a "fixed plus variable" approach) is well advised.

The proposals with respect to subsequent years after 2011 noted in YECL's study are premised on a material departure from past Yukon methodology, from the MIL levels approved in other jurisdictions, and from the percentage contribution that the MIL is targeted to make towards the costs of new extensions. Each of these is addressed below:

a. **Past Practice:** Past Yukon practice for setting MIL levels, similar to other jurisdictions such as BC and Manitoba is based on the principle of protecting existing ratepayers from adverse rate impacts that arise due to rate base investment in connecting new customers. This same principle was applied in determining recent utility versus customer investment in such situations as new secondary customers, or in the connection of Minto mine (which was developed to bring material ratepayer benefits from the connection of a new customer, rather than just to protect customers from adverse rate impacts). Yukon has not previously used any principle of the type proposed by YECL – that an "average cost" extension should be covered by the MIL. It is not apparent that the new principle proposed by YECL gives sufficient attention to the protection of existing customers and will instead lead to excessive rate base investments in connecting new customers - investments that must be borne by the customers who are presently on the system.

b. **Other Jurisdictions:** As noted in Table 5.2, the MIL levels for residential customers in other jurisdictions tend towards $1200-$1500 per site. The exception is Yellowknife (Northland Utilities) which is dominated by a much higher priced power regime (rates in Yellowknife are in the range of 20-30 cents/kW.h) and in any event only totals $2100 per site. The YECL proposal targets Yukon MILs up to $4700 per site by 2015. These utility investments will become part of rate base and paid for by all of the other ratepayers on the system. Similar trends exist for General Service, where the YECL proposed Yukon levels by 2015 are near or exceed the highest levels recorded in any other jurisdiction (Alberta as highest), and far exceed the levels typical in the jurisdictions studied. There does not appear to be any supportable rationale for setting Yukon MIL levels at this very high level in relation to these other jurisdictions.

c. **Percentage of Costs Covered by MIL:** The YECL study on MIL levels, provided in Appendix 5.4 indicates at Table 4 that residential MIL levels in Yukon in 1989 covered approximately 33% of the average cost of connection. The study indicated this has eroded to 21% of the average cost of connection by 2011 (forecast). YECL uses this erosion rationale to justify changes today, but instead proposes raise the level to 100% of the average cost of connection. This is a clear departure from any past experience in Yukon, including the last time MIL levels were set.

Yukon Electrical Response

YECL's position is described in detail in the MIL Study included as Appendix 5.4 of the application. The study is based on approved guiding principles developed in response to the Alberta Utilities Commission Decision 2008-011 regarding Fortis Alberta's 2008/2009 Negotiated Settlement Agreement. Several Alberta utilities and stakeholders participated in the process that established the guiding principles. Stakeholders consisted of ATCO Electric, Fortis Alberta, Consumers' Coalition of Alberta, Central Alberta REA, Enmax, Epcor and the Utilities Consumer Advocate. YECL has proposed to phase in the maximum investment levels over a period of 5 years to align the investment levels with the target MILs. It is important to note that the rate impact as a result of the proposed increases is set out as follows:

Rate Class	2011	2012	2013	2014	2015
Residential	0.02%	0.06%	0.12%	0.19%	0.28%
General Service	0.03%	0.08%	0.13%	0.17%	0.22%
Street Lighting	0.07%	0.22%	0.41%	0.65%	0.95%

(f)

YECL assumed that a decision from the Board would be rendered by December 31, 2010, and thus an implementation date of January 1, 2011, was assumed for ease of application. The MILs would not be put into effect until the Board provides approval.

(g)

For the purpose of responding to this part, YECL has assumed that the reference to Table 5.4 was in error and that it was meant to be Table 5.3.

In YECL's study of the MILs YECL has proposed to increase the levels to be equivalent to the average cost of constructing a new extension for residential and general service customers respectively. A comparison of the costs covered on an average basis would show that a customer would not be required to make a contribution once the targeted MIL (average cost) is met. It should be recognized that it is an average; customers with extension costs greater than the maximum available investment would be required to make a contribution and company investment in extensions costing less than the maximum available investment would be capped at the cost. Please refer to the MIL Study included as Appendix 5.4 of the application for details on the methodology proposed.

Residential MIL Comparison to Costs

Year		Average Cost per Site	MIL (Per Site)	% Investment	% Customer Contribution
Proposed	**2011**	$ 4,373	$ 1,250	29%	71%
	2012	$ 4,451	$ 1,740	39%	61%
	2013	$ 4,531	$ 2,420	53%	47%
	2014	$ 4,613	$ 3,360	73%	27%
	2015	$ 4,700	$ 4,700	100%	0%

General Service MIL Comparison to Costs

Year		Average Cost for 39 kW Site (1)	Fixed (Per Site) (A)	Variable (Per kW) (B)	Maximum Investment (A)+(39*(B))	% Investment	% Customer Contribution
Proposed	**2011**	$ 17,627	$ 5,355	$ 275	$ 16,080	91%	9%
	2012	$ 17,944	$ 5,500	$ 280	$ 16,420	92%	8%
	2013	$ 18,267	$ 5,650	$ 290	$ 16,960	93%	7%
	2014	$ 18,596	$ 5,800	$ 295	$ 17,305	93%	7%
	2015	$ 18,931	$ 5,955	$ 305	$ 17,850	94%	6%

Note: (1) Average cost is the 2011$ average cost of an extension escalated at 1.8%

(h)

For the purpose of responding to this part, YECL has assumed that the reference to Table 5.4 was in error and that it was meant to be Table 5.3. Please refer to Table 13 of Appendix 5.4 of the application for a table of rate impacts.

(i)

Construction costs have continually risen since the last time the MILs were reviewed and changed (please refer to the MIL Study included as Appendix 5.4 of the application). With the MIL's having been fixed over a number of years, new extension customers are not receiving the same share of company investment that prior year customers have been receiving. In other words, this inequity has current customers bearing more of the construction costs now than prior year customers.

YECL is proposing to bring the MILs to a level, such as the average cost of construction for residential and street light customers, or a share of the projects being covered for general service customers. Once these levels are achieved over the 5-year proposed transition period, from 2011 to 2015, changes in the MILs would be made using this methodology (detailed in the MIL Study, Appendix 5.4), and in an effort to reduce future inequities for new customers.

ISSUE: **Maximum Investment Level (MIL)**

REFERENCE: **Application Table 5.2**

PREAMBLE:

The Utilities provide the following table:

Table 5.2: 2009 Maximum Company Investment Levels of Neighbouring Utilities

	Northland Utilities (NUY)	Northland Utilities (NWT)	NTPC	BC Hydro	ATCO Electric	Fortis Alberta
Residential	$2100/site	$1500/site	$1500/site	$1475/site	$1200/site	$1200/site
Residential – Multi Dwelling	$700/site	$750/Site	$750/unit			
General Service	$300/kW	$300/kW	$250/kW	$200/kW	$1256/kW	$5275 Fixed plus $839/kW
Street Lighting	Cost of installation	$1200/light	Cost of installation	$150/Fixture	$1400/Light	$1400/Light

QUESTION:

a) Please provide a table of average construction costs for each rate class for each utility in Table 5.2. Please include in this Table the portion of average construction costs provided by customer construction and by the utility.

b) Please provide the investment options offered for each customer class of the utilities listed in Table 5.2, and the corresponding rates for service with and without customer investment.

c) Why haven't the Utilities included an investment option so that customers have the choice of lowering their rates for service by investing more in their service?

ANSWER:

(a)

The cost data in the table below was obtained from recent MIL studies published in the respective utility GTAs or GRAs. The cost data has been kept in the dollars that were quoted in the studies.

Average Construction Costs

Rate Class	Units	Northland [1] Utilities (NUY) (2007$)	Northland [2] Utilities (NWT) (Hay River, 2007$)	NTPC	BC Hydro	ATCO [3] Electric (2009$)	Fortis [4] Alberta (2010$)
Residential	per lot	$4,150	$2,460	n/a	n/a	$6,302	$2,525
General Service	per kW	$388	$492 - $1,049	n/a	n/a	$2,493	n/a
Street Lighting	per light	$5,235	$4,099	n/a	n/a	$6,066	$3,720

2009 Maximum Company Investment Levels

Rate Class	Units	Northland Utilities (NUY)	Northland Utilities (NWT)	NTPC	BC Hydro	ATCO Electric	Fortis Alberta
Residential	per lot	$2,100	$1,500	$1,500	$1,475	$1,200	$1,200
General Service	per kW	$300	$300	$250	$200	$1,256	$5,275 + $839/kW
Street Lighting	per light	Cost of Installation	$1,200	Cost of Installation	$150	$1,400	$1,400

Utility's Share of Construction Costs

Rate Class	Units	Northland Utilities (NUY)	Northland Utilities (NWT)	NTPC	BC Hydro	ATCO Electric	Fortis Alberta
Residential	per lot	51%	61%	n/a	n/a	19%	48%
General Service	per kW	77%	29% - 61%	n/a	n/a	50%	n/a
Street Lighting	per light	100%	29%	n/a	n/a	23%	38%

Customer's Share of Construction Costs

Rate Class	Units	Northland Utilities (NUY)	Northland Utilities (NWT)	NTPC	BC Hydro	ATCO Electric	Fortis Alberta
Residential	per lot	49%	39%	n/a	n/a	81%	52%
General Service	per kW	23%	61% - 29%	n/a	n/a	50%	n/a
Street Lighting	per light	0%	71%	n/a	n/a	77%	62%

* "n/a" denotes not available

Sources:

(1) 2008 - 2010 NUL (Yellowknife) GRA, Attachment 7.3
(2) 2008 - 2010 NUL (NWT) GRA, Attachment 7.3
(3) 2011 - 2012 ATCO Electric GTA, Attachment 20
(4) 2010 - 2011 FortisAlberta DTA, Section 9 - Appendix O

(b)

ATCO Electric:

As per Schedule B, of ATCO Electric's Terms and Conditions for Distribution Service Connections ATCO Electric will apply a modified investment (pro-ration) based on an evaluation of a customer's service life and load expectations that are expected to substantially deviate from the norm. ATCO Electric will not invest in temporary services that are expected to be in service less than 1 year.

ATCO Electric does not offer investment and non-investment rates to customers, except for street and private lighting customers. For these classes of customers ATCO Electric offers investment and non-investment rates and maximum available investment options. For street lighting the investment options usually correspond with the Franchise agreement.

Northland Utilities (NUY):

As per Schedule A, of Northland Utilities (NUY) Terms and Conditions of Service, Northland will apply a modified investment (pro-ration) based on an evaluation of a customer's service life and load expectations that are expected to substantially deviate from the norm. Northland will not invest in temporary services that are expected to be in service less than 1 year.

Northland Utilities (NUY) does not offer investment and non-investment rates to customers. For street lighting the investment options corresponds with the Franchise agreement.

Northland Utilities (NWT):

As per Schedule A, of Northland Utilities (NWT) Terms and Conditions of Service, Northland will apply a modified investment (pro-ration) based on an evaluation of a customer's service life and load expectations that are expected to substantially deviate from the norm. Northland will not invest in temporary services that are expected to be in service less than 1 year.

Northland Utilities (NWT) does not offer investment and non-investment rates to customers. For street lighting the investment options corresponds with the Franchise agreement.

The Companies are not familiar enough with the rate and investment details pertaining to BC Hydro and NTPC's practices to provide a response.

(c)

Electric utilities earn a return on their investment in facilities through rate base, thus rates with non-investment options are not normally offered as a matter of course. Rates are derived on an average basis. Some customer facilities receive full investment and others receive some part thereof (as described in the response to Part (b)). The derived rates reflect these investments on an average basis. In some circumstances, in particular, for lighting customers, the utilities work with the customer's (municipalities) needs and offer both investment and non-investment options. If there is enough interest and a sufficient number of customers to warrant offering non- investment options, utilities would then work with the customers through the rate application process to develop these options.

ISSUE: **Need to Include a Customer Bill of Rights in the ESR**

REFERENCE: **Application, Section 7, page 7-8, Item 25**

PREAMBLE:

No.	Intervenor	Submission Date	Issue	Response
25	Utilities Consumer Group (UCG) (Roger Rondeau)	8-Dec-09	Need to include a Consumer Bill of Rights in the ESR. A code of ethics identifying a step-by-step procedure a customer or the utility must comply when have a dispute.	Please refer to the proposed ESR, (commonly called Terms and Conditions of Service). The ESRs, or terms and conditions, set out the rights and responsibilities of customer and utility with regard to the provision of service. Discussions with concerned stakeholders on this issue are being undertaken but have not been completed at time of filing.

QUESTION:

a) Do the Utilities believe there is a need for a customer bill of rights?’

b) What is the status of discussions with the concerned stakeholders? Are they ongoing or complete?

c) Please provide a detailed summary of discussions with concerned stakeholders.

d) Will there be any alterations to the ESRs as a result of these discussions?

e) Did the discussions result in mutual agreement or are there still outstanding differences?

ANSWER:

(a)

No, the Companies do not believe there is a need for a customer bill of rights. The Terms and Conditions of Service, which are approved by the Board, already provide detailed information regarding the rights and obligations of both the customer and utility.

(b)

The Companies met with the concerned stakeholders on February 23, 2010. There have been no meetings since then.

(c)

The Companies addressed the issues of concern raised by UCG in the meeting and identified where the answer to the matters raised could be found in the current ESRs or how they were dealt with in current policies and practices. Please refer to attachment CW-YEC/YECL-1-28(c) Attachment 1.

(d)

The proposed Terms and Conditions are intended to reflect the positions of YECL/YEC regarding all customer issues.

(e)

The Companies were of the understanding that at the conclusion of the meeting, UCG was satisfied with the responses provided and that there were no outstanding issues to be dealt with.

CUSTOMER BILL OF RIGHTS COMMENTS

Customer Bill of Rights
Meeting Held February 23, 2010

Attendees: Roger Rondeau, UCG
Wendy Scramstad, YECL
Craig Steinbach, YECL
Ed Mollard, YEC

1. You have the right to service if you are a qualified applicant.

   Service is never refused however in some instances a customer's eligibility may be qualified. **Articles 4.1 & 4.2 of Electric Service Regulations** identify general requirements to received service. All applicants are assumed to have a good credit rating unless proven otherwise. Eligibility may be based on payment of outstanding arrears on other accounts or payment of a security deposit. The Electric Service Regulations for collecting a security deposit and collection of outstanding arrears are covered in **Article 4.9 of Electric Service Regulations** as well as the **Security Deposit Collection and Refund Policy** which provides further details and guidelines. It is also addressed in the **Collection of Delinquent Accounts Policy**

2. You have the right to challenge what you consider is an unreasonably high deposit as a condition of service or what you consider unreasonable payments on past due.

   Deposits are calculated by the billing system and are based on approved **Article 4.9 of Electric Service Regulations and** the **Security Deposit Collection and Refund Policy**.

   A security deposit is based on three months expected consumption due to the delay in billing a customer combined with the delay in taking collection action. A customer will owe for 90 days of service at the time the service may be disconnected for nonpayment.

   This article ensures all customers are treated equitably and negotiation on the deposit amount isn't required with every customer. The companies may waive the deposit requirement if extenuating circumstances exist. It is important to note that this practice mitigates the risk to all ratepayers by collecting a security deposit that is designed to cover the amount outstanding if a customer is disconnected for nonpayment.

3. You have the right to budget billing.

   The Budget Plan has been in place for over 30 years and all residential customers are eligible to participate. The two guiding principles are:

CUSTOMER BILL OF RIGHTS COMMENTS

- The customer must be willing to pay an average monthly amount designed to cover the estimated bills in 12 months.
- The customer must also be willing to make a regular payment each month.

4. You have the right to negotiate payment arrangement for delinquent accounts based on
   - Reasonableness of the amount paid compared to amount owed
   - Past history of honoring commitments.

   Payment arrangements are made daily with customers and there is no limit on the number of arrangements a customer may make in any year. The **Collection of Delinquent Accounts Policy** provides guidelines. The arrangement amounts and term must be reasonable based on the amount of the arrears and past history must evidence that the commitment to pay is honored by the customer. If it is a first time arrangement, it is assumed the customer will honor the commitment. **Extenuating circumstances in the customer's life are always considered**.

5. You have the right to have any complaint against you utility handled promptly by that utility.

   This is the mandate of the Yukon Utility Board to ensure the utilities address all customer concerns that are not perceived as handled promptly or efficiently.

6. You have the right to call upon the YUB to investigate your utility complaints and inquiries. Upon conclusion of the investigation any charges found to be in error for inaccurate will be credited or refunded to the customer.

   This is one of the guiding principles in the **Collection of Delinquent Accounts Policy**. This would be considered extenuating circumstances and would be dealt with on a case by case basis.

7. If you suspect your meter is not working properly, you have the right to ask the utility to verify the accuracy. If this does not satisfy your complaint, you have the right to have your meter tested by an independent testing agency at the applicable approved fee.

   Meter check and verification is addressed in **Article 6.3 of Electric Service Regulations**. There is a nominal fee charged. This fee is in place to discourage abuse of the process and does not cover the company's incurred costs. There are strict guidelines in place by **Measurement Canada** that dictate testing of meters and acceptable pass and failure rates.

8. You have the right to written notice of termination mailed to the address provided by the customer, 14 days prior to the disconnection of service.

CUSTOMER BILL OF RIGHTS COMMENTS

Article 11.3 of Electric Service Regulations identifies general terms for disconnection other that for safety reasons. The **Collection of Delinquent Accounts Policy** details specific principles, practices and procedures**.** The due date of each statement is approximately 19 calendar days from the date it is issued. A notice of pending disconnection is sent to a customer 8 calendar days after the **2nd month** statement is issued if no payment has been received for the 1st statement. Disconnection for nonpayment usually occurs at least 2 days after the due date of the 2nd statement. Customers with a fair to excellent credit history are sent a reminder notice before the notice of pending disconnection which may result in a later disconnection time than those with a less satisfactory credit history. For the purposes of this process, if a notice is not returned by Canada Post it is deemed to have been received.

As a final step, an attempt to reach the customer by phone is also made just prior to the order to disconnect service is issued. One of the guiding principles in the **Collection of Delinquent Accounts Policy** is that customers will be disconnected only as a last resort.

9. Residential service may only be shut off after proper notice, Monday through Thursday 8:00am to 4:00 pm. A utility may not shut off residential service on Friday, Saturday, or Sunday, a holiday, the day before a holiday, or if known critical care equipment is installed in the premise.

    Yukon Electrical's practice is to disconnect service as a last resort Monday through Thursday before 12 noon. This is covered as a procedure in the **Collection of Delinquent Accounts Policy.** Non-staffed outlying communities may require other parameters. In the event a disconnect is done in the community, every effort is made to collect and reconnect service before staff leaves

    The customer must communicate with the utility if there is a medical emergency in the household or critical care equipment exists. Extenuating circumstances such as a medical emergency are always a consideration when deciding a course of action as covered in the guiding principles and practices in the **Collection of Delinquent Accounts Policy**.

10. Winter Termination Program – If you are an elderly, in medical need or low-income customer having financial problems paying your bill, you should request the utility to enroll you in a budget plan in accordance with your ability to pay. You are required to make good faith payments of all reasonable bills for service.

    All residential customers are eligible to enroll in the budget plan every year in May. This start date allows for even monthly payments over a 12 month term. Some discretion is used when determining enrollment during a later month if the customer doesn't have electric heat and is willing to make larger payments over a

CUSTOMER BILL OF RIGHTS COMMENTS

shorter term... This is a guiding principle in the **Collection of Delinquent Accounts Policy**.

Current limiters are installed as an alternative to disconnecting service between October 15 and April 15 as covered in procedures in the **Collection of Delinquent Accounts Policy.** This practice reduces hardship to the customer and mitigates the chance of property damage to the landlord.

11. If you live in a multi-family dwelling, you have the right to receive posted notice of any impending shut-off sent individually to occupants.

    The utility may not be aware that a premise is a multi-family dwelling if it is served by a single meter. It is also very difficult to balance the right to privacy of the account holder with the tenancy rights of other occupants. In instances when a tenant who is not the account holder contacts the utility regarding disconnection of service they are advised to contact their landlord or the other occupant.

12. You have the right to a "diversion of service" investigation if you suspect that the level of usage reflected in your utility bill is unexplainable high.

    This type of investigation is on the customer side of the meter and is beyond the scope of the utility. As well, it is very rare that this type of issue would be related to 3^{rd} party diversion. However, the utility will aid and support the customer in attempting to determine the various causes for high consumption.

13. Services shall not be shut off for non-payment of repair charges, penalties or merchandise charges, nor shall notice threatening such shut off be given.

    Article 7.6 of Electric Service Regulations state that any outstanding charges due and owing to the company may be added to the customer's bill. The utility always attempts collection of any non electrical charges such as a construction contribution or miscellaneous accounts receivable amount separately from the monthly electrical bill. The option to add it to the electrical bill may be used as a last resort when all other avenues for collection have failed.

14. After six months, you have the option of having a deposit refund applied to your account or having the deposit refunded by a separate check.

    Article 4.9 of Electric Service Regulations as well as the **Security Deposit Collection and Refund Policy** provides guidelines for application or refund of security deposits. Deposits are held on the customer's account for 12 months or until a satisfactory credit rating is established as outlined in the policy.

15. Meter reading shall not be estimated more than one month in a row, without reasonable effort by the utility.

CUSTOMER BILL OF RIGHTS COMMENTS

Article 7.1 of Electric Service Regulations provides for alternate reading methods however, Yukon Electrical makes reasonable efforts to read every meter every month. From time to time meters cannot be read and customers will be issued a statement using either a computer calculated or manual estimate. If the estimate is found to be inaccurate, an adjustment may be made to reflect the customer's usage.

16. Contact information for the Yukon Utility Board:

PO Box 31728
Whitehorse, Yukon
Y1A6L3
Attn: Shay Smart

YUB@yukonutiltiesboard.ca
Phone: 667-5058
Fax: 667-5059

ISSUE: **DSM**

REFERENCE: **Decision 2009·8, page 9, paragraph 40**

PREAMBLE:

YEC was directed by the Board in its General Rate Application for 2008-2009 as follows:

Furthermore, the Board finds DSM to be a critical issue for all electric rate payers in Yukon. The Board directs YEC in conjunction with YECL to consult with stakeholders and develop a policy paper with respect to DSM initiatives. YEC and YECL are to jointly lead this process and submit a policy paper (Plan) in their next GRA. Further the utilities are to be cognizant of and work with ESC where necessary so as not to duplicate efforts (emphasis added).

QUESTION:

a) Does YEC believe that DSM is a critically important issue for rate payers in the Yukon? Please explain fully.

b) If yes, notwithstanding the Board's comments on the timing of the implementation, what are YEC's reasons for waiting for another GRA until it proposes DSM programs for Board approval?

c) Does YECL believe that DSM is a critically important issue for rate payers in the Yukon? Please explain fully.

d) If yes, notwithstanding the Board's comments on the timing of the implementation, what are YECL's reasons for waiting for another GRA until it proposes DSM programs for Board approval?

e) What collaboration with customers have YEC and YECL undertaken to date with respect to a policy paper on DSM measures?

f) If no collaboration has taken place, please explain why not, given the Board's conclusion that DSM is a critical issue for all electric rate payers in Yukon.

g) Please comment on the principle that rate restructuring and DSM should be implemented simultaneously so that the two programs can work in tandem and support and enhance the conservation efforts of the other.

ANSWER:

(a)

YEC believes that DSM is one of a number of important issues for ratepayers in Yukon at this time. Since the Faro mine shutdown in 1998 there has been a surplus of renewable energy on the Yukon two hydro grids. During the period from 1998 to present there was little value for rate payers from DSM programming (and in fact a perverse economic condition for a DSM program as the Board pointed out in paragraph 37 of its 2009-8 Board Order).

Moving into the future and the load conditions now expected to prevail on the system, a DSM program can be an integral part of a long term supply plan for Yukon. The timing for delivery of such a program is in the near future. Appropriate and cost-effective DSM initiatives are part of an overall balanced and lowest cost supply plan, primarily by reducing the need for new generation and the need for higher cost diesel generation.

(b)

Yukon Energy is not waiting until a next GRA to advance DSM. In particular, YEC has been working with YECL over the past year to collect DSM program information from other jurisdictions and information on the performance of the Yukon's existing DSM programs currently being delivered primarily by the Yukon Government's Energy Solutions Center. This is being done in order to develop a suite of Yukon-specific DSM initiatives for discussion with customers and stakeholder groups this fall. It is important to approach DSM with the appropriate research which includes an assessment of what has been done, which current programs are demonstrating positive results, the findings from Yukon based pilot projects to be launched in the near future, etc.

As per the YUB's Board Orders 2009-2 and 2009-8, YEC and YECL intend to begin formally engaging stakeholders/intervenors this fall. This will likely include the presentation of a draft policy paper, individual stakeholder group meetings and a public workshop. YEC will also be including a DSM program in a 5-year update of its Resource Plan in 2011.

It remains YEC's intention to comply with the Board's directives in Order 2009-8.

(c)

YECL's understanding of DSM is a mechanism that provides a range of technical and behavioral solutions to cut or reduce electricity consumption and demand. YECL believes that one approach to facilitate this process is to provide a reasonable signal through the base rates. YECL has proposed a rate design option that it believes provides a reasonable price signal for customers to reduce energy consumption. However, YECL is uncertain whether customers are willing to take action. To the extent that current OIC's (1995/90) directs rate design principles in Yukon to promote economy and efficiency, YECL believes that DSM is an important issue for rate payers.

(d)

DSM can extend to mean many things including the use of high efficiency equipment, efficient use of electricity through good operating practices, and the use of metering technology to help provide additional pricing signals to customers. Programs of this nature could require significant investment for the utility and/or the customer. It is also important to consider the practical nature of any DSM program and whether the technology is readily available and economical to use. YECL does not believe it is prudent to design DSM programs without adequate consultation with interested parties and clear direction from both the Government and the Board. The Government has clearly stated it will take a lead role in the development of the policies related to DSM as they implement the *Energy Strategy for Yukon.* At this time, YECL and other stakeholders are evaluating DSM related initiatives with the Yukon Government and Yukon Energy. Further consultation is planned for fall 2010.

(e) and **(f)**

YEC Response

Please see response to (b) above.

YECL Response

The attached letter from the Yukon Government regarding the *Energy Strategy for Yukon* written to the Yukon Utilities Board in 2009 clearly demonstrates that the Yukon Government has taken the lead role in developing a DSM policy . Both Yukon Electrical and Yukon Energy have provided input to the government on Net Metering, Independent Power Production guidelines and DSM. It is the understanding of both YECL and YEC that the government will be initiating a broad public review of all three of these draft policies this fall. Once the Government of the Yukon has established policies in these areas the utilities will be need to work on an implementation plan and determine the impact on revenue requirements and rates. In the meantime the utilities continue to provide information and education for customers on energy conservation strategies and programs as requested.

(g)

Rates and DSM initiatives can be designed to complement each other, and ideally should not be designed to be in conflict with each other. However, in designing rates other considerations must also apply than simply driving conservation behavior, such as fairly sharing the benefits of past “heritage” resources, the type of principles set out by Bonbright and discussed at CW-YEC/YECL-1-14 and of course the requirement to comply with Yukon government policy including OIC 1995/90.

Yukon
Office of the Minister
Box 2703, Whitehorse, Yukon Y1A 2C6

July 7, 2009

Ms. Wendy Shanks
Chair
Yukon Utilities Board
#19 – 1114 1st Avenue
Whitehorse, Yukon Y1A 1A3

Dear Ms. Shanks:

Re: Development of New Energy Policies

I would like to take this opportunity to provide some information for the Yukon Utilities Board regarding key energy policy initiatives to be undertaken by the Yukon government.

Government will be implementing the *Energy Strategy for Yukon* released earlier this year, with a particular focus on priority actions including the development of policies for independent power producer (IPP) interconnections, demand side management (DSM) initiatives, and net metering. Government will take a lead role in the development of those policies, and has been in contact with both utilities to involve them in this initiative. We are anticipating holding public consultations on these policies later this year.

Government is committed to working with stakeholders to develop policies and programs that maximize the benefits Yukon citizens receive from their electrical utilities, and create new opportunities for citizens and ratepayers.

Sincerely,

Brad Cathers
Minister of Energy, Mines and Resources

ISSUE: **Collaborative Process**

REFERENCE: **Order 2009-8, page 27; Application, page 7-12, issue 61**

PREAMBLE:

The Board stated:

The Board directs YEC and YECL as agreed to file a joint Phase II application containing an up-to-date coast of service study (with electronic models attached) within 60 days of the issuance of the decision on the compliance filing by YEC as directed in this Board Order. The Phase II application is to provide accurate revenue to cost ratios for all rate classes, provide rate design recommendations that comply with previous Board directions and comply with current OICs, provide updated terms and conditions of service, and contain a review on investment levels. As supported by both utilities, the Board expects the application to contain stakeholder input (emphasis added).

QUESTION:

a) What features of the Application, as filed, are the result of, and are shaped by, stakeholder input?

b) Have the Utilities sought or received any additional stakeholder input following the January 15, 2010 stakeholder submissions?

c) If the answer to (b) is yes, then please identify this input and indicate how, if at all, the Utilities incorporated this stakeholder input into the Application?

d) At what point in the YUB process does YEC/YECL propose reviewing outstanding issues with stakeholders? Please make reference to the process schedule set out in Order 2010-6.

e) What issues do the Utilities still seek stakeholder input for resolution?

ANSWER:

(a)

Generally, the concerns and views raised by stakeholders informed the Companies' discussions on cost of service, rate design issues and options, and terms and conditions of service prior to filing the application February 19, 2010. This included key discussions concerning the need for conservation signals and runoff block rate design, and blocking options for retail rates (specifically a 700 kWh first block for residential customers was considered arising from discussions at the December 2009 workshop).

A detailed summary of issues/comments raised by stakeholders and the Companies' response is provided in Tab 7, Table 7-2 (page 7-4). This table notes where in the application issues raised are addressed, or why they have not been addressed in application.

(b) and **(c)**

Please refer to CW-YEC/YECL-1-28(b), (c) and (e).

(d) and **(e)**

The YUB process for the review of this application is as provided in Order 2010-6 as revised by Order 2010-7 and 2010-8. The current Board process provides for intervenor evidence to be filed August 6 and an oral hearing October 5-7. These would be the only other processes provided for in the Board's schedule for intervenor input.

ISSUE: **Collaborative Process**

REFERENCE: **Application, page 7-1**

PREAMBLE:

The Utilities state:

Briefing with Yukon Government - The Companies met and presented background information related to its application to representatives of Yukon Government (Energy, Mines and Resources and the Energy Solutions Center) on November 4, 2009. Copies of the presentations provided to the Yukon Government by YEC and YECL are provided in Appendix 7.1 Attachment A

QUESTION:

a) Was the Yukon Government informed of the residential rate restructuring proposed in YEC's original application and denied in Board Order 2008-16?

b) Where does the information respecting the rate restructuring appear in Appendix 7.1 Attachment A?

c) Please outline any concerns presented by the Yukon Government in relation to the presentation materials in Appendix 7.1, Attachment A.

d) What input from the Yukon Government have the Utilities incorporated into the Application? Please provide appropriate references to the Application.

ANSWER:

(a)

Yes, the application and subsequent Board Order were public documents.

(b)

Consultation and briefing materials relative to the 2009 Phase II Rate Application are provided in Appendix 7.1. The focus was on issues that inform the development of the current Application; however, no “rate restructuring” proposal was reviewed as the curren proposals had not yet been designed by that point in time.

(c) and **(d)**

Yukon Government representatives were briefed as to the Phase II Rate Application process and related issues. No official response was provided subsequent to that meeting. Representatives of the Yukon Government also attended the stakeholder meeting on December 15, 2009 and no comments were provided subsequent to that meeting.

ISSUE: **Procedure**

REFERENCE: **Cover Letter of March 1, 2010**

PREAMBLE:

The Utilities state:

The Companies have provided herein two rate design discussions (Tab 4YEC and Tab 4YECL). Each Company will be prepared to speak to their discussion as part of this proceeding. The City wishes to understand how the Utilities will speak to and defend the respective rate designs options, and the procedure envisioned in so doing.

QUESTION:

a) Will utility witnesses who speak to the two rate design options sit on the same panel or will they sit separately?

b) Will the Utilities provide one panel to speak to all the issues on which they agree, such as the rate design described as YEC's Option B?

c) Will there be a separate YEC panel to speak to the Option A rate design and other issues with which YEC may not agree with YECL?

d) Will there be a separate YECL panel to speak YECL's proposed rate design and any issues with which YECL may not agree with YEC, such as YEC's Option A?

ANSWER:

(a), **(b)**, **(c)** and **(d)**

The Companies have not yet decided on the composition of the Panel(s). As the Companies have done in the past they will identify the Panel(s) once the evidentiary/IR process is complete.

LEADING EDGE
(LE)

REFERENCE: **Application, page 4**

QUESTION:

a) Did YEC and YECL consider or discuss rate design options "between" options A and B, in particular with respect to the percentage of 2009 diesel cost that the runoff rate is set at? Please describe these discussions and explain why no middle ground option was developed and brought forward.

ANSWER:

(a)

Yukon Energy Response

Please see response to CW-YEC/YECL-1-19 (and Application at page 4YEC-9).

Yukon Electrical Response

YECL and YEC worked diligently in an effort to present a uniform and consistent approach whenever possible to concepts relating to cost of service, rate design and Terms and Conditions. However, this goal was not always met as each Company has its own views regarding how best to address certain matters. The differences in rate design concepts between the Companies are further explained in YUB-YEC/YECL-1-24.

While the Companies were able to present a joint application to the extent possible, the Companies believed there were significant differences on how best to reflect the percentage of 2009 diesel cost in the runoff rates to allow for a middle ground and still file a joint application by the Board established timelines.

REFERENCE: **Tab 3 Cost of Service**

QUESTION:

Page 3-5, line 25 Aishihik Plant:

a) Does Aishihik plant normally contribute capacity to meeting the winter peak demand on the WAF system?

ANSWER:

(a)

Yes, it normally does.

However, the appropriate test is not what the plant normally does, but factors such as what the plant is designed and built to do, or what system characteristics drive its costs, with consideration for the related costs, savings, benefits and underlying investment. For example, today the system normally operates with 100% hydro generation, but there are times when a modest amount of diesel generation is required for peaking, and very limited, but very key, times when all available diesel generation is required for emergency dispatch. The cost driver for installing and maintaining the complement of diesel units is peak demand, and as such that is how their costs are allocated, even though they are not normally used.

While the Aishihik plant normally contributes to carrying loads at peak times, it is not part of the planning criteria for reliable capacity at this time. In this way, similar to wind, the presence of kW.h output at peak times does not mean the unit is considered firm generation.

REFERENCE: **Tab 3 Cost of Service**

QUESTION:

Page 35, lines 27-29 (and also page 2-9, lines 20-22):

Here we find the comment "…Aishihik generation is considered to not contribute to the WAF system's ability to serve peak loads at critical times due to transmission constraints."

a) Does the transmission line that connects the Aishihik plant to the WAF grid have less than 30MW carrying capacity during the winter period?

b) What is its carrying capacity of this line during the winter?

c) Is the Aishihik plant not relied upon first and foremost for meeting a large portion of the WAF peak load in winter as previously recognized in GRAs (see Page 3,4A-8)?

ANSWER:

(a), **(b)** and **(c)**

When in service, the Aishihik line has a full 30 MW carrying capacity. As a result, the Aishihik plant is relied upon to meet a large portion of the WAF energy load in winter, when the line is functional. When planning the system to meet peak loads, the Aishihik plant is not relied upon at all (under the N-1 criteria).

As noted in the Yukon Energy 20-Year Resource Plan Summary of Proposed Actions (page 6) any extended outage on WAF or the Mayo Dawson grid during the winter peak could be extremely serious for all affected customers. Yukon Energy has addressed this concern by incorporating the N-1 standard in its capacity planning criteria which ensures sufficient system capability to continue to serve firm residential and commercial customers when a failure occurs to the single largest system component. The biggest loss of generation on WAF today at winter peak would be 30 MW following a failure of the Aishihik transmission line[1]; this loss would be far greater than the loss during winter peak of the biggest generator (which currently is a 15 MW generator at Aishihik). As a result, and as noted in the Resource Plan, without twinning of the Aishihik Transmission Line (in order to provide for redundancy), none of the added Aishihik capacity is recognized under the N-1 WAF capacity planning criteria.

[1] The Resource Plan notes at page 3-21 that the Aishihik line connects 31.3 MW of capacity (30 MW from Aishihik, and 1.3 MW of Haines Junction diesel.

REFERENCE: **Tab 3 Cost of Service**

QUESTION:

Page 3-5, line 27:

a) Is the N-1 planning criterion a COS classification methodology?

b) Please explain why what happens during an emergency situation should dictate a COS classification.

c) Is it not usual for remote power plants in Canada to feed into their grid by a single transmission line?

d) How many and what percentage of other Canadian power utilities changed their generation COS classifications when they adopted the N-1 planning criterion?

ANSWER:

(a)

No. It is part of Yukon Energy's capacity planning criteria.

(b)

As noted at page 3-3 classification methods for bulk power reflect consideration of a number of factors including how any given asset or class of assets is used, the basis for the investment in the asset and the benefits of the asset to the system. The N-1 planning criteria indicates the basis for investment in new costs to meet peak demand. In that situation, Aishihik is considered to play little to no role in avoiding new costs to meet peak loads. Also see CW-YEC/YECL-1-2.

(c)

Service through long radial transmission lines is not unusual in remote system. What is unusual is where material components of the system generation can only be accessed through long radial transmission lines. In such cases, it is not uncommon for the assets such as the transmission lines to be classified to energy (such as Manitoba's HVDC transmission system, which connects the majority of northern generation to southern load centers).

(d)

Yukon Energy is not aware of any utilities that changed their generation COS classification on the basis of adopting an N-1 planning criteria.

REFERENCE: **Tab 3 Cost of Service**

QUESTION:

Page 3-5, line 25 Aishihik Plan:

a) How many hours has the Aishihik transmission line been out service or constrained in its carrying capacity on an unplanned basis during each of the past 10 winters (October through April)?

b) How many hours during each of the past 10 winters has the Aishihik power plant not been available or constrained on an unplanned basis due failures within the plant or substation (e.g. power cable failures, pot-head failures, etc.)?

ANSWER:

(a)

A review of the Outage Reports filed with the YUB provides no instances in the past 10 winters (October-April) where the Aishihik transmission line has been out of service on a significant and unplanned basis resulting in a constraint in its carrying capacity.

(b)

A review of Outage Reports for the years 2000 to 2009 notes the following instances that resulted in the Aishihik power plant being unavailable or constrained on an unplanned basis during winter months (October-April):

Date	**Outage Duration and Cause**
January 23, 2001	Outage duration = 21 min – Equipment Failure – Electrical Fire
June 18, 2002	Outage duration = 2 hr 26 min – sump float tripped AH2 off line.
June 22, 2004	Outage duration = 19 min – AH1 tripped off (guide bearing temperature)
May 14, 2005	Outage duration = 20 min – AH1 tripped off (Lower Guide Bearing Temperature trip)
Jan 29, 2006	Outage duration = 2 – 7 hours – report filed with YUB. Failed cable resulting in loss of all Aishihik output. Plant de-rated to 20 MW until March 12, 2006
December 1, 2008	Outage duration = 1 hr 12 min – failed pothead – plant returned to normal 26 hours later

REFERENCE: Tab 3 Cost of Service

QUESTION:

Page 3-5, line 25 Aishihik Plant and page 3-6, line 7 Mayo Hydro:

a) Which customer classes would see an increase in allocated costs and which customer classes would see a decrease in allocated costs if the classification of the Aishihik and Mayo power plants were to be restored to 60% to energy and 40% to demand?

ANSWER:

(a)

Customer classes who use relatively larger amounts of energy compared to demand (i.e., higher load factor customers) are adversely affected by allocations to energy, and benefit from allocations to demand. In short, were costs to be shifted from energy back to demand (as proposed by the question) the industrial customer and GS customer cost allocations would benefit (i.e., they would see higher R/C ratios than under the proposed method).

REFERENCE: **Tab 3 Cost of Service**

QUESTION:

Page 3-6, line 7 Mayo Hydro:

a) Why should the existence of an emergency back-up diesel generator in a community dictate the COS allocation of a hydro plant if the hydro plant is relied upon first and foremost?

ANSWER:

(a)

The existence of an emergency back-up diesel generator in a community is not dictating the COS allocation of Mayo Hydro *per se*; given the material changes in circumstances on the system since 1996/97 as well as anticipated changes (i.e., construction of Mayo Dawson line and planned connection of WAF and MD grids via Carmacks-Stewart Transmission Project), the use of the Mayo Plant, the loads served and the benefits of the asset to the system have changed. The plant no longer only services the local Mayo and Keno loads but now serves a larger complement of formerly isolated communities that previously relied upon resident diesel generation to supply baseload requirements. The primary function of the Mayo Plant is to provide energy that offsets the need to rely on local diesel generation with resident diesel units, while these units remain available to provide capacity benefits as required.

In reviewing the cost of service (COS) study for this response, it was noted that the COS provided in Tab 3 inadvertently fails to classify Mayo hydro 100% to energy, but rather uses the old 60% energy and 40% demand classification. The net effect of this error is very small – Tab 4 reports the Residential (Gov't and Non-Gov't) customers costs too high by approximately 0.2-0.3%, and the GS (Gov't and Non-Gov't) and Industrial costs are allocated approximately 0.2%-0.3% too few costs. The R/C ratios reported in Tab 4 will change once the error is fixed, by about this percentage amount. The companies propose to incorporate this correction into any final COS study filed as part of the hearing refiling.

QUESTION:

Page 3-12, Table 3.1(and Page 3.3A-1 line 22):

a) Since system peak is typically during the supper hour during cold weather and which is typically winter and dark, it seems peculiar that Street lights and Space Lights would have a CP load factor of only 46.7% (indicating that less than half of them are on at system peak). Please explain why these numbers were not adjusted from the ATCO Electric study to make them more appropriate to the more northerly region that Yukon is.

ANSWER:

(a)

Street light and Space light load factors are closely related to the number of light-on hours over the year when energy is consumed (*kWh*). Load Factor is equal to the ratio of the average demand (*kWh*/period) to the maximum demand for a period of time (in this case a year).

$$LF = \frac{kWh}{kW\ Demand * Period}$$

where:

kWh: Total energy used.
kW Demand: Maximum demand.
Period: Total hours in the period.

The load factor used is reasonable and appropriate given the above definition.

REFERENCE: **YEC Rate Design - Yukon Energy Discussion**

QUESTION:

Page 4 YEC-12, lines 19-21:

a) Regarding "heritage" infrastructure (e.g. Whitehorse Rapids, Aishihik, and Mayo power plants), is it not true that public (taxpayer) funds (federal, territorial, and YDC) have subsidized and are subsidizing some significant projects being constructed at present - in particular the CSTP and Mayo B hydro plant?

b) Is the cost to the electrical ratepayers of this new infrastructure (CSTP, and Mayo B) not close enough to "heritage" infrastructure so that there will be no increase in average rates because of these projects?

c) Since average rates will not be going up how can the utilities really charge "…increased prices that reflect incremental costs for new generation"?

ANSWER:

(a)

Yes. Funding for Carmacks-Stewart Transmission Project, Mayo B Enhancement Project and Aishihik 3rd Turbine has been sourced from parties including the Federal and Territorial government. YDC funding is also part of the arrangements in some cases, but YDC is not a “taxpayer funded” entity.

(b)

The development of Mayo B and CSTP (Stage 1 and 2) including the connection of the Minto mine and Pelly Crossing, are premised on achieving substantial rate benefits for existing customers.

(c)

The cited quote is in regards to raising the runoff block rates to better send price signals representing the costs of incremental consumption, the costs of added diesel generation (which is materially higher than the last time runoff block prices were set) and the effects of incremental consumption on system supply.

The presence of material heritage generation (such as Whitehorse Rapids) or new generation sources that are charged to ratepayers at an price reflective of past heritage resources does not undermine this price signal for incremental consumption. Overall, the basis for rate design in Yukon is premised on a balanced approach, as follows:

- A territory-wide sharing of the benefits of the large renewable hydro generation and related transmission assets (through first block rates, as required by the OIC 1995/90);

- While at the same time sending an incremental price signal in regards to the costs of new supplies (through runoff rates, also as required by OIC 1995/90).

This is not unlike the design of two block rates, for example, that existed for the Faro mine, for wholesale sales to YECL (through the Energy Reconciliation Adjustment), and for other utilities such as sales to industrial customers in BC under the “stepped rates” approach.

REFERENCE: YEC Rate Design - Yukon Energy Discussion

QUESTION:

Page 4 YEC-17 and Tab 7 page 7-5:

a) There is no discussion that the utilities seriously considered seasonal rates. The rational indicated is that there are no studies that indicate a cost benefit. Do the utilities have any studies that indicate that seasonal rates would not be cost effective? If so please provide copies of these studies.

b) Have the utilities considered the possibility that seasonal rates may encourage power consumption during the summer season when hydro supplies are ample?

c) The need for diesel generation in the winter as load growth seems well documented in this the utilities' Phase II GRA, and in Yukon Energy's 2008-2009 GRA. Given this and the utilities preparedness to implement additional rate blocks why do they think seasonal rates would not be cost effective compared to the traditional approach?

ANSWER:

(a), **(b)** and **(c)**

Currently no specific studies have been undertaken with regard to implementing seasonal rates. Please see CW-YEC/YECL-1-25 for a discussion of the benefits and limitations of seasonal rates.

Further, and in relation to the filing, given the time constraints inherent in completing the Phase II Rate Application by February 19, 2010, the Companies focused on meeting the requirements of Board Directive 13 of Order 2009-8. This directed the Companies to provide rate design recommendations in the Phase II Application that comply with previous Board direction and current OICs (and required the companies to consider as a starting point past precedents and the rate design framework provided by OIC 1995/90, OIC 2008/149 and OIC 2007/94). Since it has been over 12 years since the last major rate review, the companies focused on addressing the required rate adjustments in an orderly manner, focusing first on what can and should be considered for implementation today.

In this vein, the consideration of seasonal rates going forward must be tempered by the reality that with diminishing WAF surpluses and current and anticipated load levels, the current system is returning to the condition of having “diesel on the margin” for material portions of the year. In this vein, there are also increasing exposure to low water conditions when they arise (i.e., drought conditions) resulting in hydro generation shortfalls and costly requirements for diesel generation throughout the year. This concern was noted in the Yukon Energy 2008/2009 GRA (Tab 2, page 2-10) where Yukon Energy anticipated there would be requirements for increasing secondary sales interruptions after the test years based on water availability. While these concerns may be heighted in winter when loads are higher they are not expected to be confined to this time period. This speaks to seasonal rates becoming less relevant to the evolving system, and the requirement for rates that provide for economy and efficiency (based on the incremental cost of diesel) becoming more relevant.

To the extent there are surpluses in terms of summer hydro, these are presently being made available to customers under the secondary sales program, and this will continue so long as any such surpluses remain.

REFERENCE: **YEC Rate Design - Yukon Energy Discussion**

QUESTION:

Page 4 YEC-20, line 20:

a) Why did YEC/YECL consider a rate block of 700 to 2000 kWh for residential customers rather than looking at two rate blocks within the present OIC limitation of 1000kWh for equalized rates?

ANSWER:

(a)

The utilities considered numerous possible rate block structures, as set out in Tab 4YEC page 4YEC-20. One of these, as noted in the question, had two rate blocks applying when a customer used 1000 kW.h/month; the first applied to the first 700 kW.h/month and the second rate block applied to all kW.h between 700 and 1000 kW.h/month.

To be clear, there is no OIC limitation of 1000 kW.h for equalized rates – the OIC requirement is that all non-runoff blocks must be equalized, and the runoff rate cannot start at a level less than 1000 kW.h per month.

REFERENCE: YEC Rate Design - Yukon Energy Discussion

QUESTION:

Page 4 YEC-26, lines 5-9:

a) Why did Yukon Energy select 80% of the cost of diesel, $0.2239 per kWh, which seems bordering on punitive, as the runoff rate for what is a first step towards making runoff costs incremental diesel costs, as opposed to a figure somewhere between 50% (which is only marginally above present rates) and 80%.

b) About 11.3% of bills annually exceed 2500 kWh in consumption whereas about 29.9% of bills annually exceed 1000 kWh in consumption (page 4.1 A-4 and others). Did Yukon Energy consider sending a somewhat stronger signal to the larger percentage of customers by setting a higher rate for the second block energy? Why did Yukon Energy choose not to do so?

ANSWER:

(a)

For a detailed discussion of rate design Option A, please see the response to CW-YEC/YECL-1-19.

Yukon Energy can see no basis to conclude that Option A is in any way "punitive", for a number of reasons:

1) Option A leads to rate decreases to 90% of residential customers. The remaining 10% of very large users only have the new higher runoff rate apply to their marginal consumption above 1500 kW.h per month, so in most cases it only applies to a small minority of their consumption (less than 1% of customers use above 3000 kW.h/month).

2) The rate proposed remains below the costs that this very high level of incremental consumption drives on the system when diesel generation is being driven (due to the 80% factor). This means that incremental load growth by these very large customers, which serves to drive material spending on new generation

(such as diesel fuel), remains priced “below cost” (and as such fails to fully reflect economic efficiency principles).

3) The proposed runoff rate, at 22.39 cents/kW.h remains below approved rates in place in many northern jurisdictions; for example, the proposed runoff rate for hydro zones remains below the present runoff rate in Old Crow (25.77 cents/kW.h), and well below rates paid throughout almost the entire NWT (including Yellowknife) where residential rates approximate 22 cents/kW.h for every kW.h consumed (there are no runoff blocks, etc. in Yellowknife).

Option A is already a moderated response to the requirement to restore runoff rates that reflect economy and efficiency (i.e., it does not reflect 100% of incremental cost of diesel but is at the mid-way point of 100% incremental cost and 50% which is noted in CW-YEC/YECL-1-19 results in no change in rates at this time.

Option A also complies with the Order-in-Council directives to the Board and past practice for rate design in Yukon under such Orders-in-Council, and has a much stronger long-term price efficiency signal to ratepayers at a time when diesel generation is once again becoming relevant on the margin in the hydro rate zone as well as continuing to be relevant in the various diesel rate zones.

(b)

The rate design focused on the need to meet the OIC requirements and to send an efficiency signal to large users (approx 10% of non-government residential users > 1500 kWh per month in most communities).

The rate also provides the users noted (those between 1000 kW.h and 1500 kW.h) with both a lower bill, plus an increased efficiency signal due to the new second (non-runoff block). This arises as a user consuming 1500 kW.h would face approximately the same bill after implementation of Option A, but have a better opportunity to see savings from load reductions they undertake from implementing efficiency measures (almost a 20% better opportunity to capture savings - see CW-YEC/YECL-16(h)).

REFERENCE: YEC Rate Design - Yukon Energy Discussion

QUESTION:

Page 4 YEC-30, lines 11-13:

a) The proposed General Service non-government third energy block rate of $0.2239 is identical to the runoff residential rate and seems no less punitive in this rate class. Why did Yukon Energy not spread the economy and efficiency "signal" to more customers by having a higher second block rate?

ANSWER:

(a)

Please see LE-YEC/YECL-1-12 with respect to allegations of “punitive” rates.

Both the second and “third” block GS rates under Option A are designed to parallel the residential rate designs in both price and coverage, with approximately 90% of the customers fully covered by the first two blocks, and the remainder being exposed to the runoff block. The only exception for GS customers is the approximately 100 of the very largest GS customers, who require individual attention as discussed at Tab 4YEC starting at page 4YEC-27.

REFERENCE: **YEC Rate Design - Yukon Energy Discussion**

QUESTION:

Tables A4.1 & B4.1:

a) Please provide a table of information of overall residential non-government and General Service non-government annual (2009) energy consumption broken down by monthly consumption blocks of no less than 250 kWh for residential customer and no less than 1000 kWh for General Service customers. For example residential non-government consumption 0-250 kWh in a month = ? kWh per year; 251 to 500 kWh in a month = ? kWh per year; 501 to 750 kWh in a month = ? kWh per year; etc.

ANSWER:

(a)

Billing data analysis to determine percentages of customers using within certain "blocks" as used for the Phase II application is primarily based on the 2007 actual billing data (for example, see the percentage breakdowns in Appendix 4.1AYEC at Table A4.4). For consistency reasons, the requested information has also been prepared based on the same set of data. Please see attached Table 1 for information of overall Residential non-government energy consumption. Note that the data does not permit analysis at increments less than 100 kW.h (so, for example, 250 kW.h cannot be analyzed).

Table 1

Residential Non-Government Annual Energy Consumption by Monthly Consumption Blocks

	Monthly Consumption Blocks (kWh)					
	0-300	**301-600**	**601-900**	**901-1200**	**1201-1500**	**1501-1800**
Annual Consumption (MWh)	42,754	34,336	23,126	13,188	6,882	3,591

	Monthly Consumption Blocks (kWh)					
	1801-2100	**2101-2400**	**2401-2700**	**2701-3000**	**3001+**	**Total**
Annual Consumption (MWh)	2,015	1,213	792	531	1,404	129,833

Please see attached Table 2 for information of overall General Service non-government energy consumption.

General Service Non-Government Annual Energy Consumption by Monthly Consumption Blocks

	Monthly Consumption Blocks (kWh)					
	0-1000	1001-2000	2001-3000	3001-5000	5001-10000	10001-15000
Annual Consumption (MWh)	18,728	11,311	7,549	9,737	12,424	6,311

	Monthly Consumption Blocks (kWh)					
	15001-20000	20001-25000	25001-30000	30001-35000	35000+	Total
Annual Consumption (MWh)	3,914	2,674	2,071	1,582	15,843	92,144

REFERENCE: YEC Rate Design - Yukon Energy Discussion

QUESTION:

Pages 4.1 & 5:

a) We note that the bill comparisons are carried out with and without the government IER subsidy; in fact it appears that Option A rate design is intended to facilitate the potential end of the IER by lowering first block rates. Is Yukon Energy aware of any plans by YTG to terminate the IER?

ANSWER:

(a)

Please see response to YUB-YEC/YECL-1-20(b) which notes the Interim Electrical Rebate (IER) is by definition an interim measure, which was specifically noted to terminate following the Phase II proceeding.

Bill comparisons were provided with the understanding that the IER is an interim measure, and comparisons with and without the government subsidy were provided to demonstrate bill impacts in the event the subsidy was to be terminated. It is relevant to the Board and intervenors to understand the potential impacts on bills of the Phase II rate changes being implemented concurrently with any termination of IER.

In any event, the Option A provides material reductions in rates for residential non-government customers using up to 1000 kW.h per month, but these reductions only serve to offset about one-half of the impact on bills of any possible IER elimination. It is not fair to characterize the process of developing Option A as being driven by a plan to facilitate the end of the IER.

REFERENCE: YEC Rate Design - Yukon Energy Discussion

QUESTION:

Page 4.1A-5:

a) The bill calculations shown in this table cannot be exactly duplicated with the information provided at the bottom of the table. Please provide actual calculations for a residential bill for 1250 kWh in a month under (1) existing rates and (2) under proposed rates showing the order in which the calculations are actually carried out and all the digits of the rates and charges used in the calculations.

ANSWER:

(a)

Please see the attached Tables 1a – 1d for sample residential bill calculations under existing rates.

Table 1a – Hydro Zone

Consumption	**1250** kW.h				
Customer charge	$11.90				$11.90
Block 1 energy charge	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	250	kwh @	$0.1045		$26.13
Base billing					$136.63
Rider J	$136.63	x	12.460%	=	$17.02
Rider R	$136.63	x	10.526%	=	$14.38
Yukon rebate of Fed/Ter Income Tax	$136.63	x	-0.500%	=	($0.68)
Yukon Interim ElectricalRrebate	1000	x	-$0.02660	=	($26.60)
Rider F	1250	x	-$0.00354	=	($4.43)
Subtotal					$136.32
GST	$136.32	x	5.000%	=	$6.82
Total					**$143.14**

Table 1b – Large Diesel Zone

Consumption	**1250** kW.h				
Customer charge	$11.90				$11.90
Block 1 energy charge	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	250	kwh @	$0.1045		$26.13
Base billing					$136.63
Rider J	$136.63	x	12.460%	=	$17.02
Rider R	$136.63	x	10.526%	=	$14.38
Yukon rebate of Fed/Ter Income Tax	$136.63	x	-0.500%	=	($0.68)
Yukon Interim ElectricalRrebate	1000	x	-$0.02660	=	($26.60)
Rider F	1250	x	-$0.00354	=	($4.43)
Subtotal					$136.32
GST	$136.32	x	5.000%	=	$6.82
Total					**$143.14**

Table 1c – Small Diesel Zone

Consumption	**1250** kW.h				
Customer charge	$11.90				$11.90
Block 1 energy charge	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	250	kwh @	$0.1236		$30.90
Base billing					$141.40
Rider J	$141.40	x	12.460%	=	$17.62
Rider R	$141.40	x	10.526%	=	$14.88
Yukon rebate of Fed/Ter Income Tax	$141.40	x	-0.500%	=	($0.71)
Yukon Interim ElectricalRrebate	1000	x	-$0.02660	=	($26.60)
Rider F	1250	x	-$0.00354	=	($4.43)
Subtotal					$142.17
GST	$142.17	x	5.000%	=	$7.11
Total					**$149.28**

Table 1d – Old Crow Zone

Consumption	**1250** kW.h				
Customer charge	$11.90				$11.90
Block 1 energy charge	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	250	kwh @	$0.2577		$64.43
Base billing					$174.93
Rider J	$174.93	x	12.460%	=	$21.80
Rider R	$174.93	x	10.526%	=	$18.41
Yukon rebate of Fed/Ter Income Tax	$174.93	x	-0.500%	=	($0.87)
Yukon Interim ElectricalRrebate	1000	x	-$0.02660	=	($26.60)
Rider F	1250	x	-$0.00354	=	($4.43)
Subtotal					$183.23
GST	$183.23	x	5.000%	=	$9.16
Total					**$192.40**

Please see the attached Tables 2a – 2d for sample residential bill calculations under proposed rates.

Table 2a – Hydro Zone

Consumption	**1250** kW.h				
Customer charge	$14.65				$14.65
Block 1 energy charge	1000	kwh @	$0.1090		$109.00
Block 2 energy charge	250	kwh @	$0.1522		$38.05
Block 3 energy charge	0	kwh @	$0.2239		$0.00
Base billing					$161.70
YEC Revenue shortfall rider	$161.70	x		=	$0.00
YECL Revenue shortfall rider	$161.70	x		=	$0.00
Yukon rebate of Fed/Ter Income Tax	$161.70	x	-0.500%	=	($0.81)
Yukon interim electrical rebate	1000	x	-$0.02660	=	($26.60)
Fuel adjustment rider	1250	x	-$0.00354	=	($4.43)
Subtotal					$129.87
GST	$129.87	x	5.000%	=	$6.49
Total					**$136.36**

Table 2b – Large Diesel Zone

Consumption	**1250** kW.h				
Customer charge	$14.65				$14.65
Block 1 energy charge	1000	kwh @	$0.1090		$109.00
Block 2 energy charge	250	kwh @	$0.1522		$38.05
Block 3 energy charge	0	kwh @	$0.2239		$0.00
Base billing					$161.70
YEC Revenue shortfall rider	$161.70	x		=	$0.00
YECL Revenue shortfall rider	$161.70	x		=	$0.00
Yukon rebate of Fed/Ter Income Tax	$161.70	x	-0.500%	=	($0.81)
Yukon interim electrical rebate	1000	x	-$0.02660	=	($26.60)
Fuel adjustment rider	1250	x	-$0.00354	=	($4.43)
Subtotal					$129.87
GST	$129.87	x	5.000%	=	$6.49
Total					**$136.36**

Table 2c – Small Diesel Zone

Consumption	**1250** kW.h				
Customer charge	$14.65				$14.65
Block 1 energy charge	1000	kwh @	$0.1090		$109.00
Block 2 energy charge	250	kwh @	$0.1522		$38.05
Block 3 energy charge	0	kwh @	$0.2239		$0.00
Base billing					$161.70
YEC Revenue shortfall rider	$161.70	x		=	$0.00
YECL Revenue shortfall rider	$161.70	x		=	$0.00
Yukon rebate of Fed/Ter Income Tax	$161.70	x	-0.500%	=	($0.81)
Yukon interim electrical rebate	1000	x	-$0.02660	=	($26.60)
Fuel adjustment rider	1250	x	-$0.00354	=	($4.43)
Subtotal					$129.87
GST	$129.87	x	5.000%	=	$6.49
Total					**$136.36**

Table 2d – Old Crow Zone

Consumption	**1250** kW.h				
Customer charge	$14.65				$14.65
Block 1 energy charge	1000	kwh @	$0.1090		$109.00
Block 2 energy charge	250	kwh @	$0.1522		$38.05
Block 3 energy charge	0	kwh @	$0.2239		$0.00
Base billing					$161.70
YEC Revenue shortfall rider	$161.70	x		=	$0.00
YECL Revenue shortfall rider	$161.70	x		=	$0.00
Yukon rebate of Fed/Ter Income Tax	$161.70	x	-0.500%	=	($0.81)
Yukon interim electrical rebate	1000	x	-$0.02660	=	($26.60)
Fuel adjustment rider	1250	x	-$0.00354	=	($4.43)
Subtotal					$129.87
GST	$129.87	x	5.000%	=	$6.49
Total					**$136.36**

REFERENCE: **YEC Rate Design - Yukon Energy Discussion**

QUESTION:

Pages 4.1 A-4 & 5 and other similar bill comparisons:

a) Are the Income Tax Rebate and GST included in these calculated bills?

ANSWER:

(a)

Yes, the Income Tax Rebate and GST are included in the calculated bills. Please see LE-YEC/YECL-1-16 for sample bill calculation details.

QUESTION:

Page 4YECL-4, line12:

a) Please describe how the proposed energy rates which reduces the cost of energy for all monthly consumption under 2500 kWh in a month representing 98.3% of all residential bills (and 97.8% of energy consumption) sends signals encouraging economy and efficiency to customers.

ANSWER:

(a)

Yukon Electrical Response

Please refer to YUB-YEC/YECL-1-24.

Page4YECL-4, line 12 refers to YECL's proposed runoff rates for Residential and General Service runoff rates. YECL's proposed residential non-government rates do not reduce the cost of energy for <u>all</u> monthly consumption under 2500 kW.h. YECL's proposed Option B residential non-government rates send the same signal under current rates for the first energy block (0-1000 kW.h) to 100% of the customers, a lighter signal to consumption in the second block (1001-2500 kW.h) to approximately 28% of the customers and a stronger signal to consumption in the third or runoff block (>2500 kW.h) to approximately 2% of the customers. Please refer to Graph 1 on PAGE4YECL-15 or YUB-YEC/YECL-1-24(a) Figures 1 and 2 for bill impacts from YECL's proposed Option B. YECL believes Option B is balanced and sends signals encouraging economy and efficiency when considering that the current non-government residential R/C is 79% and the IER is currently in place. As explained in YUB-YEC/YECL-1-22, YECL considers that the term economy and efficiency encompasses more than providing a signal to customers of the short run incremental cost of diesel.

Yukon Energy Response

The question references Option B rate designs and the signals this option sends as compared to today's rates. In short, in YEC's view as compared to today's rates Option B does not encourage any notable efficiency measures, as it is largely retaining today's rates status quo.

The design of rates in a jurisdiction with “tiers” of generation that have materially different costs, as is now relatively typical of hydro based systems, requires careful consideration. This is because the rate design needs to both provide overall cost benefits to customers arising from lower cost heritage generation, while at the same time ensuring such lower cost power is not leading to inappropriate signals about the “marginal” or incremental cost of new power supplies going forward. In Yukon today, both factors are at work. The average cost of heritage power is declining, as these assets become depreciated, become more fully utilized, and are enhanced through such measures as CSTP, while the average cost of incremental supplies has approximately tripled since 1997 when runoff rates were last set. The rate designs being proposed today reflect this divergence. In the case of Option A, this is reflected by reductions in the first block energy rate which shares with all Yukoners the benefits of the heritage power assets (regardless as to whether the customer is located on the integrated system) while also sending the signal to the largest users that the incremental costs of adding supply to serve their loads is much higher than when these rates were last set.

Consider the approximate rate impacts arising from the two Options in Tab 4YEC (as set out in Table 1 below). Option B has very limited affect, with almost all customers in the middle range (no notable increases or decreases) with the exception of a small amount of users in small diesel communities or Old Crow who see notable decreases. Option A in contrast has notable decreases in the shared, equalized block intended to share throughout Yukon the benefit of heritage generation, while sending stronger price signals on the incremental consumption (larger loads) regarding the costs of new supplies.

Table 1: Approximate Rate Impact Arising from Option A and Option B

Approx Rate Impact	Non-Government Customers Affected	
	Option A	Option B
Larger Increases (in excess of 4%)	• Largest 10% of residential customers (using 1500 kW.h/mo or more on hydro or large diesel systems; 1700-2000 kW.h/mo in small diesel or Old Crow) *[largest 1% of customers see impacts of 20%-40%]* • 10% of GS customers – those using from 7500 to 85000 kW.h/month in hydro and large diesel zone	None
Smaller Increases (1-4%)	No residential • A very small number of GS customers over approx 85000 kW.h/month in hydro and large diesel	• Largest 1% of residential customers; residential usage in hydro and large diesel above 3000 kW.h • GS customers on hydro and large diesel system using 18,000 to 40,000 kW.h/mo
No notable change (1% increase to 1% decrease)	None	• 99% of hydro and large diesel residential users (up to 3000 kW.h); small diesel and Old Crow up to 1000 kW.h/month • All hydro and non-diesel GS, with the exception of a band from 18,000 to 40,000 kW.h.mo
Smaller Decreases (1-4%)	• 5% of residential customers; those using approx 1300-1500 kW.h/mo on hydro or large diesel systems • 5% of GS; those using from 3500-4500 kW.h/mo in hydro and large diesel	None
Larger Decreases (in excess of 4%)	• 85% of residential customers; those using up to 1300 kW.h/mo on hydro or large diesel systems, up to 1700-	• Residential usage in small diesel and Old Crow above approx 1000-1200 kW.h/month • All small diesel and Old Crow GS

Approx Rate Impact	Non-Government Customers Affected	
	1900 kW.h/mo on small diesel or Old Crow systems • 80% of GS customers; those using up to 3500 kW.h/mo on hydro and large diesel systems, 15000 kW.h/mo in small diesel, and all Old Crow GS customers.	users above 2500 kW.h/mo

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QUESTION:

Page 4YECL-5, line 3:

a) Please describe how the energy rate for the second block, which is lower than the present runoff rate plus riders R and J, was determined.

ANSWER:

(a)

The second block rate was determined by a function of the residential non-government rate class.

The revenue from the customer charge, block 1 energy charge and block 3 energy charge are removed from the total costs attributed to the residential non-government rate class.

- Total cost attributed to the residential non-government rate class is determined due to OIC 2008/047 where the increase to existing retail rates must be the same. This increase is 23.1% or the same as Rider J and R combined.

- Customer revenue is the current rate increased at 23.1% applied to the forecast billing determinants.

- Block 1 energy revenue is the current rate increased at 23.1% applied to the forecast billing determinants.

- Block 3 energy revenue is 50% of incremental cost of diesel (Table 4.3 PAGE4YECL-9) applied to forecast billing determinants.

This remaining amount is the revenue to be generated by the block 2 energy charge. The remaining revenue divided by the billing determinants resulted in an energy charge of 12.82 ¢/kW.h.

QUESTION:

Page 4YECL-5, line 3:

a) Please describe how the proposed second block rate will discourage the installation of electric heating on the WAF system which is driving up winter loads and diesel generation on the margin to service this load.

ANSWER:

(a)

Yukon Electrical Response

In YECL's view, over time as the IER is removed, OIC 2008/149 expires and as the runoff block moves toward 100% incremental cost of diesel and residential non-government customers on the WAF grid see the true electric costs, the proposed second block rate will act as a buffer or transition from lower hydro costs to higher diesel costs. YECL's proposal is to find a reasonable balance between sending a price based on the current costing environment and encouraging electrical conservation. As explained in YUB-YEC/YECL-1-24, it is YECL's view that sending a signal to customers to use another energy source without the customer becoming more 'energy' efficient does not accomplish economy and efficient rate design. YECL considers this rate design practice as rate discrimination against a specific group, in this case high consumption users due to electric heating. As mentioned at the Pre-Application workshop (PAGE7.1B-43) "Absolute consumption is not related to efficient or inefficient use."

Yukon Energy Response

The question addresses the proposed second block (the proposed new interim non-runoff block) in YECL's proposed residential rate from Tab 4YECL (termed Option B in Yukon Energy's Tab 4).

The YEC and YECL proposed residential rate design proposals both create a new second block rate at 1,001 kW.h/month to act as a buffer or transition from lower heritage costs applicable for the first block rates to higher incremental energy costs (e.g., runoff costs) in the third block.

In YEC's view, the proposal under Option A to extend the second block to 1,500 kW.h/month (about 90% of non-government annual bills do not exceed this level), is consistent with the transition zone objective; with the proposed second block rate at 15.22 c/kW.h, Option A also provides a meaningful transition between its first block (10.90 c/kWh) and third block (22.39 c/kW.h) rates.

As explained in CW-YEC/YECL-1-19(a) and (d), in YEC's view Option A as proposed will begin to restore an efficient price signal with regard to the runoff rate and therefore the second block rate as proposed will also provide a meaningful transition as residential customer use increases above 1,000 kWh/month.

The principled basis for this overall rate design approach as adopted to date in Yukon, with runoff rates reflecting runoff costs, is reviewed in CW-YEC-1-12 (a) and (b) and CW-YEC/YECL-1-14(b) and (c). YEC does not consider this rate design approach to discriminate against any specific group, i.e., all high consumption users are treated the same.

QUESTION:

Page 4YECL-5, line 3:

a) Please describe how and why the third rate block (runoff) was set at 2500 kWh in a month.

ANSWER:

(a)

Please refer to YUB-YEC/YECL-1-25(a).

QUESTION:

Page 4YECL-5, line 3:

a) Please describe how signals for economy and efficiency are sent to customers in the large and small diesel zones.

ANSWER:

(a)

The approach taken for customers in the large and small diesel zones is consistent with customers in the Hydro zone. The question that YECL has considered in the context of rate design is “how to design just and reasonable rates that reflect costs more accurately than existing rates that still promotes energy efficiency under the current costing environment.” This is explained in detail in YUB-YEC/YECL-1-22 and YUB-YEC/YECL-1-24.

QUESTION:

Page 5-3, lines 16-18:

a) Please explain why a discretionary “may” is added in the proposed rewording as opposed to leaving it certain. Will this not simply result in push-back from all affected customers and therefore complaints and a higher administration cost for all customers to bear?

ANSWER:

(a)

Using the discretionary “may” in the rewording of Article 4.15 of the Terms and Conditions allows YECL and YEC the flexibility to apply this clause as it applies to each utility’s own practices and procedures. It is not YECL’s current practice to back bill customers who reconnect within 12 months of disconnection. YECL would, however, be aware if a customer was trying to “game” the system by repeatedly disconnecting and reconnecting service and could then enforce the back billing provision at its discretion. The vast majority of customers who do disconnect and reconnect within a 12 month period are considered seasonal customers and are already excluded from this provision.

Yukon Energy Response

Yukon Energy accepts the practice of electing not to charge the amounts, as set out by YECL and suggests it sets out a reasonable approach to Yukon for small accounts that are of less value than the administrative effort required. However, for larger accounts (perhaps where the minimum monthly bill is above $500 – this would only be the large General Service customers who peak at approximately 100 kW or above, and Industrial accounts) the provision needs to be designed to protect other system ratepayers from concerns over any customer “gaming” of the system and to make it clear to these large customers that the charge will be applied.

QUESTION:

Page 5-5, Table 5.2:

a) For residential (single dwellings) are any of the MILs of neighbouring utilities the actual average cost of either an overhead or an underground connection?

ANSWER:

(a)

The MILs shown in Table 2 for ATCO Electric, Fortis Alberta and Northland Utilities are, to the best of the Companies' knowledge, not equal to the actual average cost of either an overhead or an underground connection. Based on recent MIL studies published in their respective DTA's or GRA's:

- FortisAlberta's residential MIL approaches the target average cost of a sample underground subdivision (Source: 2010 – 2011 DTA);

- ATCO Electric's residential MIL approaches the target average cost of a blend of underground and overhead extensions, whereby, generally 80% of new extensions are underground. (Source: 2009 – 2010 DTA);

- Northland Utilities (Yellowknife) residential MIL approaches the average cost of underground subdivision. (Source: 2008 – 2010 GRA); and

- Northland Utilities (NWT) residential MIL approaches the average cost of overhead services. (Source: 2008 – 2010 GRA).

YECL cannot comment on the MILs in relation to costs for NTPC or BC Hydro.

QUESTION:

Page 5-5:

a) What is the average cost of a new overhead power connection to a single family home in Whitehorse?

ANSWER:

(a)

As there has not been an overhead subdivision in Whitehorse in many years, the cost of an overhead connection can only be estimated. The estimated cost for a typical new overhead power connection to a single family home in Whitehorse, is $2,661 (in 2011$).

QUESTION:

Page 5-7, lines 10-11:

a) Given the lengthy process to get utility investments in secondary sales approved in the first place, please explain why the investment in secondary customers will be terminated as opposed to being left as a placeholder and set to $0.00.

ANSWER:

(a)

The utilities do not view any practical difference to the two scenarios. Either leads to no utility investment in secondary sales at this time, and no future utility investment in secondary sales connections without some later approval of the Board.

QUESTION:

Pages 5-7&8, and page 5.1-34:

a) Please explain or provide examples of extensions of service to customers not covered in Paragraph 2 of Schedule B.

b) How are summer-only seasonal businesses treated now and how would they be treated in future?

c) How are recreational use cabins and cottages treated now and how would they be treated in future?

ANSWER:

(a)

New extensions to customers not covered in Paragraph 2 are covered under Paragraph 1, where these customers are expected to be in-service for the full service life which is 30 years for residential and street lights, and 25 years for general service customers. Continuous revenue streams from those customers during that period would also be expected. Examples would be single family dwellings, townhomes, apartment buildings, and small and large businesses.

(b)

Currently, investment in seasonal businesses is pro-rated based on the number of months in a year they will be in operation. No changes are being proposed to this practice.

(c)

Cabins and cottages receive full investment levels. No changes are being proposed to this practice.

QUESTION:

Page 5-7, line 27 & on:

a) The suggested new wording implies that a residential customer who uses propane or oil to heat water and / or for cooking, and who is energy efficient and consequently has a very low power consumption (and whose load characteristic thus varies materially from the average), would or could be treated differently from high residential power consumers. Please explain how these customers would be treated.

ANSWER:

(a)

Typical residential investment is based on per site MIL and is thus independent of energy efficiency and overall power consumption. These customers would be eligible to receive full investment up to the cost of the new extension. This reference to Paragraph 2, of Schedule B, usually applies to general service type loads.

REFERENCE: **Terms and Conditions of Service**

QUESTION:

Page 5.1-5:

a) The proposed Terms and Conditions of Service indicate that the Electric Service Tariff which is composed of the rate schedules and the Terms and Conditions of Service (presently the Electric Service Regulations) are available on both Yukon Energy's and Yukon Electric's websites. While the Electric Service Regulations were found on both, the author could not find the rate schedules on either website on June 16. Did the author overlook them or are they not yet there? Are the utilities going to place them on their websites?

ANSWER:

(a)

Yukon Energy Response

Rate Schedules are available on the Yukon Energy website at the link below.

http://www.yukonenergy.ca/customer/commercial/schedules/

Yukon Electrical Response

The YECL website has a bill calculator for customers to use and understand their bill and rates. This interactive tool allows customers to clearly identify all base rates and riders that apply to them. YECL feels that this presentation is more valuable to customers than written rate schedules. However, if there is interest from customers for YECL to post the actual rate schedules YECL will make arrangements to do so.

QUESTION:

Page 5.1-12 & 13:

a) How does Yukon Electric ensure that customers do not use or install electric heat in diesel served communities?

ANSWER:

(a)

When connecting new loads YECL gathers information from the customer about service sizes and heating systems that they plan to use. In general, this information is used to size the transformer and wires appropriately. In diesel communities YECL uses this to ensure the customer is not connecting electric heat, since there is limited supply. If electric heat is in the customer's plans YECL informs them that heating load cannot normally be accommodated and that YECL has the right to not allow that type of load at the time of connection. Also, once a service has been connected YECL normally does not allow electric heating load to be knowingly connected.

QUESTION:

Page 5.1-14 and Page 7-4, Cost Sharing: For each of Yukon Energy and Yukon Electric please provide the following information for non-industrial customers:

a) For each of the years 2000-2009 the annual administration cost for all cost sharing tracking activities (post construction) for distribution extensions towards which non-industrial customers paid construction contributions. Please provide the supporting documentation.

b) For each of the years 2000-2009 the total number of distribution extensions towards which non-industrial customers paid construction contributions.

c) For each of the years 2000-2009 the number of distribution extensions towards which non-industrial customers paid construction contributions in excess of $5,000 each.

d) For each of the years 2000-2009 the number of distribution extensions towards which non-industrial customers paid construction contributions in excess of $10,000 each.

e) For each of the years 2000-2009 the number of distribution extensions towards which non-industrial customers paid construction contributions in excess of $15,000 each.

f) For each of the years 2000-2009 the number of distribution extensions towards which non-industrial customers paid construction contributions in excess of $20,000 each.

g) For each of the years 2000-2009 the number of distribution extensions towards which non-industrial customers paid construction contributions in excess of $25,000 each.

ANSWER:

(a)

YEC and YECL are unable to provide the requested data because administration costs, including specifically for cost sharing, are not tracked.

(b) to **(g)**

YEC and YECL have provided actual data for the last three years. This is consistent with the information timeline provided in YECL's 2009 GRA. In Board Order 2008-5, the Board approved that unless the information is to test items such as load forecasts and continuity of capital additions, three years of actual information is appropriate. Please see the attached Table 1 for the YEC summary and Table 2 for YECL summary of the requested information.

Table 1 YEC Summary

Total Number of Distribution Extensions Where Non-industrial Customers Paid Construction Contributions			
	2007	**2008**	**2009**
Total (b)	**24**	**22**	**22**
greater than $5,000 (c)	7	7	8
greater than $1,000 (d)	5	1	4
greater than $15,000 (e)	3	1	2
greater than $20,000 (f)	2	1	1
greater than $25,000 (g)	2	1	1

Table 2 YECL Summary

Total Number of Distribution Extensions Where Non-industrial Customers Paid Construction Contributions			
	2007	**2008**	**2009**
Total (b)	**155**	**180**	**175**
greater than $5,000 (c)	72	108	118
greater than $10,000 (d)	38	46	51
greater than $15,000 (e)	29	29	34
greater than $20,000 (f)	28	25	25
greater than $25,000 (g)	20	20	21

QUESTION:

Page 5.1-14 and Page 7-4, Cost Sharing: For each of Yukon Energy and Yukon Electric please provide the following information:

a) For each distribution extension included in response to LE-YEC/YECL-1-31(c) please provide the number of new customers that connected to cost sharing projects in the 5 years that the cost sharing arrangement was in place.

b) For each distribution extension included in response to LE-YEC/YECL-1-31(d) please provide the number of new customers that connected to cost sharing projects in the 5 years that the cost sharing arrangement was in place.

c) For each distribution extension included in response to LE-YEC/YECL-1-31(e) please provide the number of new customers that connected to cost sharing projects in the 5 years that the cost sharing arrangement was in place.

d) For each distribution extension included in response to LE-YEC/YECL-1-31(f) please provide the number of new customers that connected to cost sharing projects in the 5 years that the cost sharing arrangement was in place.

e) For each distribution extension included in response to LE-YEC/YECL-1-31(g) please provide the number of new customers that connected to cost sharing projects in the 5 years that the cost sharing arrangement was in place.

ANSWER:

(a) to **(e)**

Yukon Energy Response

The total number of Yukon Energy customers that received a cost share in the last 3 years is as follows:

- 2007 - 2 customers
- 2008 – 53 customers
- 2009 – 2 customers

Yukon Energy had no customers with a cost sharing arrangement greater than $5,000 in these years.

Yukon Electrical Response

YECL has provided actual data for the last three years. This is consistent with the information timeline provided in YECL's 2009 GRA. In Board Order 2008-5, the Board approved that unless the information is to test items such as load forecasts and continuity of capital additions, three years of actual information is appropriate.

Total Number of New Non-Industrial Customers Who Paid Cost Sharing			
Contribution of Original Customer	**2007**	**2008**	**2009**
greater than $5,000 (a)	1	2	6
greater than $10,000 (b)	0	0	4
greater than $15,000 (c)	0	0	2
greater than $20,000 (d)	0	0	2
greater than $25,000 (e)	0	0	1

QUESTION:

Page 5.1-35 part (a):

a) The first sentence does not appear to make sense, please provide the correct (or clearer) wording.

ANSWER:

(a)

Part (a) should read:

> *"(a) At the time of the request for underground Service, where no Service is available in the area to be served by such extension and where not less than 25 single family dwellings (or such lesser number as may be agreed to by the Company) will be connected to such extension (the "underground service area"), each of which is situated upon said subdivision;"*

P.W. PERCIVAL
(PWP)

REFERENCE:

QUESTION:

a) Please provide, in table format, **total annual sales in kW hours** (show plant service separately) plus an accompanying detailed breakdown of all the **actual annual historic** (non distributed / non allocated) **direct and indirect** (i.e. fuel, labour, materials, supplies, accounting, billing, overhead, depreciation, profit, etc) **costs**, with annual totals, to service the large diesel community of Dawson / Rock Creek for each of the five years proceeding the interconnection to the Mayo / Dawson hydro grid.

YEC, please provide the answer to the above question directly. Please do not refer to answers provide to other parties or to sections of the Phase II submission.

ANSWER:

(a)

The table below provides the requested information for Dawson City and area (Henderson corner, Rock Creek, Bear Creek, Callision, etc) for the years 1998 - 2002. The Direct Costs provided include items such as direct labour, fringe benefits associated with the direct labour, supplies/purchases associated with repairs and maintenance for each community, diesel overhauls and labour, contractor supplies and services, meals & travel, and vehicle charges. Indirect Costs are not allocated or charged by community, thus have not been included.

Please note that prior 1999 Yukon Energy used a different financial accounting system. For this reason, historical costs information prior to that year not available.

Dawson city and area	1998	1999	2000	2001	2002
Annual Sales (kW.h)	13,206,534	13,811,427	13,892,730	13,506,765	13,536,759
Station Service and Distribution Losses (kW.h)	1,396,439	1,210,747	1,405,006	1,307,431	1,305,951
Total Generation (kW.h)	14,602,973	15,022,174	15,297,736	14,814,196	14,842,710
Direct Costs ($000)		1,443	1,988	1,890	1,994

QUESTION:

a) Please provide, in table format, **total annual sales in kW hours** (show plant service separately) plus an accompanying detailed breakdown of all **the actual annual historic** (non distributed / non allocated) **direct and indirect** (i.e. fuel, labour, materials, supplies, accounting, billing, overhead, depreciation, profit, etc) **costs**, with annual totals, to service the large diesel community of Watson Lake / Upper Liard / Lower Post for each of the last ten years.

ANSWER:

(a)

YECL has provided actual data for the last three years. This is consistent with the information timeline provided in YECL's 2009 GRA. In Board Order 2008-5, the Board approved that unless the information is to test items such as load forecasts and continuity of capital additions, three years of actual information is appropriate.

Please find below a table containing the requested data that is available by the communities listed. The Direct Costs provided include items such as direct labour, fringe benefits associated with the direct labour, supplies/purchases associated with repairs and maintenance for each community, diesel overhauls and labour, contractor supplies and services, meals & travel, and vehicle charges. Indirect Costs are not allocated or charged by community, thus have not been included.

Watson Lake, Upper Liard, Lower Post B.C.	2007	2008	2009
Annual Sales (kW.h)	13,268,561	13,416,012	13,595,935
Fuel Expenses ($)	2,897,829	3,685,722	2,495,348
Direct Costs ($)	1,011,301	1,221,677	1,223,131

QUESTION:

a) Please provide, in table format, **total annual sales in kW hours** (show plant service separately) plus an accompanying detailed breakdown of all **the actual annual historic** (non distributed / non allocated) **direct and indirect** (i.e. fuel, labour, materials, supplies, accounting, billing, overhead, depreciation, profit, etc) **costs**, with annual totals, to service each of the individual small diesel communities (Old Crow, Stewart Crossing, Pelly Crossing, Beaver Creek, Destruction Bay / Burwash, Swift River and Good Hope Lake) serviced by YECL in both the Yukon and BC for each of the last ten years.

ANSWER:

(a)

YECL has provided actual data for the last three years. This is consistent with the information timeline provided in YECL's 2009 GRA. In Board Order 2008-5, the Board approved that unless the information is to test items such as load forecasts and continuity of capital additions, three years of actual information is appropriate.

Please find below a table containing the requested data for the period 2007 – 2009 that is available by the communities listed, with the exception of Stewart Crossing and Pelly Crossing for 2009. Stewart Crossing has been a hydro community since 2006 and Pelly Crossing since 2009.

The Direct Costs provided include items such as direct labour, fringe benefits associated with the direct labour, supplies/purchases associated with repairs and maintenance for each community, diesel overhauls and labour, contractor supplies and services, meals & travel, and vehicle charges. Indirect Costs are not allocated or charged by community, thus have not been included.

Good Hope Lake is not part of the regulated portion of the business. There is a standalone service contract for the services provided, thus this community has not been included in this application.

Annual Sales (kW.h)

Community	2007	2008	2009
Beaver Creek	1,234,388	1,766,636	1,730,488
Destruction Bay	1,534,875	1,668,278	1,590,642
Old Crow	1,716,180	1,745,285	1,808,031
Pelly Crossing	2,063,532	2,332,050	2,507,443
Swift River	258,423	287,092	250,022

Fuel Expenses ($)

Community	2007	2008	2009
Beaver Creek	415,853	518,009	423,613
Destruction Bay	389,619	530,073	391,210
Old Crow	883,336	1,047,959	888,320
Pelly Crossing	558,957	683,090	n/a
Swift River	76,826	96,533	64,642

Direct Costs ($)

Community	2007	2008	2009
Beaver Creek	281,689	217,473	254,921
Destruction Bay	66,540	173,956	139,234
Old Crow	203,354	165,600	354,581
Pelly Crossing	112,747	135,660	n/a
Swift River	22,313	49,862	37,084

QUESTION:

a) As the supply of electricity to the community of Good Hope Lake in BC is through a commercial contract with the Dease River Band Council it is requested that YECL formally seek the Band’s approval for the release of this information as soon as possible and that a copy of the letter requesting the release of this information and any response(s) be provided to all parties.

ANSWER:

(a)

Good Hope Lake is not part of the regulated portion of the business and has not been included in this application. The commercial contract being referred to in this request is considered confidential in nature, thus YECL will not be requesting the release of any information.

UTILITIES CONSUMERS’ GROUP
(UCG)

REFERENCE: **February 19, 2010 Application, page 1**

PREAMBLE:

According to the Applicants, permitting the utilities “to fully collect their 2009 revenue requirements at test year forecast loads” translates into a Phase II Rate Application that excludes any “net change to the overall level of rates in Yukon”.

QUESTION:

a) Please explain further the rationale behind this statement when existing rates are based on a different revenue requirement and load forecast.

ANSWER:

(a)

“Existing rates” includes all riders arising out of the YECL YEC GRAs for the 2009 test year. In each case the revenue requirement adjustments to collect the approved revenue requirements are already in place (the only limited exception is a reconciling item discussed at page 2-2 of the application (footnote 5)).

The Phase II application only proposes changes the way rates are recovered from within a class, not any rebalancing between the classes.

REFERENCE: **February 19, 2010 Application, page 4**

• "First energy block for use up to 1,000 kWh per month (about 70% of residential non-government class annual bills do not exceed this level), with an adjusted base energy rate…"

QUESTION:

a) Please provide detailed and summary billing data used to make the 70% determination.

b) Please provide the above data for 2005 through 2009.

ANSWER:

(a) and **(b)**

Please refer to the following Table 1 for summary data.

Table 1

Year	**Residential Non-Gov't Customers**	**Total Non-Gov't Customers**	**Percentage**
2005	112,079	156,377	72%
2006	110,826	159,565	69%
2007	114,411	162,911	70%
2008*	98,767	138,663	71%
2009**	98,535	150,481	65%

* 10 months of data

** 11 months of data

REFERENCE: **February 19, 2010 Application, pages 1-3, 1-6**

PREAMBLE:

"Board Order 1996-7 approved the revised rates and ordered the utilities to target all classes to 90-110% R/C within 10 years."

"There has been no opportunity to advance the rate rebalancing directives outlined by the Board in Order 1996-7, or (prior to this Application) to prepare an updated COS based on updated and approved revenue requirements for both Companies."

QUESTION:

(a) Please explain why there has been "no opportunity" for the Applicants to come forward with a rate rebalancing proposal to allow for a gradual adjustment over the last decade.

ANSWER:

(a)

Yukon Energy Response

In short, there has been no opportunity as the only rate changes that have occurred since 1996/97 have been through "across the board" riders. The last approved revenue requirement for YEC was for 2005, and before that was for 1996/97; for YECL the last approved revenue requirement was 1996/97.

Yukon Electrical Response

Current approved rates reflect rates that were designed as part of the 1996/1997 GRA. The Companies believe that in order to have considered a rate rebalancing proposal an approved revenue requirement for each of the two utilities would have been required on a consistent basis. This would have allowed rates to be designed on new billing determinants and load characteristics by customer class. This Application is the first joint application since the 1996/1997 GRA that is based on the approved 2009 revenue requirements for YECL and YEC.

REFERENCE: **Yukon Utilities Board Report on Yukon Energy Corporation 20-Year Resource Plan, January 15, 2007, page 51**

PREAMBLE:

"Now is an appropriate time for YEC and YECL to have a complete review of all GRA Phase I and Phase II matters. The Board recommends that YEC and YECL file a full GRA application before October 31, 2007. The application should include a full cost of service, rate design and an update of the Electric Service Regulations. The Board also suggests that YEC and YECL consider a performance-based regulation mechanism. As well, the Board recommends that evidence be provided as to what other utilities provide for Maximum Company Investment and model theirs accordingly".

QUESTION:

a) Please identify where in the current Application the Applicants have addressed a performance-based regulation mechanism or set out a plan for its discussion and development.

ANSWER:

(a)

Yukon Energy Response

The item noted (performance based regulation) is fundamentally a matter for revenue requirement reviews, and not a Phase II application.

It is also noted that this form of regulation may not be feasible in Yukon outside of specific legislative changes or directions related to rate policy and rate regulation. A multi-year performance-based regulatory framework is not currently in place in Yukon. Implementing this form of regulation would likely significant changes to the regulatory framework in the Yukon that have not been assessed.

Yukon Electrical Response

The Companies have not considered or addressed a performance-based regulation mechanism in this Application. As noted in response to UCG-YEC/YECL-1-3, the last joint application was the 1996/1997 GRA. In essence, existing base rates have been sufficient to recover base revenue up until the requirement for the 2009 GRA. At this time, the Companies do not believe a performance-based regulation mechanism is required.

REFERENCE: **February 19, 2010 Application, page 1-6**

PREAMBLE:

"Whereas rate relief subsidies impeded rate rebalancing in the 1996/97 GRA…"

QUESTION:

a) Please explain what rate relief subsidies are being referenced and how they impeded rate rebalancing within a Phase II-type proceeding.

ANSWER:

(a)

During the 1996/97 GRA, Yukon Energy and Yukon Electrical argued against any material adjustments to rates for residential non-government customers (despite an R/C ratio below 90%) based on the fact that any movement towards the 90-110% target would only increase the amount of bill relief paid by the government. The residential customer would not see any change in their bills. The Board in not moving to initiate a rate shift program at that time acknowledged the constraints related to the then existing rate relief. In joint correspondence to the Board in 2005 (provided as YUB-YEC-1-23(a) Attachment 1 in the 2008/2009 GRA), the Companies noted that the situation regarding rate relief constraints had not material changed at that time, with recent government announcement that the Rate Stabilization Fund would continue until March 31, 2007. The Companies noted that this mechanism prevented most residential non-government customers from seeing any related rate shifts to their bills.

REFERENCE: **February 19, 2010 Application, page 1-6**

PREAMBLE:

"An Interim Energy Rebate ("IER") was implemented in 2009, as an interim measure, and it is currently understood that it may terminate in 2010 (subsequent to the Phase II proceeding)."

QUESTION:

a) Please provide an update on the Applicants' understanding of the current life of the Interim Energy Rebate.

b) Please provide a calculation of a residential bill at current rates with the Interim Energy Rebate and without the Interim Energy Rebate for a customer using 500 kWh, 1000 kWh and 1200 kWh in February 2010 and June 2010.

ANSWER:

(a)

Please see response to YUB-YEC/YECL-1-20(b).

(b)

No changes to the existing rates were made between February and June 2010. Therefore a customer bill will be the same for equivalent energy consumption during this period. Please see the attached Tables 1-4 for the requested information.

Table 1a. Hydro Zone Residential Bill with IER

Residential NG	**Hydro**														
Consumption	**500** kW.h					**1000** kW.h					**1200** kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.1045		$0.00	0	kwh @	$0.1045		$0.00	200	kwh @	$0.1045		$20.90
Base billing					$61.20					$110.50					$131.40
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$131.40	x	12.460%	=	$16.37
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$131.40	x	10.526%	=	$13.83
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$131.40	x	-0.500%	=	($0.66)
Yukon Interim ElectricalRebate	500	x	-$0.02660	=	($13.30)	1000	x	-$0.02660	=	($26.60)	1000	x	-$0.02660	=	($26.60)
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$59.89					$105.21					$130.10
GST	$59.89	x	5.000%	=	$2.99	$105.21	x	5.000%	=	$5.26	$130.10	x	5.000%	=	$6.50
Total					**$62.89**					**$110.47**					**$136.60**

Table 1b. Hydro Zone Residential Bill without IER

Residential NG	**Hydro**														
Consumption	**500** kW.h					**1000** kW.h					**1200** kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.1045		$0.00	0	kwh @	$0.1045		$0.00	200	kwh @	$0.1045		$20.90
Base billing					$61.20					$110.50					$131.40
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$131.40	x	12.460%	=	$16.37
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$131.40	x	10.526%	=	$13.83
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$131.40	x	-0.500%	=	($0.66)
Yukon Interim ElectricalRebate	500	x		=	$0.00	1000	x		=	$0.00	1000	x		=	$0.00
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$73.19					$131.81					$156.70
GST	$73.19	x	5.000%	=	$3.66	$131.81	x	5.000%	=	$6.59	$156.70	x	5.000%	=	$7.83
Total					**$76.85**					**$138.40**					**$164.53**

Table 2a. Large Diesel Zone Residential Bill with IER

Residential NG	**Lg Diesel**														
Consumption	**500** kW.h					**1000** kW.h					**1200** kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.1045		$0.00	0	kwh @	$0.1045		$0.00	200	kwh @	$0.1045		$20.90
Base billing					$61.20					$110.50					$131.40
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$131.40	x	12.460%	=	$16.37
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$131.40	x	10.526%	=	$13.83
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$131.40	x	-0.500%	=	($0.66)
Yukon Interim ElectricalRebate	500	x	-$0.02660	=	($13.30)	1000	x	-$0.02660	=	($26.60)	1000	x	-$0.02660	=	($26.60)
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$59.89					$105.21					$130.10
GST	$59.89	x	5.000%	=	$2.99	$105.21	x	5.000%	=	$5.26	$130.10	x	5.000%	=	$6.50
Total					**$62.89**					**$110.47**					**$136.60**

Table 2b. Large Diesel Zone Residential Bill without IER

Residential NG	Lg Diesel														
Consumption	500 kW.h					1000 kW.h					1200 kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.1045		$0.00	0	kwh @	$0.1045		$0.00	200	kwh @	$0.1045		$20.90
Base billing					$61.20					$110.50					$131.40
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$131.40	x	12.460%	=	$16.37
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$131.40	x	10.526%	=	$13.83
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$131.40	x	-0.500%	=	($0.66)
Yukon Interim ElectricalRrebate	500	x		=	$0.00	1000	x		=	$0.00	1000	x		=	$0.00
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$73.19					$131.81					$156.70
GST	$73.19	x	5.000%	=	$3.66	$131.81	x	5.000%	=	$6.59	$156.70	x	5.000%	=	$7.83
Total					**$76.85**					**$138.40**					**$164.53**

Table 3a. Small Diesel Zone Residential Bill with IER

Residential NG	Sm Diesel														
Consumption	500 kW.h					1000 kW.h					1200 kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.1236		$0.00	0	kwh @	$0.1236		$0.00	200	kwh @	$0.1236		$24.72
Base billing					$61.20					$110.50					$135.22
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$135.22	x	12.460%	=	$16.85
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$135.22	x	10.526%	=	$14.23
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$135.22	x	-0.500%	=	($0.68)
Yukon Interim ElectricalRrebate	500	x	-$0.02660	=	($13.30)	1000	x	-$0.02660	=	($26.60)	1000	x	-$0.02660	=	($26.60)
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$59.89					$105.21					$134.78
GST	$59.89	x	5.000%	=	$2.99	$105.21	x	5.000%	=	$5.26	$134.78	x	5.000%	=	$6.74
Total					**$62.89**					**$110.47**					**$141.52**

Table 3b. Small Diesel Zone Residential Bill without IER

Residential NG	Sm Diesel														
Consumption	500 kW.h					1000 kW.h					1200 kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.1236		$0.00	0	kwh @	$0.1236		$0.00	200	kwh @	$0.1236		$24.72
Base billing					$61.20					$110.50					$135.22
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$135.22	x	12.460%	=	$16.85
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$135.22	x	10.526%	=	$14.23
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$135.22	x	-0.500%	=	($0.68)
Yukon Interim ElectricalRrebate	500	x		=	$0.00	1000	x		=	$0.00	1000	x		=	$0.00
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$73.19					$131.81					$161.38
GST	$73.19	x	5.000%	=	$3.66	$131.81	x	5.000%	=	$6.59	$161.38	x	5.000%	=	$8.07
Total					**$76.85**					**$138.40**					**$169.45**

Table 4a. Old Crow Zone Residential Bill with IER

Residential NG	**Old Crow**														
Consumption	**500** kW.h					**1000** kW.h					**1200** kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.2577		$0.00	0	kwh @	$0.2577		$0.00	200	kwh @	$0.2577		$51.54
Base billing					$61.20					$110.50					$162.04
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$162.04	x	12.460%	=	$20.19
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$162.04	x	10.526%	=	$17.06
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$162.04	x	-0.500%	=	($0.81)
Yukon Interim ElectricalRrebate	500	x	-$0.02660	=	($13.30)	1000	x	-$0.02660	=	($26.60)	1000	x	-$0.02660	=	($26.60)
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$59.89					$105.21					$167.63
GST	$59.89	x	5.000%	=	$2.99	$105.21	x	5.000%	=	$5.26	$167.63	x	5.000%	=	$8.38
Total					**$62.89**					**$110.47**					**$176.01**

Table 4b. Old Crow Zone Residential Bill without IER

Residential NG	**Old Crow**														
Consumption	**500** kW.h					**1000** kW.h					**1200** kW.h				
Customer charge	$11.90				$11.90	$11.90				$11.90	$11.90				$11.90
Block 1 energy charge	500	kwh @	$0.0986		$49.30	1000	kwh @	$0.0986		$98.60	1000	kwh @	$0.0986		$98.60
Block 2 energy charge	0	kwh @	$0.2577		$0.00	0	kwh @	$0.2577		$0.00	200	kwh @	$0.2577		$51.54
Base billing					$61.20					$110.50					$162.04
Rider J	$61.20	x	12.460%	=	$7.63	$110.50	x	12.460%	=	$13.77	$162.04	x	12.460%	=	$20.19
Rider R	$61.20	x	10.526%	=	$6.44	$110.50	x	10.526%	=	$11.63	$162.04	x	10.526%	=	$17.06
Yukon rebate of Fed/Ter Income Tax	$61.20	x	-0.500%	=	($0.31)	$110.50	x	-0.500%	=	($0.55)	$162.04	x	-0.500%	=	($0.81)
Yukon Interim ElectricalRrebate	500	x		=	$0.00	1000	x		=	$0.00	1000	x		=	$0.00
Rider F	500	x	-$0.00354	=	($1.77)	1000	x	-$0.00354	=	($3.54)	1200	x	-$0.00354	=	($4.25)
Subtotal					$73.19					$131.81					$194.23
GST	$73.19	x	5.000%	=	$3.66	$131.81	x	5.000%	=	$6.59	$194.23	x	5.000%	=	$9.71
Total					**$76.85**					**$138.40**					**$203.94**

REFERENCE: **February 19, 2010 Application, page 1-11**

PREAMBLE:

"While inter-class rate rebalancing (among the customer classes) cannot be undertaken at present due to OIC 2008/149, retail runoff block adjustments do not need to be deferred and can be undertaken now to ensure that consumers begin to receive appropriate efficiency price signals."

REFERENCE: ***Order-in-Council 2008/149*, October 3, 2008**

PREAMBLE:

Retail Rate Adjustments

2.1(1) The Board must ensure that rate adjustments for retail customers apply equally, when measured as percentages, to all classes of retail customers.

REFERENCE: ***Order-in-Council 1995/090*, May 29, 1995 (as amended)**

PREAMBLE:

Public Utilities Act - *Rate Policy Directive (1995)* Interpretation

- "Retail customer" means a customer of Yukon Energy Corporation or of The Yukon Electrical Company Limited, other than a major industrial customer, an isolated industrial customer, or a wholesale customer.

- "Wholesale customer" means the Yukon Electrical Company Limited when it purchases electricity from Yukon Energy Corporation.

QUESTION:

a) Please confirm the Applicants' understanding that OIC 2008/149 only limits rate adjustments for "retail customer classes" and that this excludes major industrial customers and Yukon Electrical Company as a wholesale customer of Yukon Energy Corporation.

b) Please confirm the Applicants' understanding that, from an analytical point of view, it is possible to undertake a full cost allocation analysis that excludes the rate design limiting OICs that have been issued over the last few years.

ANSWER:

(a)

Confirmed.

However, OIC 2007/94 also requires that the Board must ensure that the rates charged to Major Industrial Customers from January 1, 2008 until December 31, 2012 conforms to Rate Schedule 39, Industrial Primary, (attached to OIC 2007/94 as Schedule A). The combined OIC's serve to prevent rate rebalancing between retail and industrial customer classes until after December 31, 2012.

(b)

Confirmed. A full cost of service study is provided in Tab 3 of the Application. This cost of service study is not limited in any way by OIC 2007/94 or OIC 2008/149.

However, the results of this cost of service cannot be used for rate rebalancing at this time due to the limitations that arise from OICs 2008/149 and 2007/94 (which do not expire until after December 31, 2012).

REFERENCE: February 19, 2010 Application, page 1-11

PREAMBLE:

"OIC's in place since 1988, including the current OIC 1995/90, have provided key directions in this regard:

- To allocate throughout Yukon the benefits of lower cost heritage grid generation and transmission assets which the Board last implemented through first block rates approved in the 1996/97 General Rate Application; combined with

- Runoff rates to recover incremental costs of higher cost non-renewable generation.

The Board has sought to implement this balance in conjunction with a long-term goal of moving each class closer to paying a reasonable share of the overall allocated cost of the system."

QUESTION:

a) Please provide references to the Board's efforts since the 1996/97 GRA to "implement this balance in conjunction with a long-term goal of moving each class closer to paying a reasonable share of the overall allocated cost of the system".

ANSWER:

(a)

Since the 1996/97 GRA, there has been no redesign of rates to permit this balancing to be addressed.

In Order 1996-7 following the 1996/97 GRA, the Board noted (at page 8) that "run-out rates were designed consistent with rate design principles and specific direction established in OIC 1995/90." Further, the Board noted that it "is cognizant that rate design objectives may be in conflict and there must be trade-offs to achieve a particular outcome. In this case, revenue stability, recovery of cost and the appropriate price signal are achievable results in the current methodology that have been incorporated in the run-out rates. The Board agrees that it is necessary to provide the correct price signals to consumers which accurately reflects costs of providing service so that rational energy choices can be made."

With regard to the need to move each class closer to paying a reasonable share of the overall allocated cost of the system the Board noted in that Order (at page 9) that, "the Companies are to design a rate shift program that would target revenue/cost ratios in the range of 90% to 110%over a ten year period."

As noted in response to UCG-YEC/YECL-1-3, since the Companies were not jointly before the Board for a review of their revenue requirements in the same test period (until 2008/09) the Board has not had an opportunity to review cost of service, cost allocations or material rate redesign issues as part of a full General Rate Application. However, the Board did in Order 2005-1 confirm that it would review the YECL annual filing (along with Yukon Energy's 2005 Required Revenues and Related Matters Application) to determine whether it would require both Companies to appear before the Board to set out a joint YEC/YECL cost-of-service, as follows:

> The Board requires the Companies to jointly file a report by Thursday September 1, 2005, that provides information on the revenue to cost ratios by customer class for both Companies utilizing the most recent cost of service allocation study. If the report indicates that the revenue to cost ratios by customer class are outside the range of 90 percent to 110 percent, then the Companies are to provide their views on whether an updated cost of service allocation study should be undertaken or if a rate shift proposal can be made based on the most recent cost of service allocation study.

The Companies filed this information with the Board (in correspondence dated August 24, 2005) noting that while a cost of service study was not required to begin a rate shift program, a number of matters mitigated against initiating such a program in the near term, including that need for a revenue requirement and billing determinants for both companies to be established for the same time period, and constraints related to the existing rate relief program which would result in any movement towards the 90% to 110% target being paid by the government with residential customers seeing no change in their bills. The Board did not Order the Companies to file a Cost of Service following receipt of this correspondence.

The YUB made an initial recommendation that the Companies provide a joint Cost of Service Study as part of its Recommendations to the Minister of Justice following the review of the Yukon Energy 20-Year Resource Plan, and a subsequent direction in this regard was provided in Order 2007-5 related to the review of the Yukon Energy PPA with Minto Mine (reviewed at pages 6-5 and 6-6 of the Phase II Rate Application).

REFERENCE: **February 19, 2010 Application, page 1-12**

PREAMBLE:

"It is important to design rates with regard to firm loads that send the appropriate price signal based on the current costing environmental."

QUESTION:

a) Please provide further explanation of what this sentence means.

b) Please provide all studies undertaken by or for the Applicants which identify what could be regarded as "the appropriate price signal" for Yukon electricity ratepayers.

c) Please provide the elasticity study used to demonstrate that by "designing rates with regard to firm loads that send the appropriate price signal based on the current costing environment" will achieve the goals proposed. Please explain what time lag is shown by this study for this to actually take effect.

ANSWER:

(a)

There is a typographical error in this sentence – it should read "costing environment" not "costing environmental".

Yukon Energy Response

The discussion at page 1-12 of the Application notes that factors affecting the current rate setting environment include ongoing load growth and diminished available surplus hydro generation, resulting in a system that is once again returning to a state of diesel being on the margin. The costing environment that the system is moving towards in the near term is one where costs will be steadily increasing due to greater requirements for diesel generation to meet baseload needs (instead of only peaking diesel requirements as has been the case since the closure of the Faro mine). The rate structures must necessarily reflect this change in system costs by beginning to provide appropriate price signals regarding consumption on the margin.

Yukon Electrical Response

The meaning of this sentence is to suggest that while runoff rates are designed to reflect the short-run incremental costs, rates should ultimately reflect cost causality. Overpricing distorts the signal for economic efficiency and is considered inequitable. Ideally, inclining-block rate design is done to send a price signal to customers that higher amounts of electric consumption require higher amounts of incremental production. In the Yukon, the incremental production relates to the incremental production of diesel. The effectiveness of increasing block-rates as a conservation tool is lost if the incremental costs are not forecasted to occur.

(b)

The studies that provide the most relevant direction on the appropriate price signal for Yukon are summarized in the Board's Report on Cost of Service and Rate Design issued in 1992. This study was distributed to all participants in the public consultation session and is provided in Appendix 7.1.

No specific studies have been undertaken for this Application that tests the appropriate price signal.

(c)

The goals of designing rates to provide an appropriate price signal are to ensure that customers (particularly larger customers) see rates at the margin that reflect incremental costs on the system. There are no elasticity studies or effect needed to achieve this goal.

With respect to elasticity studies in particular, no Yukon-specific study has been undertaken. To the Companies' knowledge even most larger jurisdictions do not do system specific studies, but rather rely on comparative studies to other jurisdictions (e.g., Manitoba Hydro completed a comparative elasticity review, rather than doing their own direct study). Undertaking a Yukon-specific study is not considered reasonable or cost effective, given the size of this jurisdiction.

In Yukon, "the appropriate price signal" for Yukon electricity ratepayers has been based largely on the requirement to comply with current rate policy direction provided by OIC 1995/90 and past Board Orders and precedents related to the interpretation of this provision. This includes the 1992 Board Report on Cost of Service and Rate Design and prior Board Orders 1993-8 and 1996-7 which accepted and confirmed established principles regarding economy and efficiency and the basis for setting efficient runout rates based on the shortrun incremental cost in each rate zone.

See discussion at page 4YEC-21 and 4YEC-22 of the Phase II Rate Application for further discussion related to the policy for setting runout rates to reflect incremental costs to promote economy and efficiency.

REFERENCE: **February 19, 2010 Application, page 2-2, Note 5**

PREAMBLE:

"In preparing the Yukon Energy Compliance Filing, Yukon Energy was directed to use Yukon Electrical's sales forecast for the purposes of forecasting wholesale sales. This was incorporated into Yukon Energy's Compliance Filing for wholesale (Rate Schedule 42) sales, but was inadvertently not incorporated for wholesale Rider J collections. In forecasting Rider J collections, Yukon Energy used a wholesale rider recovery estimate that slightly overstated the recovery that should be forecast based on YECL's approved load forecast. Consequently, Yukon Energy's approved Rider J adjustment at forecast sales levels (to 12.46%) fails to collect $0.054 million of YEC's approved revenue requirement. The rates proposed in this filing (Tab 4) address this adjustment on a go forward basis (implies correct Rider J of 12.597%). No approvals are sought to adjust Rider J for this factor during the periods it was applicable."

QUESTION:

a) Please explain why the Applicants believe that no approvals are required to change the conditions of a Board Order.

b) Please provide all studies undertaken by or for the Applicants which identify what could be regarded as "the appropriate price signal" for Yukon electricity ratepayers.

ANSWER:

(a)

To be clear, footnote 5 at page 2-2 of the Application does not in any way infer that the Companies are acting in contravention of a Board Order. The footnote explains Yukon Energy's approved Rider J adjustment (of 12.46%) failed to collect $0.054 million of Yukon Energy's revenue requirement approved by Order 2009-10 (the Application notes the correct Rider J over this period should have been 12.597%). The error has been adjusted on a go-forward basis and is to be reviewed and must be approved by the

Board in the current filing – footnote 5 states that no approvals are being sought to retroactively collect amounts during periods when the under-collection occurred.

(b)

Please see response to UCG-YEC/YECL-1-9(b) and (c).

REFERENCE: **February 19, 2010 Application, page 3-5**

PREAMBLE:

"Aishihik Plant (existing, excluding Aishihik 3rd Turbine) – Classified 100% to Energy - Under the new capacity planning criteria recently adopted in Yukon Energy's 20-Year Resource Plan: 2006-2025 (driven by N-1 methods), Aishihik generation is considered to not contribute to the WAF system's ability to serve peak loads at critical times due to transmission constraints."

REFERENCE: **Yukon Utilities Board Report on Yukon Energy Corporation 20-Year Resource Plan, January 15, 2007, Page 30**

PREAMBLE:

"It should be noted, however, that the addition of the third turbine under YEC's plan is not a capacity requirement determined by the planning criteria, but rather a requirement driven strictly by economic reasons, namely to offset future diesel generation that is expected to increase under the base-case load forecast. However, should the actual loads turn out higher or lower that the loads under the base-case forecast, the optimal timing of the third turbine would move earlier or later than 2013. Therefore, to minimize the uncertainty around timing of the third turbine, the final decision to proceed with this project should be made closer to the date when economic reasons indicate that the turbine is needed. Therefore, the Board recommends that this project not proceed until that time unless YEC can justify an earlier in-service date."

QUESTION:

a) Please explain the Applicants' reasoning of "transmission constraints" versus the Board's determination that the third turbine was driven by the need to offset diesel use.

ANSWER:

(a)

The two points are not related.

Page 3-5 of the Application notes the proposed allocation for Aishihik Plant in the cost of service study, due to the fact that Aishihik is connected to the WAF grid by a single non-redundant transmission interconnection, which means that the plant is not included in planning to meet reliability criteria with respect to Coincident Peak loads.

The above quoted passage from the YUB Report on Yukon Energy's 20-Year Resource Plan specifically addresses the justification to proceed with Aishihik 3rd Turbine as a near term opportunity to displace diesel, due to better ability to use the available water at Aishihik.

REFERENCE: **February 19, 2010 Application, page 3-6**

PREAMBLE:

"Mayo Hydro – Classified 100% to Energy – The Companies in this Application propose to change the classification of hydro plant at Mayo (from that proposed by the Companies and recommended by the Board in 1992 and subsequently approved in Order 1993-8 and 1996-7) due to material changes in circumstances on the system since the 1996/97 GRA."

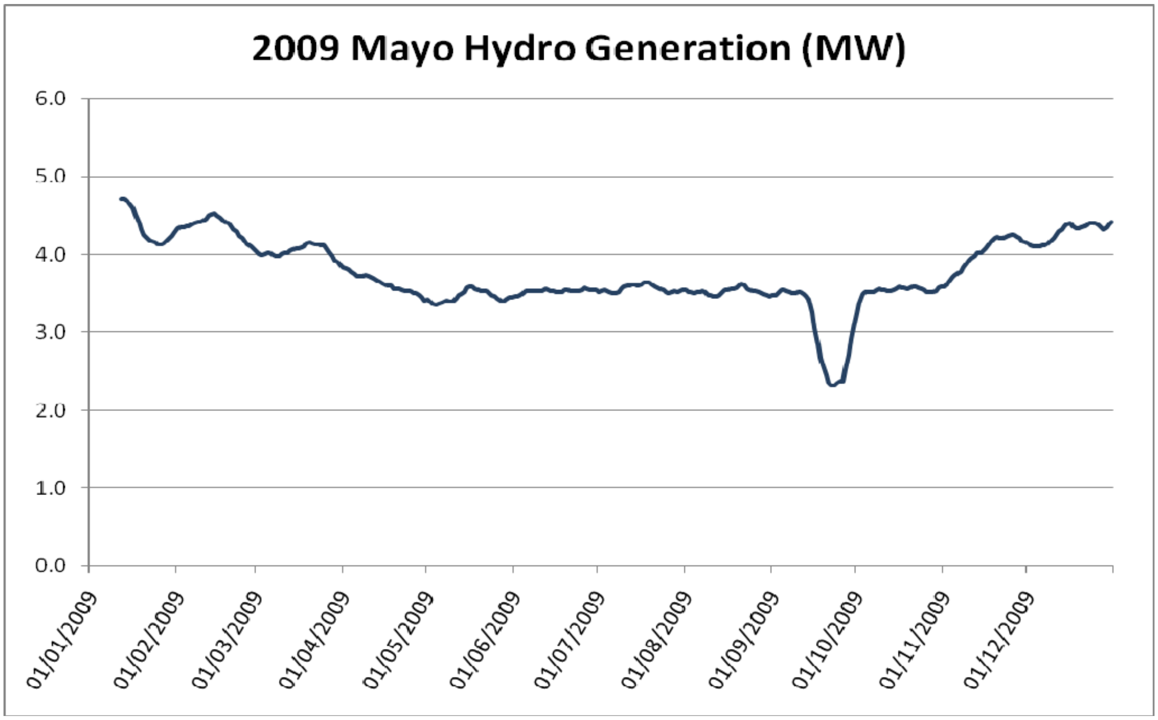
QUESTION:

a) Please provide details of the loads met by the hydro plant in Mayo during 2009.

ANSWER:

(a)

The graph below provides the daily average generation for the Mayo hydro plant in 2009. The evident dip (01/10/2009) coincides with annual preventative maintenance activities. The loads are largely residential and general service. Further details on the loads were provided in Yukon Energy's 2008/09 General Rate Application, in Tab 2 of that filing, Table 2.3.


2009 Mayo Hydro Generation (MW)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/01/2009
01/02/2009
01/03/2009
01/04/2009
01/05/2009
01/06/2009
01/07/2009
01/08/2009
01/09/2009
01/10/2009
01/11/2009
01/12/2009

REFERENCE: **February 19, 2010 Application, Pages 3-10, 3-11, 3.2A-6**

•"The Companies have reviewed and updated the customer/demand classification factors for Distribution plant using Yukon specific data and the same methodologies that were approved in ATCO Electric's 2010 Distribution Tariff Application as well as Northland Utilities (NUY) and Northland Utilities (NWT) 2008-2010 Phase II General Rate Applications."

• "The Companies view the above classifications to be consistent with the goals of identifying cost causation. These classifications are also supported by the National Association of Regulatory Utility Commissioners' (NARUC) Electric Utility Cost Allocation Manual and are consistent with the practices of other Canadian utilities."

• "YECL studied the results of the zero-intercept and minimum plant studies and consider an average of the two methodologies to be the most appropriate and accurate. The zero-intercept method can produce results that allocate more costs to demand rate classes (large consumer) and the minimum plant method can produce results that allocate more costs to the customer (residential) rate classes. An average of the two methods helps mitigate these biases. This approach is consistent with the approved methodology of ATCO Electric Ltd. (Decision 2009-231) as well as Northland Utilities (NUY) (Decision 1-2009) and Northland Utilities (NWT) (Decision 2-2009)."

QUESTION:

a) Please provide regulator decision details of the customer / demand classification factors that were most recently approved for ATCO Electric and Northland Utilities.

b) Please provide any additional evidence indicating that any other utility blends the results of the zero-intercept and minimum plant classification methods to determine its classification factors.

c) Please provide details on the total costs that have been shifted from one rate class to another by moving to the proposed classification split.

d) Please provide an analysis of the impact of going with just the zero-intercept or the minimum plant methods.

e) Please provide documentation showing support from NARUC and other Canadian utilities for this proposed classification method.

ANSWER:

(a)

Recent regulator decisions approving Distribution Classification Factors are Northland Utilities Yellowknife 1-2009; Northland Utilities Hay River 2-2009 and ATCO Electric 2009-231. Please refer to YUB-YEC/YECL-1-7(d) for a list of the Distribution Classification factors.

(b)

YECL has not completed a detailed review of the practices of other utilities. YECL is not aware of any other utility in Alberta or the NWT that averages the results of the two classification methods.

(c)

Please refer to YUB-YEC/YECL-1-7(b).

(d)

Please refer to the Table 1 below.

Table 1

Rate Class	Zero Intercept Method	Minimum Plant Method	Average of Methods
Residential Government	$392	$411	$401
Residential Non Gov't	$24,187	$25,031	$24,592
General Service Gov't	$6,587	$6,287	$6,442
General Service Non Gov't	$15,134	$14,663	$14,909
Industrial	$2,965	$2,923	$2,946
Street Light	$1,453	$1,411	$1,432
Sentinel Light	$116	$108	$112

(e)

An internet search of other jurisdictions did not provide any information on the Distribution classification methods that other Canadian utilities use.

YECL has confirmed with NARUC that this material is protected by copyright and may not be reproduced. A copy of the manual may be obtained through the NARUC website www.naruc.org or by calling (202) 898-2200. Reference to the Classification of Distribution Plant via minimum plant and zero intercept methodologies, are detailed on pages 86 through 96 of the manual. The statement refers to the fact that the minimum plant and zero intercept studies are the only two methodologies contained in the NARUC manual. Combined with the significant amount of minimum plant and zero intercept methodology content detailed in the NARUC manual, YECL would expect that the use of those two studies are supported and recommended by NARUC.

REFERENCE: **February 19, 2010 Application, page 3-12, Table 3.1**

QUESTION:

a) Please provide details on the total costs that have been shifted from one rate class to another by moving to the proposed demand load allocators.

ANSWER:

(a)

Please refer to YUB-YEC/YECL-1-8(e).

REFERENCE: **February 19, 2010 Application, Page 3-12, Note 5**

- "NCP demands are used for allocating distribution system related costs, such as distribution poles and wires. These assets are largely not relevant to industrial customers."

QUESTION:

a) Please confirm that the industrial class has been allocated its fair share of distribution system related costs. Please identify the amount in relation to the total.

ANSWER:

(a)

YECL Response

Confirmed. The Industrial rate class was appropriately allocated $154,000 in Distribution classified costs which amounts to 1.07% of the total Distribution classified costs of $14,335,000.

YEC Response

Yukon Energy has reviewed the issue of Industrial Customer allocation of distribution related costs and has identified a new concern with respect to the 2009 Cost of Service study. In the 1997 Cost of Service study, the industrial class was allocated a small degree of distribution assets, as one of the customers classified industrial at that time (the former United Keno Mine site on the Mayo system) was connected via distribution assets. This is not the case in 2009. In 2009 the only customer classified as industrial is the Minto mine, who is solely connected to the system by assets functionalized at the transmission level (referred to as "sub-transmission"). As a result, there is no basis to allocate distribution assets to the industrial class today, as there was in 1997. This is correctly reflected in the 2009 Cost of Service study, and as a result there is no "Return and Income Tax" costs charged to industrial customers for distribution assets.

The problem with the 2009 cost of service study is that is incorrectly assigns certain distribution O&M costs and credits against the industrial customer that is not properly assigned to this customer, as it has no underlying assets. In particular this relates to the following costs:

- Distribution costs: The industrial customer class is allocated approximately $10,000 in distribution brushing costs. This is not correct, as the customer is not served by the distribution lines in question, only transmission. Similar allocations of other cost items are also incorrect for the same reason: distribution-related insurance costs ($7,000), distribution O&M costs ($54,000), the distribution system share of municipal taxes ($3,000) and all allocated amounts of Administration and General costs that are allocated on the basis of the above amounts.

- Distribution “revenue offsets”: The industrial class is allocated approximately $7,000 in credits (such as pole rental revenues) that are designed to offset the costs of distribution assets. These are not properly assigned against the class, as the class is not paying for (not using) distribution assets.

The net effect on the industrial customer class allocated costs is a reduction of approximately $80,000 to $85,000, or a change to the R/C ratio of approximately 3%, from 109% to approximately 112%.

REFERENCE: **February 19, 2010 Application, page 3-13, Table 3.2**

QUESTION:

a) Please explain the significant shifts in the revenue-to-cost ratios of the street lights and sentinel lights classes.

b) Please explain why the Residential Non-Government class revenue-to-cost ratio has not been adjusted toward the Board prescribed range?

c) Please provide details of the plan the Applicants have developed to move all revenue-to-cost ratios toward the Board prescribed range and outline the public consultation that will be undertaken.

ANSWER:

(a)

Streetlight costs have outgrown revenues by 167% vs 67%. Forecast energy for streetlights was 2,787 MW.h in 1997 and 3,800 MW.h in 2009.

Sentinel Lights costs have declined 26% while revenue has remained the same. Forecast energy for sentinel lights was 786 MW.h in 1997 and 646 MW.h in 2009.

Please refer to UCG-YEC/YECL-1-16(a) Table 1 to review costs and revenues from 1997 and 2009.

UCG-YEC/YECL 16a Table 1

	1997 ($000)	2009 ($000)	Increase
Streetlights Revenue	591.0	985.0	67%
Streetlights Cost	537.3	1432.0	167%
Streetlights R/C	110%	69%	-37%
Sentinel Revenue	165.5	166.0	0%
Sentinel Cost	150.4	112.0	-26%
Sentinel R/C	110%	148%	35%

(b)

Order-In-Council 2008/149 requires that all retail customer adjustments apply equally. As seen in Schedule YECL B4.2, each retail customer class is adjusted by 23.1% thus causing the Residential Non-Government class revenue-to-cost ratio to fall outside of the Board's prescribed range.

(c)

There is no ability at this time to move customer class revenue-to-cost ratios towards the Board prescribed range, due to prohibitions against rebalancing set out in OIC 2008/149. These limits expire at December 31, 2012. Starting in 2013, the rate changes that would need to be implemented to bring all customer classes to 100% R/C are set out in response to UCG-YEC/YECL-1-19(c). As noted in that response, in many cases the adjustments for the class overall are substantial (for example, 27% increases overall to the Residential Non-Government class, or 31% decreases to the General Service Government class). It is not possible today to set out how this might best be accomplished. In the event such rebalancing is permitted and desirable at that time, any rate changes driven by this effect would need to be considered in conjunction with other rate changes occurring at the same time (e.g., such as any new GRA-driven rate changes for either utility).

REFERENCE: **February 19, 2010 Application, page 3-14, Table 3.3**

• "Cost per customer: Customer related costs for a distribution level customer (residential or general service) vary from approximately $453/year to $475/year."

• "Embedded costs of energy: The energy related costs for distribution level customers (residential or general service, as well as lighting classes) is 8.5 cents/kWh at the customer meter, and for transmission level customers (industrial) the cost is 7.8 cents/kWh."

QUESTION:

a) Please explain the variance for different types of distribution customer.

b) Please provide the customer level cost per customer and explain whether any weighting factor was used to determine the average customer-related cost levels (i.e., did a residential customer carry the same weight as an industrial customer).

c) Please explain the difference between the energy-related costs by customer class.

ANSWER:

(a)

The costs allocated to the Residential or General Service Customer Classes on Schedules 4-T-27 through 4-T-30 are derived from various cost allocators that prorate the costs to Customer, Demand or Energy based on the Rate Classes portion of the total allocator. The costs in Schedule 4-T-27 to 4-T-30 come from the schedules listed below:

- Production, Schedule 4-T-17;
- Transmission Line, Schedule 4-T-18;
- Transmission Line Other, Schedule 4-T-19;

- Distribution Return & Income Tax, Schedule 4-T-20;

- Distribution Carrying Costs, Schedule 4-T-21;

- Distribution Operating & Maintenance Costs, Schedule 4-T-22;

- Distribution Customer Accounting & Public Information, Schedule 4-T-23;

- Distribution Insurance, Schedule 4-T-24;

- Distribution Revenue Offsets, Schedule 4-T-25;

- Distribution Administrative & General, Schedule 4-T-27; and

- Distribution Amortization of Contributions, Schedule 4-T-17.

Allocators include Distribution Plant by Rate Class Schedule 4-T-1, 2, 17, Customer counts Schedule 4-T-34, Demand CP Schedule 4-T-18, 19, Energy sent out Schedule 4-T-18, 19, Energy Sales 4-T-23, Sum of all Service Costs excluding A&G Schedule 4-T-25, Sum of all Service Costs excluding A&G including Revenue Offsets Schedule 4-T-26. The relative amount of PP&E, number of customers, demand or energy in use by each rate class is the reason that the costs assigned to each rate class differs.

(b)

Weighting factors are only applied to distribution meter and transformer assets for the residential and commercial customer to attach more costs to the commercial class as the equipment is larger and more expensive. The cost per customer (total Rate Class cost divided by number of customers) is:

- Residential Government $1,591.27 per customer; 252 total customers;

- Residential Non Government $1,740.66 per customer; 14,128 total customers;

- General Service Government $11,776.97 per customer; 547 total customers;

- General Service Non Government $5,872.41 per customer; 2,539 total customers; and

- Industrial $2,946,000 per customer; 1 total customer.

(c)

Please refer to part (a) above.

REFERENCE: February 19, 2010 Application, Terms and Conditions of Service

• Page 5-2 – "Changes to Schedule B, Maximum Company Investment - The Companies propose changes to the Maximum Company Investment levels for Residential, General Service and Street Lighting customer classes as well as for non-standard customers for 2011. YECL seeks further approval of incremental increases over the period 2012-2015 based on an "average cost" standard, as set out in the YECL Maximum Investment Level (MIL) study provided in Attachment 5.4, which YEC does not support. Schedule B also addresses Maximum Company Investment approach for Industrial customers."

• Page 5-3 – "The proposed changes, as contained in the Terms and Conditions of Service document in Appendix 5.2, reflect agreement between the Companies with one exception. The Terms and Conditions of service are proposed by YECL to be updated to eliminate what is presently section 4.18(d) in respect of "reconnection" (the terms related to reconnection are revised to now be section 4.15)."

• Page 5-6 – "Agreement exists between the Companies in respect of the present Application, for one-time increases to the Maximum Company Investment to take effect as part of this Application, for connections starting January 2011. There is no agreement between the Companies in respect of the "cost based approach", or any multi-year implementation of the Maximum Company Investment levels summarized in Table 5.3."

REFERENCE: Yukon Utilities Board Report on Yukon Energy Corporation 20-Year Resource Plan, January 15, 2007, Page 51

• "Now is an appropriate time for YEC and YECL to have a complete review of all GRA Phase I and Phase II matters. The Board recommends that YEC and YECL file a full GRA application before October 31, 2007. The application should include a full cost of service, rate design and an update of the Electric Service Regulations. The Board also suggests that YEC and YECL consider a performance-based regulation mechanism. As well, the Board recommends that evidence be provided as to what other utilities provide for Maximum Company Investment and model theirs accordingly."

QUESTION*:*

a) Please explain how the Board and intervenors should be able to address the issue of Maximum Company Investment when the two utilities that have been asked to work together and present a united proposal in Phase II of the GRA are unable to come to an agreement on a fundamental component of this issue.

b) Please explain why this issue should not be removed from further discussion until the two utilities come forward with a unified proposal.

ANSWER:

(a)

As set out in the Application, YECL and YEC worked diligently in an effort to present a uniform and consistent approach whenever possible to concepts relating to cost of service, rate design and Terms and Conditions that also includes proposed Maximum Investment Levels. However, this goal was not always met as each Company has its own views regarding how best to address certain matters. YECL has taken the lead regarding this aspect of the application and believes its study should stand on its own merit and be tested in front of the Board.

(b)

YECL does not believe this issue should be removed from further discussion. This study will still have to be tested in front of the Board. In addition, the study undertaken in the Application is consistent with a similar study for utilities in Alberta.

REFERENCE: **February 19, 2010 Application, Rate Design**

PREAMBLE:

Page 4 YEC-1 - "While the Companies jointly filed two rate design options on February 19, 2010 for review by the Board (Option A and Option B), the Companies were not able to arrive at common descriptions of the options, the relative merits or drawbacks of each of the options, or the underlying system conditions driving the need to re-establish efficiency-based price signals to customers."

QUESTION:

a) Please explain how the Board and intervenors should be able to address the issue of Rate Design when the two utilities that have been asked to work together and present a united proposal in Phase II of the GRA and are unable to come to an agreement on fundamental components of this issue.

b) Please explain why this issue should not be removed for further discussion until the two utilities come forward with a unified proposal.

c) Please provide an illustrative set of rates where each rate class has a revenue-to-cost ration of 1 and an analysis of the bill impacts of these illustrative rates.

ANSWER:

(a) and **(b)**

Yukon Energy Response

Please see response to CW-YEC/YECL-1-19(a), (c) and (d).

After 12 years when diesel prices have more than tripled without any rate redesign occurring in Yukon it is imperative that rate design issues noted in the Application begin to be addressed in the present proceeding. To remove rate design from this proceeding at this time would also prove to be a poor outcome given the cost and effort required for rate proceedings, i.e. absent any changes to rate design there is limited if any practical utility to the present proceeding, which is otherwise contained to relatively limited changes to the Terms and Conditions of Service, and producing a Cost of Service study that does not today have any practical application in interclass rebalancing.

Yukon Electrical Response

Please refer to UCG-YEC/YECL-18(a) & (b) and YUB-YEC/YECL-1-24. YECL does not believe this issue should be removed from further discussion. YECL believes that its proposed Option B presents a uniform and balanced approach for the interests of all customers.

(c)

Assuming that achieving a revenue-to-cost ratio of 1.0 for each rate class was an objective for the present rate design, then the existing rates for each rate class would have to be changed as follows:

Rate Class	**Change to Existing Rates**
Residential Non Government	27%
Residential Government	(-5%)
General Service Non Government	(-14%)
General Service Government	(-31%)
Industrial	(-8%)
Street Lights	46%
Sentinel Lights	(-33%)

REFERENCE: February 19, 2010 Application, Rate Design, page 4YEC-10

PREAMBLE:

"In addition to complying with rate policy OIC direction (provided by OIC 1995/90) and past Yukon practice, it is relevant to reflect rate design principles and practice currently being implemented in other jurisdictions throughout Canada, particularly the increasing emphasis on ensuring incremental usage by larger customers (from larger residential customers through to industrial) reflect incremental supply costs on the system."

QUESTION:

a) Please provide details on the practices "currently being implemented in other jurisdictions throughout Canada" used to develop the rate design proposals identified by the Applicants.

b) If practices in Quebec were not originally included in the Applicants' analysis, please comment on how Quebec deals with the impact of large customers on the availability of the pool of "cheap" energy by requiring those customers to deal with an extra regulatory scheme based on that customer's impact on society at large, as opposed to simply their impact on energy charges (i.e., from the utilities' perspective, the large customer is treated like all other customers, and pays a "normal" rate set by "normal" cost allocation principles). Outside the regulated rate, however, the customer may have to pay extra or receive a discount through the government based on other factors.

ANSWER:

(a)

The statement in the question that Quebec *"…deals with the impact of large customers on the availability of the pool of "cheap" energy by requiring those customers to deal with an* ***extra regulatory scheme*** *based on that customer's impact on society at large, as opposed to simply their impact on energy charges"* (emphasis added) is not correct.

(b)

The approach in Quebec is, as a matter of provincial government policy, to provide a practical limit to access to the regulated industrial tariff (tariff “L”) to customers of a particular size.

The Quebec Energy Strategy 2006-2015 states:

> The Government will reduce the limit below which Hydro-Quebec is required to serve customers at the “L” rate from 175 MW to 50MW, for new or additional requests for power.
>
> Above the 50MW limit, access to the “L” rate will no longer be guaranteed. The Government undertakes to respond to requests for electricity justified by new industrial development projects or for the renewal of electricity contracts, but only if the projects concerned are likely to create jobs and wealth. The rates offered will be subject to guarantees concerning the economic benefits generated – in particular for outlying regions. The rate set may be equivalent to the “L” rate or higher, depending on the scope of the economic benefits generated by the project.[1]

Essentially, the Quebec Government (not the utility regulator) has determined, as a matter of provincial policy, that the rates for customers beyond a certain size are a provincial policy issue, rather than simply a utility regulation issue. It is important to note that in such cases the provincial government, not the utility regulator, will ultimately decide the rates to be charged to customers of this scale.

With respect to developments in other jurisdictions related to increasing emphasis on ensuring incremental usage is priced to reflect incremental supply costs on the system, YEC reviewed several other recent developments in rate design in Canada including the following:

[1] Page 24. Quebec Energy Strategy 2006-2015.

1. **British Columbia Hydro**: BC Hydro currently maintains a stepped rate for its transmission service customers.[2] The price for the second block is set at a level approximating BC Hydro's long-run cost of energy.

   In October, 2009, BC Hydro filed a Large General Service Rate Application to adjust its existing large general service rate structure in order to encourage energy conservation. The intent of the proposal was that the part 2 energy rate reflect BC Hydro's long-run marginal cost of new energy supply.[3] Since that time, YEC understands that BC Hydro and stakeholders have agreed to a negotiated settlement that would see implementation of new rates for large general service customers effective January 1, 2011 with a phase in period for medium general service customers (depending on each customer's peak demand) between April 2012 and April 2014.[4]

2. **Manitoba Hydro:** In order 91/08, the Manitoba Public Utilities Board (MBPUB) approved the modest introduction of inverted rates for the residential rate class.[5] In its subsequent Order 116/08 setting out further reasons for its decision, the MBPUB encouraged Manitoba Hydro (MH) to develop plans to employ an inverted rate structure for all customer classes, initially designed on a revenue neutral (to MH) basis and to send a "price signal" to promote conservation.

3. **Newfoundland and Labrador Hydro:** Newfoundland and Labrador Hydro (NLH) currently maintains a two-block rate for its utility customer (Newfoundland Power) where the second block is set at a level based on NLH's incremental cost of fuel.[6]

[2] Rate Schedule 1823.
[3] Page 3-17. BC Hydro Large General Service Rate Application.
[4] Page 5, Appendix B to BCUC Order G-110-10. June 29, 2010.
[5] Page 25. MBPUB Order 91/08.
[6] The 2006 Negotiated Settlement, as stated in Newfoundland Board of Commissioners of Public Utilities Order 8-2007 states the energy charge for the end or 'run out' block rate would be set at a level that reflects the production cost at the Holyrood thermal plant, which production cost shall be determined by the Board in its Decision and Order.

REFERENCE: **February 19, 2010 Application, Rider D Supplemental**

• Page 2 - "Yukon Electrical's proposed Rider D is intended to reflect the nature of Riders used in other similar jurisdictions such as Northland Utilities (NWT) Limited Rider I – Diesel Generation Rider."

QUESTION:

a) Please provide details of the NWT Diesel Generation Rider and details of riders "used in other similar jurisdictions".

b) Please explain why a quarterly application of Rider D would not promote a more stable environment for ratepayers and still provide the relief requested by YECL.

c) Please provide details of the actual credits and debits to the wholesale purchase power deferral account in 2008 and 2009.

ANSWER:

(a)

Yukon Electrical's proposed rider D is intended to reflect the nature of a similar rider, as instituted by Northland Utilities (NWT) Limited ("NWT") called Rider I – diesel generation rider. Since 1999, the Northwest Territories Public Utilities Board ("Board") has allowed NWT to capture the ongoing variances in diesel volumes in excess of or below 4.1% (2.5% prior to 2008) of NWT's total system's electrical needs, to be recovered or refunded to customers by way of Rider I, subject to the Board's approval.

Essentially, NWT's approved revenue requirement allows for 4.1% of Hay River's electrical needs to be generated by way of diesel power, when wholesale purchased power is not available due to annual shutdowns resulting from Northwest Territories Power Corporation ("NTPC"). As the 4.1% threshold is an approved forecast amount, any cost variances greater than or less than the 4.1% threshold are maintained in a deferral account and are refunded to/collected from customers in NWT's annual Rider I application. The deferral account contains the incremental difference between the cost of generating, or not generating, and the cost of purchase power, plus an O&M component to adjust for maintenance requirements.

(b)

This is a new rider in the Yukon and, as a result, there is no experience to suggest whether an annual or quarterly adjustment would be required. Notwithstanding, as outlined in response to part a) above, NWT's Board approved process to apply for annual adjustments to its Rider I – diesel generation rider has been both effective and efficient since implementation.

(c)

There are no actual credits or debits related to the wholesale purchase power deferral account in 2008 and 2009 resulting from diesel generation on the margin.

YUKON UTILITIES BOARD
(YUB)

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **3.2.1 Bulk Power Classification Methods**

QUOTE:

Except as otherwise noted below, the COS methodology used to prepare the 2009 Cost of Service study in Appendix 3.1 largely reflects past principles and methods adopted by the Companies.

PREAMBLE:

The YUB seeks clarification regarding the proposed changes with respect to bulk power classification methods as proposed in this Application compared to those approved in Order 1996-7:

- Aishihik Plant (40% Demand, 60% Energy); and
- Mayo Hydro (40% Demand, 60% Energy).

QUESTION:

a) Please provide a 2009 Cost of Service Study (COSS) incorporating Order 1996-7 bulk power assumptions that were approved in respect of transmission and generation assets.

b) Using the 2009 COSS in part (a) as the base case, please provide 2 additional COSS; the first incorporating the proposed change respecting Aishihik Plant, and the second study incorporating the proposed changes respecting both the Aishihik Plant and Mayo Hydro.

c) Using the 2009 COSS in part (a), please provide 2 additional COSS; the first incorporating the Companies' proposed changes in respect of the transmission facilities, i.e. the change to a 100% energy classification, and the second incorporating a hypothetical case wherein transmission facilities are classified as being 40% Demand and 60% Energy.

ANSWER:

(a)

Please see Attachment YUB-YEC/YECL-1-1(a).

(b)

Please see Attachment YUB-YEC/YECL-1-1(b)-1 and Attachment YUB-YEC/YECL-1-1 (b)-2.

(c)

Please see Attachment YUB-YEC/YECL-1-1 (c)-1 and Attachment YUB-YEC/YECL-1-1 (c)-2.

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: Residential Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	69	118	187
Transmission - Transmission Line	0	57	10	67
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	18	10	0	27
Carrying Costs (Excluding Return and Income Tax)	31	16	0	47
Operating & Maintenance Costs	21	11	0	32
Customer Accounting & Public Information	37	0	2	39
Insurance	2	1	0	4
Revenue Offsets	-8	-3	0	-11
Administrative & General	24	8	0	31
Amortization of Contributions	-9	-5	0	-14
	------	------	------	------
Total	116	165	130	411
	======	======	======	======
Unit Cost	458.5 $/customer	377.3 $/kW	6.0 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: Residential Non-Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	4,389	7,527	11,916
Transmission - Transmission Line	0	3,662	613	4,276
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	993	625	0	1,618
Carrying Costs (Excluding Return	1,731	1,057	0	2,788
Operating & Maintenance Costs	1,180	706	0	1,885
Customer Accounting & Public Information	2,068	0	148	2,216
Insurance	135	80	0	214
Revenue Offsets	-444	-172	0	-616
Administrative & General	1,315	510	0	1,825
Amortization of Contributions	-575	-342	0	-917
	------	------	------	------
Total	6,402	10,516	8,289	25,206
	======	======	======	======
Unit Cost	453.1	378.0	6.0	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: General Service Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	1,196	2,811	4,008
Transmission - Transmission Line	0	998	229	1,227
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	40	173	0	213
Carrying Costs (Excluding Return and Income Tax)	66	292	0	359
Operating & Maintenance Costs	48	195	0	243
Customer Accounting & Public Information	80	0	55	136
Insurance	5	22	0	27
Revenue Offsets	-17	-48	0	-65
Administrative & General	52	141	0	193
Amortization of Contributions	-14	-60	0	-74
	------	------	------	------
Total	260	2,911	3,096	6,267
	======	======	======	======
Unit Cost	474.3 $/customer	383.9 $/kW	6.0 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: General Service - Non Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	2,641	6,207	8,848
Transmission - Transmission Line	0	2,204	506	2,710
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	184	387	0	571
Carrying Costs (Excluding Return and Income Tax)	307	653	0	960
Operating & Maintenance Costs	212	436	0	648
Customer Accounting & Public information	372	0	122	494
Insurance	24	49	0	73
Revenue Offsets	-80	-106	0	-186
Administrative & General	237	315	0	552
Amortization of Contributions	-48	-99	0	-147
	------	------	------	------
Total	1,207	6,480	6,835	14,522
	======	======	======	======
Unit Cost	475.5	387.1	6.0	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: Industrial
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	601	1,461	2,062
Transmission - Transmission Line	0	501	119	620
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	0	0	0	0
Carrying Costs (Excluding Return and Income Tax)	0	36	0	36
Operating & Maintenance Costs	0	64	0	64
Customer Accounting & Public Information	0	0	31	31
Insurance Expense	0	7	0	7
Revenue Offsets	-0	-7	0	-8
Administrative & General	0	22	0	22
Amortization of Contributions	0	0	0	0
	------	------	------	------
Total	0	1,225	1,611	2,836
	======	======	======	======
Unit Cost	0.0 $/customer	286.1 $/kW	5.6 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: Street Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	147	208	354
Transmission - Transmission Line	0	122	17	139
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	181	18	0	199
Carrying Costs (Excluding Return and Income Tax)	364	30	0	394
Operating & Maintenance Costs	248	20	0	268
Customer Accounting & Public information	0	0	4	4
Insurance	28	2	0	31
Revenue Offsets	-60	-5	0	-65
Administrative & General	177	15	0	191
Amortization of Contributions	-40	-3	0	-43
	------	------	------	------
Total	898	346	229	1,473
	======	======	======	======
Unit Cost		372.3 $/kW	6.0 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation
Summary of Fully Allocated Costs by Rate Class: Sentinel Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	25	35	60
Transmission - Transmission Line	0	21	3	24
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	5	3	0	8
Carrying Costs (Excluding Return and Income Tax)	13	5	0	18
Operating & Maintenance Costs	0	3	0	3
Customer Accounting & Public information	0	0	1	1
Insurance	1	0	0	1
Revenue Offsets	-1	-1	0	-2
Administrative & General	4	3	0	6
Amortization of Contributions	-0	-0	0	-1
	------	------	------	------
Total	21	59	39	119
	======	======	======	======
Unit Cost		376.5 $/kW	6.0 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: Residential Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	63	123	186
Transmission - Transmission Line	0	57	10	67
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	18	10	0	27
Carrying Costs (Excluding Return and Income Tax)	31	16	0	47
Operating & Maintenance Costs	21	11	0	32
Customer Accounting & Public Information	37	0	2	39
Insurance	2	1	0	4
Revenue Offsets	-8	-3	0	-11
Administrative & General	24	8	0	31
Amortization of Contributions	-9	-5	0	-14
	------	------	------	------
Total	116	159	135	410
	======	======	======	======
Unit Cost	458.5	363.3	6.3	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: Residential Non-Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	4,000	7,857	11,856
Transmission - Transmission Line	0	3,662	613	4,276
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	993	625	0	1,618
Carrying Costs (Excluding Return	1,731	1,057	0	2,788
Operating & Maintenance Costs	1,180	706	0	1,885
Customer Accounting & Public Information	2,068	0	148	2,216
Insurance	135	80	0	214
Revenue Offsets	-444	-172	0	-616
Administrative & General	1,315	510	0	1,825
Amortization of Contributions	-575	-342	0	-917
	------	------	------	------
Total	6,402	10,126	8,618	25,147
	======	======	======	======
Unit Cost	453.1 $/customer	364.0 $/kW	6.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: General Service Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	1,090	2,935	4,025
Transmission - Transmission Line	0	998	229	1,227
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	40	173	0	213
Carrying Costs (Excluding Return and Income Tax)	66	292	0	359
Operating & Maintenance Costs	48	195	0	243
Customer Accounting & Public Information	80	0	55	136
Insurance	5	22	0	27
Revenue Offsets	-17	-48	0	-65
Administrative & General	52	141	0	193
Amortization of Contributions	-14	-60	0	-74
	------	------	------	------
Total	260	2,805	3,219	6,284
	======	======	======	======
Unit Cost	474.3 $/customer	369.9 $/kW	6.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: General Service - Non Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	2,407	6,479	8,886
Transmission - Transmission Line	0	2,204	506	2,710
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	184	387	0	571
Carrying Costs (Excluding Return and Income Tax)	307	653	0	960
Operating & Maintenance Costs	212	436	0	648
Customer Accounting & Public information	372	0	122	494
Insurance	24	49	0	73
Revenue Offsets	-80	-106	0	-186
Administrative & General	237	315	0	552
Amortization of Contributions	-48	-99	0	-147
	------	------	------	------
Total	1,207	6,246	7,107	14,560
	======	======	======	======
Unit Cost	475.5	373.1	6.3	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: Industrial
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	548	1,525	2,072
Transmission - Transmission Line	0	501	119	620
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	0	0	0	0
Carrying Costs (Excluding Return and Income Tax)	0	36	0	36
Operating & Maintenance Costs	0	64	0	64
Customer Accounting & Public Information	0	0	31	31
Insurance Expense	0	7	0	7
Revenue Offsets	-0	-7	0	-8
Administrative & General	0	22	0	22
Amortization of Contributions	0	0	0	0
	------	------	------	------
Total	0	1,171	1,675	2,847
	======	======	======	======
Unit Cost	0.0	273.6	5.8	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: Street Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	134	217	350
Transmission - Transmission Line	0	122	17	139
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	181	18	0	199
Carrying Costs (Excluding Return and Income Tax)	364	30	0	394
Operating & Maintenance Costs	248	20	0	268
Customer Accounting & Public information	0	0	4	4
Insurance	28	2	0	31
Revenue Offsets	-60	-5	0	-65
Administrative & General	177	15	0	191
Amortization of Contributions	-40	-3	0	-43
	------	------	------	------
Total	898	333	238	1,469
	======	======	======	======
Unit Cost		358.3 $/kW	6.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik Plant
Summary of Fully Allocated Costs by Rate Class: Sentinel Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	23	37	60
Transmission - Transmission Line	0	21	3	24
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	5	3	0	8
Carrying Costs (Excluding Return and Income Tax)	13	5	0	18
Operating & Maintenance Costs	0	3	0	3
Customer Accounting & Public information	0	0	1	1
Insurance	1	0	0	1
Revenue Offsets	-1	-1	0	-2
Administrative & General	4	3	0	6
Amortization of Contributions	-0	-0	0	-1
	------	------	------	------
Total	21	57	40	118
	======	======	======	======
Unit Cost		362.5 $/kW	6.3 c/kWh	

Schedule 4-T-27
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Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: Residential Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	58	128	185
Transmission - Transmission Line	0	57	10	67
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	18	10	0	27
Carrying Costs (Excluding Return and Income Tax)	31	16	0	47
Operating & Maintenance Costs	21	11	0	32
Customer Accounting & Public Information	37	0	2	39
Insurance	2	1	0	4
Revenue Offsets	-8	-3	0	-11
Administrative & General	24	8	0	31
Amortization of Contributions	-9	-5	0	-14
	------	------	------	------
Total	116	154	140	409
	======	======	======	======
Unit Cost	458.5	351.7	6.5	
	$/customer	$/kW	c/kWh	

Schedule 4-T-28
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Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: Residential Non-Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	3,677	8,130	11,807
Transmission - Transmission Line	0	3,662	613	4,276
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	993	625	0	1,618
Carrying Costs (Excluding Return	1,731	1,057	0	2,788
Operating & Maintenance Costs	1,180	706	0	1,885
Customer Accounting & Public Information	2,068	0	148	2,216
Insurance	135	80	0	214
Revenue Offsets	-444	-172	0	-616
Administrative & General	1,315	510	0	1,825
Amortization of Contributions	-575	-342	0	-917
	------	------	------	------
Total	6,402	9,803	8,892	25,097
	======	======	======	======
Unit Cost	453.1	352.4	6.5	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: General Service Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	1,002	3,037	4,039
Transmission - Transmission Line	0	998	229	1,227
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	40	173	0	213
Carrying Costs (Excluding Return and Income Tax)	66	292	0	359
Operating & Maintenance Costs	48	195	0	243
Customer Accounting & Public Information	80	0	55	136
Insurance	5	22	0	27
Revenue Offsets	-17	-48	0	-65
Administrative & General	52	141	0	193
Amortization of Contributions	-14	-60	0	-74
	------	------	------	------
Total	260	2,717	3,321	6,298
	======	======	======	======
Unit Cost	474.3 $/customer	358.3 $/kW	6.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: General Service - Non Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	2,213	6,704	8,917
Transmission - Transmission Line	0	2,204	506	2,710
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	184	387	0	571
Carrying Costs (Excluding Return and Income Tax)	307	653	0	960
Operating & Maintenance Costs	212	436	0	648
Customer Accounting & Public information	372	0	122	494
Insurance	24	49	0	73
Revenue Offsets	-80	-106	0	-186
Administrative & General	237	315	0	552
Amortization of Contributions	-48	-99	0	-147
Total	1,207	6,051	7,333	14,591
Unit Cost	475.5 $/customer	361.5 $/kW	6.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: Industrial
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	503	1,578	2,081
Transmission - Transmission Line	0	501	119	620
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	0	0	0	0
Carrying Costs (Excluding Return and Income Tax)	0	36	0	36
Operating & Maintenance Costs	0	64	0	64
Customer Accounting & Public Information	0	0	31	31
Insurance Expense	0	7	0	7
Revenue Offsets	-0	-7	0	-8
Administrative & General	0	22	0	22
Amortization of Contributions	0	0	0	0
	------	------	------	------
Total	0	1,127	1,728	2,856
	======	======	======	======
Unit Cost	0.0 $/customer	263.3 $/kW	6.0 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: Street Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	123	224	347
Transmission - Transmission Line	0	122	17	139
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	181	18	0	199
Carrying Costs (Excluding Return and Income Tax)	364	30	0	394
Operating & Maintenance Costs	248	20	0	268
Customer Accounting & Public information	0	0	4	4
Insurance	28	2	0	31
Revenue Offsets	-60	-5	0	-65
Administrative & General	177	15	0	191
Amortization of Contributions	-40	-3	0	-43
	------	------	------	------
Total	898	322	245	1,465
	======	======	======	======
Unit Cost		346.7 $/kW	6.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Transmission & Generation Aishihik & Mayo Plants
Summary of Fully Allocated Costs by Rate Class: Sentinel Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	21	38	59
Transmission - Transmission Line	0	21	3	24
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	5	3	0	8
Carrying Costs (Excluding Return and Income Tax)	13	5	0	18
Operating & Maintenance Costs	0	3	0	3
Customer Accounting & Public information	0	0	1	1
Insurance	1	0	0	1
Revenue Offsets	-1	-1	0	-2
Administrative & General	4	3	0	6
Amortization of Contributions	-0	-0	0	-1
	------	------	------	------
Total	21	55	42	118
	======	======	======	======
Unit Cost		350.9 $/kW	6.5 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: Residential Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	69	118	187
Transmission - Transmission Line	0	0	58	58
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	18	10	0	27
Carrying Costs (Excluding Return and Income Tax)	31	16	0	47
Operating & Maintenance Costs	21	11	0	32
Customer Accounting & Public Information	37	0	2	39
Insurance	2	1	0	4
Revenue Offsets	-8	-3	0	-11
Administrative & General	24	8	0	31
Amortization of Contributions	-9	-5	0	-14
	------	------	------	------
Total	116	107	179	402
	======	======	======	======
Unit Cost	458.5 $/customer	245.7 $/kW	8.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: Residential Non-Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	4,389	7,527	11,916
Transmission - Transmission Line	0	0	3,714	3,714
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	993	625	0	1,618
Carrying Costs (Excluding Return	1,731	1,057	0	2,788
Operating & Maintenance Costs	1,180	706	0	1,885
Customer Accounting & Public Information	2,068	0	148	2,216
Insurance	135	80	0	214
Revenue Offsets	-444	-172	0	-616
Administrative & General	1,315	510	0	1,825
Amortization of Contributions	-575	-342	0	-917
	------	------	------	------
Total	6,402	6,854	11,389	24,645
	======	======	======	======
Unit Cost	453.1	246.4	8.3	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: General Service Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	1,196	2,811	4,008
Transmission - Transmission Line	0	0	1,387	1,387
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	40	173	0	213
Carrying Costs (Excluding Return and Income Tax)	66	292	0	359
Operating & Maintenance Costs	48	195	0	243
Customer Accounting & Public Information	80	0	55	136
Insurance	5	22	0	27
Revenue Offsets	-17	-48	0	-65
Administrative & General	52	141	0	193
Amortization of Contributions	-14	-60	0	-74
	------	------	------	------
Total	260	1,913	4,254	6,427
	======	======	======	======
Unit Cost	474.3 $/customer	252.3 $/kW	8.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: General Service - Non Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	2,641	6,207	8,848
Transmission - Transmission Line	0	0	3,063	3,063
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	184	387	0	571
Carrying Costs (Excluding Return and Income Tax)	307	653	0	960
Operating & Maintenance Costs	212	436	0	648
Customer Accounting & Public information	372	0	122	494
Insurance	24	49	0	73
Revenue Offsets	-80	-106	0	-186
Administrative & General	237	315	0	552
Amortization of Contributions	-48	-99	0	-147
	------	------	------	------
Total	1,207	4,276	9,392	14,875
	======	======	======	======
Unit Cost	475.5 $/customer	255.5 $/kW	8.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: Industrial
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	601	1,461	2,062
Transmission - Transmission Line	0	0	721	721
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	0	0	0	0
Carrying Costs (Excluding Return and Income Tax)	0	36	0	36
Operating & Maintenance Costs	0	64	0	64
Customer Accounting & Public Information	0	0	31	31
Insurance Expense	0	7	0	7
Revenue Offsets	-0	-7	0	-8
Administrative & General	0	22	0	22
Amortization of Contributions	0	0	0	0
	------	------	------	------
Total	0	723	2,213	2,937
	======	======	======	======
Unit Cost	0.0 $/customer	168.9 $/kW	7.6 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: Street Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	147	208	354
Transmission - Transmission Line	0	0	103	103
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	181	18	0	199
Carrying Costs (Excluding Return and Income Tax)	364	30	0	394
Operating & Maintenance Costs	248	20	0	268
Customer Accounting & Public information	0	0	4	4
Insurance	28	2	0	31
Revenue Offsets	-60	-5	0	-65
Administrative & General	177	15	0	191
Amortization of Contributions	-40	-3	0	-43
	------	------	------	------
Total	898	224	314	1,436
	======	======	======	======
Unit Cost		240.7 $/kW	8.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 100% Energy
Summary of Fully Allocated Costs by Rate Class: Sentinel Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	25	35	60
Transmission - Transmission Line	0	0	17	17
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	5	3	0	8
Carrying Costs (Excluding Return and Income Tax)	13	5	0	18
Operating & Maintenance Costs	0	3	0	3
Customer Accounting & Public information	0	0	1	1
Insurance	1	0	0	1
Revenue Offsets	-1	-1	0	-2
Administrative & General	4	3	0	6
Amortization of Contributions	-0	-0	0	-1
	------	------	------	------
Total	21	39	53	113
	======	======	======	======
Unit Cost		244.9 $/kW	8.3 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: Residential Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	69	118	187
Transmission - Transmission Line	0	23	39	62
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	18	10	0	27
Carrying Costs (Excluding Return and Income Tax)	31	16	0	47
Operating & Maintenance Costs	21	11	0	32
Customer Accounting & Public Information	37	0	2	39
Insurance	2	1	0	4
Revenue Offsets	-8	-3	0	-11
Administrative & General	24	8	0	31
Amortization of Contributions	-9	-5	0	-14
	------	------	------	------
Total	116	130	159	405
	======	======	======	======
Unit Cost	458.5 $/customer	298.3 $/kW	7.4 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: Residential Non-Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	4,389	7,527	11,916
Transmission - Transmission Line	0	1,465	2,474	3,939
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	993	625	0	1,618
Carrying Costs (Excluding Return	1,731	1,057	0	2,788
Operating & Maintenance Costs	1,180	706	0	1,885
Customer Accounting & Public Information	2,068	0	148	2,216
Insurance	135	80	0	214
Revenue Offsets	-444	-172	0	-616
Administrative & General	1,315	510	0	1,825
Amortization of Contributions	-575	-342	0	-917
	------	------	------	------
Total	6,402	8,318	10,149	24,870
	======	======	======	======
Unit Cost	453.1	299.0	7.4	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: General Service Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	1,196	2,811	4,008
Transmission - Transmission Line	0	399	924	1,323
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	40	173	0	213
Carrying Costs (Excluding Return and Income Tax)	66	292	0	359
Operating & Maintenance Costs	48	195	0	243
Customer Accounting & Public Information	80	0	55	136
Insurance	5	22	0	27
Revenue Offsets	-17	-48	0	-65
Administrative & General	52	141	0	193
Amortization of Contributions	-14	-60	0	-74
	------	------	------	------
Total	260	2,312	3,791	6,363
	======	======	======	======
Unit Cost	474.3 $/customer	304.9 $/kW	7.4 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: General Service - Non Government
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	2,641	6,207	8,848
Transmission - Transmission Line	0	881	2,040	2,921
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	184	387	0	571
Carrying Costs (Excluding Return and Income Tax)	307	653	0	960
Operating & Maintenance Costs	212	436	0	648
Customer Accounting & Public information	372	0	122	494
Insurance	24	49	0	73
Revenue Offsets	-80	-106	0	-186
Administrative & General	237	315	0	552
Amortization of Contributions	-48	-99	0	-147
	------	------	------	------
Total	1,207	5,158	8,369	14,734
	======	======	======	======
Unit Cost	475.5	308.1	7.4	
	$/customer	$/kW	c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: Industrial
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	601	1,461	2,062
Transmission - Transmission Line	0	201	480	681
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	0	0	0	0
Carrying Costs (Excluding Return and Income Tax)	0	36	0	36
Operating & Maintenance Costs	0	64	0	64
Customer Accounting & Public Information	0	0	31	31
Insurance Expense	0	7	0	7
Revenue Offsets	-0	-7	0	-8
Administrative & General	0	22	0	22
Amortization of Contributions	0	0	0	0
	------	------	------	------
Total	0	924	1,972	2,896
	======	======	======	======
Unit Cost	0.0 $/customer	215.8 $/kW	6.8 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: Street Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	147	208	354
Transmission - Transmission Line	0	49	68	117
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	181	18	0	199
Carrying Costs (Excluding Return and Income Tax)	364	30	0	394
Operating & Maintenance Costs	248	20	0	268
Customer Accounting & Public information	0	0	4	4
Insurance	28	2	0	31
Revenue Offsets	-60	-5	0	-65
Administrative & General	177	15	0	191
Amortization of Contributions	-40	-3	0	-43
	------	------	------	------
Total	898	272	280	1,451
	======	======	======	======
Unit Cost		293.3 $/kW	7.4 c/kWh	

Yukon
2009 GRA
Combined YECL and YEC incorporating Order 1996-7 Bulk Power Generation; Transmission 60% Energy 40% Demand
Summary of Fully Allocated Costs by Rate Class: Sentinel Lights
2009

	Customer ($000)	Demand ($000)	Energy ($000)	Total ($000)
Production	0	25	35	60
Transmission - Transmission Line	0	8	12	20
Transmission - Other	0	0	0	0
Distribution				
Return and Income Tax	5	3	0	8
Carrying Costs (Excluding Return and Income Tax)	13	5	0	18
Operating & Maintenance Costs	0	3	0	3
Customer Accounting & Public information	0	0	1	1
Insurance	1	0	0	1
Revenue Offsets	-1	-1	0	-2
Administrative & General	4	3	0	6
Amortization of Contributions	-0	-0	0	-1
	------	------	------	------
Total	21	47	48	115
	======	======	======	======
Unit Cost		297.5 $/kW	7.4 c/kWh	

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **3.1 Overview**

QUOTE:

The COS study in this Application allocates approved 2009 firm rate revenue requirement consolidated costs for the Companies to each consumer firm rate class.

QUESTION:

a) Has YEC or YECL considered the assignment of costs to rate classes? If not, why not?

ANSWER:

(a)

Yes, the companies directly assign costs to customer rate classes when possible. Costs for Street and Sentinel Lights are currently directly assigned to the respective customer rate class.

Please see Schedule 4-YEC-1 and 4-YECL-1 Cell lines 96 and 97 to see the directly assigned Customer PP&E for Street Lights (YEC $564,000 and YECL $8,404,000) and Sentinel Lights (YEC $30,000 and YECL $285,000) that is used to directly assign costs to Street and Sentinel Light customer rate classes. This information is found on the CD of the COS model that was requested in YUB-YEC/YECL-1-28(c). Please email scott.duncan@atcoelectric.com to request a copy.

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **3.2.1 Bulk Power Classification Methods**

PREAMBLE:

The YUB seeks clarification respecting the proposed classification changes.

QUOTE:

Classification methods for bulk power reflect consideration of a number of factors such as:

- How many given assets or class of assets is used;
- What type of loads on the system increase the required level of investment in the particular type of asset (i.e., what is the basis for the investment); and
- What would be the alternative system cost profile absent the assets (i.e., what are the benefits of the asset to the system).

The cost of capacity relates to the cost to ensure reliable firm service to accommodate an incremental very short-term increase in winter peak loads at the time of coincident peak.

QUESTION:

a) With respect to the above quote, please explain what is meant by “very short-term”.

b) Please explain how the explanation in part (a) would account for how grid or generation capacity associated with transmission or generation assets has been used in the past or will be used in the future.

c) Please explain what is meant by the second bullet – "what type of loads on the system increase the required level of investment of the particular type of asset." Please explain how this may change from the very short-term to a longer term.

d) If an asset is in place to preclude the use of another asset (for example, a transmission line to displace diesel generation), should that asset have the same classification as the asset it precludes the use of?

e) With respect to part (b) of this IR, please provide a detailed explanation as to the planning that is prudent for customers, i.e. is it best to plan for the long-term or a very short-term.

ANSWER:

(a)

The concept of "very short term" noted in the above quote is the same concept as set out in CW-YEC/YECL-1-2(a) as a "pure capacity load". In essence, the point is that a MW of load at the time of coincident peak drives a requirement for a larger installed system, regardless as to how long that MW is used. Use of capacity over time drives system costs related to energy (MW times hours, or MW.h) which has a very different cost profile than pure capacity loads.

(b)

As noted, in the application, the basic function of the grid electricity system in Yukon is essence is to displace costly diesel in communities that are now interconnected to the grid. In this sense, the transmission provided available low cost renewable energy to the communities (to meet energy requirements) while resident diesel units typically serve as backup or, in certain cases, meet peaking requirements on the system.

(c)

The concept of an investment-related test is inherently long-term, rather than short-term in an economic sense (by definition, the short-term is the period during which the present complement of investment is available to serve loads, while the long-term permit new investment in assets).

For a discussion of the investment drivers from different types of loads, please see CW-YEC/YECL-1-2(a).

(d)

Typically, yes. Otherwise the basic economic premise for the investment (e.g., for the Mayo-Dawson line, the diesel fuel savings which are inherently an energy-related cost) will not align with the benefits the investment brings. In the extreme, this could lead to ratepayers with certain load characteristics failing to benefit from projects lower costs in Yukon.

In the case of the present Yukon situation, it is also relevant that the underlying planning activities and investments generally in the system are being driven by energy related considerations – diesel fuel prices and the alternative energy sources to avoid diesel fuel are very costly, while capacity-related investments remain relatively lower cost in comparison.

(e)

The system must be planned to meet both near term and longer term requirements as noted in the discussion provided in part (c) to this response, and the framework set out in Chapters 4 and 5 of the 20 Year Resource Plan.

Over the near term there is a need to be cognizant of immediate load and capacity requirements and ensure that the system is capable of reliably meeting any near term load developments. It is also necessary to consider near term opportunities to enhance system operations to the benefit of ratepayers. As discussed in detail in the 20 Year Resource Plan, for a load that is only short-term, consideration needs to be given to the appropriate resource that can be developed to serve the load, and short-term loads may not always give the opportunity to put in place long-term resources.

Over the medium to longer term there is a need to ensure that the appropriate planning is being undertaken to ensure that resources are in place to meet projected future loads cost effectively. It is well known that diesel generation can supply loads quickly and reliably, but for loads that will exist over the long-term the excessive costs of diesel generation drive a need to consider lower cost renewable generation as a better alternative.

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **Production Classification**

QUOTE:

The Companies relied upon "classification of similar hydro facilities in British Columbia, Manitoba, Ontario and Quebec."

PREAMBLE:

The Board seeks information regarding the proposed classification of production assets.

QUESTION:

a) Are other hydro facilities classified as 100% energy? If so, please provide examples and explain the reasoning for the classification.

b) With respect to the above-referenced utilities, have generation assets that have had an initial classification as being either 100% demand or 100% energy, been re-classified with a percentage demand/energy split? Please provide examples and detail the reasons for their re-classification.

c) Please provide the outage statistics for the Aishihik plant for the period 1994 to 2009. Please provide the probability that the Aishihik plant will not be able to contribute to the WAF system's ability to serve peak loads due to transmission constraints and how this informs the companies' proposition that Aishihik's contribution to system service is solely an energy benefit.

d) Please provide an explanation as to what is meant by "positive net contribution" when the Companies submit that "Whitehorse Unit #4 (WH4) is expected to make a positive net contribution to meeting customer demands." [1]

e) Is Whitehorse Unit #4's positive net contribution expected to increase as electrical load increases in the Yukon? With respect to the original three

[1] Application, Tab 3, 3-5.

Whitehorse hydro plant units, what is the expected output during drought conditions?

f) Please provide the individual outage statistics for each of the 4 Whitehorse hydro plant units for the period 1994 to 2009.

g) With respect to future load growth in the Yukon, please provide a detailed explanation of where most of the sustained (continuous – not interim mine loads) load growth is expected to take place.

h) With reference to the following quote: “consistent with past practice and the purpose for which the unit was originally constructed and for simplicity, the Whitehorse Unit #4 continues to be classified 100% to energy”[22] please explain what is meant by “simplicity”.

i) Please provide a detailed explanation as to whyWH4 should not be classified as being 40% demand/ 60% Energy, since as the Companies submit, “Aishihik generation is considered to not contribute to the WAF system’s ability to serve peak loads at critical times due to transmission constraints.”[3]

ANSWER:

(a)

Please refer to the responses to YUB-YEC/YECL-1-5(c) and (d).

(b)

The Companies are not aware of any examples from the referenced jurisdictions where generation assets initially having a classification of either 100% demand or 100% energy have been re-classified with a percentage demand/energy split.

[2] Application, Tab 3, page 3-5.
[3] Ibid.

(c)

Outage data for the Aishihik plant from 1994 to 2005 is not available. Review of the daily SCADA logs for 2006 through 2009 indicates the following outages for the Aishihik hydro units.

AH1	Forced Outages	Hours	Maintenance Outages	Hours
2006	1	5	7	145
2007	2	69	5	338
2008	1	1	4	201
2009	2	7	7	978

AH2	Forced Outages	Hours	Maintenance Outages	Hours
2006	2	9	8	2916[4]
2007	1	2	6	104
2008	1	1	6	191
2009	5	167	6	258

Historically, there have been no recorded transmission line related outages during peak periods. However, the classification of Aishihik plant (100% energy) is based on the fact that Aishihik generation is according to the N-1 planning criteria considered to not contribute to the WAF system's ability to serve peak loads at critical times. In this sense, outage statics and probabilities have no bearing on the rationale for this allocation. Under the current capacity criteria, Aishihik plant cannot be relied upon to serve peak loads at critical times and consequently can only be considered to provide an energy benefit to the system.

(d)

The unit makes a small net contribution to meeting peak winter demand. However, the net contribution that can be relied upon from unit #4 (4 MW) is small compared to the total MW capacity of the unit (20 MW). This value arises from the 24 MW total Whitehorse hydro winter capacity for the purposes of the N-1 criteria, as compared to the 20 MW peak capability of units #1-3 before the addition of unit #4.

[4] 2,886 hours were due to rewind of AH2 during 2006.

(e)

The contribution of WH#4 is not expected to vary in terms of drought of flood conditions. The 4 MW value arises from the planning criteria (24 MW total, less the 20 MW for units 1-3), which is based on drought conditions, but even in higher winter flow conditions, the plant capacity remains in the range of 26 or 27 MW, well below the 40 MW combined nameplate.

(f)

Outage data for the Whitehorse hydro units from 1994 to 2005 is not available. Review of the daily SCADA logs for 2006 through 2009 indicates the following statistics for the Whitehorse hydro units.

WH1	Forced Outages	Hours	Maintenance Outages	Hours	Unit Availability	Forced Outage Rate
2006	1	1	8	2307	73.65%	0.01%
2007	6	11	1	1	99.86%	0.13%
2008	1	7	5	399	95.37%	0.08%
2009	2	63	7	708	91.20%	0.72%

WH2	Forced Outages	Hours	Maintenance Outages	Hours	Unit Availability	Forced Outage Rate
2006	2	4	2	539	93.80%	0.05%
2007	3	7	1	364	95.76%	0.08%
2008	1	1	3	530	93.94%	0.01%
2009	1	21	1	509	93.95%	0.24%

WH3	Forced Outages	Hours	Maintenance Outages	Hours	Unit Availability	Forced Outage Rate
2006	1	3	3	504	94.21%	0.03%
2007	5	109	4	1362	83.21%	1.24%
2008	5	382	4	278	92.47%	4.36%
2009	1	3	6	321	96.30%	0.03%

WH4	Forced Outages	Hours	Maintenance Outages	Hours	Unit Availability	Forced Outage Rate
2006	6	57	7	515	93.47%	0.65%
2007	5	193	6	1979	75.21%	2.20%
2008	4	789	3	228	88.39%	9.01%
2009	5	15	4	632	92.61%	0.17%

(g)

The non-industrial load growth in Yukon is not forecast to occur in any particular location. For planning purposes, equal percentage growth is applied to all non-industrial loads.

(h)

Simplicity is a criteria for determining the appropriateness of cost of service methods when adding complexity does not materially affect results.

(i)

The rationale for the classification of Aishihik Plant and the rationale for the classification of Whitehorse Unit #4 are based on entirely different sets of underlying circumstances and cannot be usefully compared.

- Classification of Aishihik Plant 100% to energy is based on the adoption of N-1 capacity planning criteria which provide that Aishihik is the greatest N-1 contingency on the system since the failure of the Aishihik to Whitehorse line would mean the loss of 30MW (from Aishihik Plant).

- Classification of Whitehorse Unit #4 100% to Energy is based on the fact that the unit constructed for the sole purpose of displacing diesel generation and did not serve to increase capacity during system peak (this is discussed page 3.4A-7 to 3.4A-8 of the Application). The installation of the fourth unit was justified on the basis of added energy generation primarily in summer, not when the system was peaking or demand constrained.

There may be some merit to reallocating some percentage of Whitehorse Unit #4 costs to demand to recognize the small net contribution that the unit makes to meeting peak winter demand; however, this would have very little change in the overall COS results. It is not easy to quickly change just this one asset as described, but even in the extreme example that all Yukon hydro assets are changed to 40% demand and 60% (i.e., well beyond the change requested in the question, the net effect on residential class allocated costs is only on the order of 1%).

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **Production Classification**

PREAMBLE:

The Board seeks to understand the proposed classification changes.

QUOTE:

The Companies in this application propose to change the classification of hydro plant at Mayo due to material changes in circumstances on the system since the 1996/97 GRA.

The Companies used “cost causation” for the purpose of classifying the cost of facilities.

QUESTION:

a) Please provide a detailed explanation as to what is meant by cost causation.

b) With respect to Whitehorse Units #1, 2 and #3, please provide cost causation arguments that were presented in 1992, which led to the classification of these units as 40% demand/60% energy split.

c) Please provide examples where hydro facilities in British Columbia, Manitoba, Ontario and Quebec have been classified as being 100% energy and provide the reasons for the 100% energy classification.

d) Please provide a table listing the various hydro facilities in British Columbia, Manitoba, Ontario and Quebec and their respective classification.

e) Please provide a table listing the hydro facilities in NWT and their respective classification.

f) Please provide a detailed explanation, complete with examples, as to what wind facilities are typically classified as in Canada.

g) Please provide an explanation as to why Mayo Hydro should not be classified as 100% demand considering that the Companies propose no change with respect to diesel being classified as “100% to Demand” and it is the Companies’ view that “the primary function for the Mayo hydro system is to provide energy to offset what would otherwise be the requirement to operate these diesel units.

ANSWER:

(a)

The cost causation principle, as referred to in the Application, means that costs should be allocated to customers consistent with the drivers or actions that cause those costs to be incurred.

(b)

The rationale and discussions surrounding the classification of the Whitehorse Units 1,2, and 3 is reviewed at page 19-23 of the YUB 1992 Report to the Minister on Cost of Service and Rate Design.

In sum, the report notes that a cost causation approach was advocated by the Companies – this would classify cost of generating facilities between demand and energy as for this facility, both products are derived. In arriving at the 40% demand and 60% energy classification the companies relied on classification of similar hydro facilities in BC, Manitoba, Ontario and Quebec. Based on a review of practices in other Canadian jurisdictions, the Companies adopted this classification to recognize that hydro generating plant was construction for the dual purpose of providing capacity to meet peak demand.

In the review process, the City of Whitehorse supported the approach to classification. The Board considered the approach to be appropriate recognizing that the Companies have examined alternative methods of classification and gave recognition to practices prevailing in Canada by utilities with similar assets.

The Companies acknowledged there were a number of ways of determining appropriate proportion of hydro generating plant cost to be allocated to energy used within the industry, including the following:

- **Plant factor method** - A portion of plant cost are allocated to energy on basis of capacity required for average demand requirement (i.e., the plant load factor) and cost associated with remaining capacity are classified as demand;

- **Classify waterways, dams and reservoirs as being energy related** – This would recognize a certain portion of hydro plant was constructed for the purpose of storing water (i.e., production of firm energy as required)[1]. The Board considered applicability of this method may be restricted to Aishihik dam due to run of the river nature of Whitehorse facility.

- **Comparison of available energy under normal and adverse water conditions -** This method was viewed as being not readily applicable in Yukon because of significant shortage on the system and limited availability of long term hydrological data.

- **Fixed variable method (as proposed by Curragh; this approach classifies far more costs to demand and less to energy)[2]** – The Companies noted this methodology is best in systems that are thermal based. The Companies recognized there were steps that could be taken to modify the fixed variable approach, such as allocating 70% of demand costs on the basis of coincident peak demands and 30% on the basis of energy – but the Companies noted concern re: sending the correct message before taking any steps.

(c)

Manitoba Hydro classifies generation assets 100% to energy but uses a time-differentiated energy allocator to allocate energy related costs. British Columbia Hydro classifies its IPP purchases 100% to energy. Ontario Power Generation and Hydro Quebec generation assets are not regulated on a traditional cost-of-service basis, but costs related to regulated or heritage generation facilities in both jurisdictions are recovered solely through an energy charge. Please refer to part (d) below for more information.

[1] Inadequacies in historical records made it difficult to determine the appropriate breakdown of costs of hydro generating facilities; there were also reservations as to the reliability of estimates.

[2] Curragh noted that the fixed variable approach was used in Alberta; YECL noted in this regard that – Alberta Power did not use a fixed variable approach but employed a cost causation perspective.

(d)

Details on the requested jurisdictions, plus information related to Newfoundland and Labrador Hydro are provided below.

British Columbia

Table 1 lists the BC Hydro owned heritage hydro assets. Hydro assets owned by BC Hydro are classified 55% to Demand and 45% to Energy, consistent with the BCUC Decision respecting BC Hydro's 2007 rate design application.[3] In that proceeding BC Hydro had applied for a 50% to Demand, 50% to Energy classification, stating:

> "It is not possible to develop an accurate, planning based classification of hydro plant between demand and energy. When hydro plant is built, it provides both energy and capacity and one cannot be obtained without the other. Various rationale have been used to separate demand from energy related costs, such as equating costs to develop water pressure (head) as being demand related costs. Such costs would include the cost of the dam itself without turbines. This rationale would indicate demand related costs amount to approximately 55 percent of the total costs. Other rationale based on system load factor indicates that demand related costs account for 45 percent or less of the total costs. Other rationale includes the use of a proxy gas turbine to determine capacity costs. All these rationale support an allocation of 50 percent demand and 50 percent energy"[4]

BC Hydro also submitted that the practice that hydraulic generation plant is allocated 50/50 demand/energy is a long standing practice that no party provided evidence to challenge. In its Decision, the BCUC indicated that it was concerned the use of a static 50/50 allocator would fail to reflect an accurate cost allocation if future additions are predominantly capacity related (which was the case being addressed). For the purposes of the 2007 Decision, the BCUC found that a 55% demand to 45% energy split was reasonable absent a detailed study. The BCUC further directed BC Hydro to include a detailed analysis of this issue as part of its next cost of service or rate design filing.

[3] Refer to page 91 of the BCUC's Decision respecting BC Hydro's 2007 Rate Design Application dated October 26, 2007.
[4] Page 89 of the BCUC's Decision respecting BC Hydro's 2007 Rate Design Application dated October 26, 2007.

Table 2 summarizes the BC Hydro IPP contracts with hydro suppliers as of April 2010. Hydro power supplied through contracts with IPPs are classified 100% to energy, consistent with the BCUC Decision respecting BC Hydro's 2007 rate design application. In that proceeding, BC Hydro submitted the primary purpose for entering into agreements with IPPs is the procurement of additional energy and is consistent with BC Hydro's position as a net importer with sufficient reservoir storage capacity to purchase energy at various times throughout the year.[5]

In its Decision, the BCUC noted that at present there was insufficient evidence as to the capacity benefits from these IPP contracts and accepted BC Hydro's allocation as proposed. The Commission further directed the BCUC to prepare a study for inclusion with its next cost-of-service or rate design filing that examines and quantifies the capacity benefits associated with IPP contracts.[6]

Table 1: BC Hydro – Schedule of Heritage Hydro Facilities[7]

Hydro Facility	**Hydro Facility**	**Hydro Facility**
Aberfeldie	Hugh Keenleyside Dam (Arrow Reservoir)	Seton
Alouette	John Hart	Seven Mile
Ash River	Jordan	Shuswap
Bridge River	Kootenay Canal	Spillimacheen
Buntzen/ Coquitlam	Ladore	Stave Falls
Cheakamus	La Joie	Strathcona
Clowhorn	Mica	Wahleach
Duncan	Peace Canyon	Walter Hardman
Elko	Puntledge	Whatshan
Falls River	Revelstoke	
G.M. Shrum	Ruskin	

[5] Refer to page 97 of the BCUC's Decision respecting BC Hydro's 2007 Rate Design Application dated October 26, 2007.
[6] Refer to page 99 of the BCUC's Decision respecting BC Hydro's 2007 Rate Design Application dated October 26, 2007.
[7] Information from Schedule A of BC Hydro Heritage Contract.

Table 2: BC Hydro – Schedule of Independent Power Producers (IPP) Hydro Facilities[8]

Hydro Facility	Hydro Facility	Hydro Facility
Coats IPP	Miller Creek Power	South Cranberry Creek Power Project
Mamquam Hydro	Brandywine Creek Small Hydro	Zeballos Lake
Akolkolex	Eagle Lake C2 Micro Hydro	Brilliant Expansion 2
Boston Bar Hydro (Scuzzy Creek)	Furry Creek	Eldorado Reservoir
Brown Lake Hydro	Hauer Creek (aka Tete)	Kwalsa Energy
Doran Taylor	Marion 3 Creek	Lower Clowhom
East Twin Creek Hydro	McNair Creek Hydro	Tyson Creek Hydro
McDonald Ranch	Mears Creek	Upper Clowhom
Morehead Creek	Raging River 1 Small Hydro	Upper Stave Energy
Robson Valley (Ptarmigan Creek - RBV)	South Sutton Creek	Alcan Long Term Electricity Purchase
Seaton Creek Hydro (Homestead)	Pingston Creek	Cypress Creek
Sechelt Creek (Salmon Inlet)	Rutherford Creek Hydro Project	Fitzsimmons Creek
Soo River	Upper Mamquam Hydro	Ocean Falls
Walden North	Ashlu Creek Water Power	Hluey Lake Project (SNP)
Arrow Lakes Hydro	Brilliant Expansion 1	Queen Charlotte Power Corporation
Hystad Creek Hydro	China Creek Small Hydroelectric	Pine Creek

[8] Information from Independent Power Producer Supply List, as of April 1, 2010.

Manitoba

Table 3 summarizes Manitoba Hydro's hydro-electric facilities. Manitoba Hydro classifies Hydro generation assets 100% to energy. In order to allocate costs classified to energy, Manitoba Hydro uses an allocator based on marginal cost weighted energy, such that energy consumption during high "surplus energy program"[9] price time periods attracts more costs than energy consumption during low surplus energy program price time periods.[10]

Manitoba Hydro's current generation classification method was implemented following the 2006 review of its cost-of-service methods before the Manitoba Public Utilities Board (MBPUB). Manitoba Hydro stated the primary benefit of this method is that its classification and allocation data is more reflective of electricity value in interconnected markets and therefore the opportunity value of Manitoba Hydro supply. Manitoba Hydro stated that its marginal cost of electricity supply is often its opportunity value in export markets.[11] Manitoba Hydro originally proposed to develop its marginal cost weighted energy allocator based on 4 time-periods, but this was later expanded to 12 time periods to better reflect cost differences between periods. The classification of generation costs 100% to energy and allocation based on marginal cost weighted energy in 12 time periods was approved by the MBPUB in Order 117/06.

Table 3: Manitoba Hydro Generating Facilities[12]

Hydro Facility	Hydro Facility
Grand Rapids	Limestone
Great Falls	Long Spruce
Jenpeg	McArthur
Kelsey	Pine Falls
Kettle	Seven Sisters
Laurie River I	Pointe du Bois
Laurie River II	Slave Falls

[9] The surplus energy program is a Manitoba Hydro interruptible and optional rate offering that tracks prices largely tied to export markets.
[10] Page 47. Manitoba Public Utilities Board Order 117/06.
[11] Pages 10 and 11 of Manitoba Hydro 2006 Prospective Cost of Service Study
[12] List of current Manitoba Hydro Facilities found at: http://www.hydro.mb.ca/corporate/facilities/maps/hydraulic_stations.shtml

Ontario

Ontario Power Generation ("OPG") is the crown-utility responsible for power generation in Ontario. OPG has 66 hydroelectric facilities[13], of which only 6 are regulated by the Ontario Energy Board ("OEB"). OPG does not prepare a traditional embedded cost-of-service study for its regulated hydro assets, but rather calculates a proposed revenue requirement that is reviewed by the Ontario Energy Board ("OEB"). OPG's revenue requirement is recovered entirely through an energy charge.[14]

Table 4 summarizes OPG's regulated hydro facilities.

Table 4: Ontario Power Generation's Regulated Hydro-electric Facilities[15]

Hydro Facility	Hydro Facility
Sir Adam Beck I	DeCew Falls I
Sir Adam Beck II	DeCew Falls II
Sir Adam Beck Pump Generating Station	R.H. Saunders

Quebec

Hydro Quebec does not prepare an embedded cost of service study for generation assets. The Act respecting the Régie de l'énergie provides that a heritage pool of energy be available for consumption by Quebec markets of up to 165 TW.h at a cost of 2.79 cents per kilowatt-hour.[16] Costs for power in excess of the heritage pool reflect the actual cost of supply contracts entered into by the electric power distributor.

A list of the heritage pool hydro-electric generation assets is provided in Table 5.

[13] www.opg.com/power/hydro/index.asp
[14] Refer to OEB Decision EB-2007-0905.
[15] List of current Manitoba Hydro Facilities found at: http://www.hydro.mb.ca/corporate/facilities/maps/hydraulic_stations.shtml
[16] Section 52.2 of the Act respecting the Régie de l'énergie.

Table 5: Hydro-Quebec Hydroelectric Generating Facilities[17]

Hydro Facility	Hydro Facility	Hydro Facility
Robert-Bourassa	Bersimis - 2	Péribonka
La Grande – 1	Outardes – 2	Trenche
La Grande – 2A	Outardes – 3	La Tuque
La Grande – 3	Outardes – 4	Beaumont
La Grande – 4	Sainte- Marguerite – 3	McCormick
Beauharnois	La Forge – 1	Rocher-de-Grand- Mère
Manic – 1	La Forge -2	Paugan
Manic – 2	Carillon	Shawinigan – 2
Manic – 5	Toulnustouc	Shawinigan – 3
Manic – 5 – PA	Eastmain – 1	Rapides-des-Îles
Bersimis – 1	Brisay	Chelsea
Bersimis - 2	Rapide-Blanc	La Gabelle
Première-Chute	Les Cèdres	**20 other generating stations rates less than 100 MW
Rapides-Farmer	Rapides-des-Quinze	

<u>Newfoundland and Labrador Hydro</u>

In its 2007 cost-of-service study, Newfoundland and Labrador Hydro ("NLH") classified hydro-electric generation assets 45.59% to Demand and 54.41% to energy based on the system load factor.[18]

[17] Information found at: http://www.hydroquebec.com/publications/en/annual_report/pdf/annual-report-2009.pdf (pg 114).
[18] Refer to Schedule 4.1 of NLH's 2007 Cost-of-Service Study dated November 17, 2006.

Table 6: Newfoundland Labrador Hydro Generating Facilities[19]

Hydro Facility	Hydro Facility
Bay d'Espoir Hydroelectric Generating Facility	Paradise River Hydroelectric Generating Station
Cat Arm Hydroelectric Generating Station	Roddickton Hydro Plant
Granite Canal Hydroelectric Generating Station	Snooks Arm and Venams Bight
Hinds Lake Hydroelectric Generating Station	Upper Salmon Hydroelectric Generating Station

(e)

Northwest Territories

The Northwest Territories Power Corporation classifies Hydro generation assets 60% to energy and 40% to demand as approved in NWT PUB Decision 5-95.

Table 1: Northwest Territories Hydro Generating Facilities[20]

Hydro Facility	Hydro Facility
Snare Rapids	Snare Forks
Snare Falls	Bluefish Hydro
Snare Cascades	Taltson Hydro

(f)

In Canada, wind generation facilities are generally classified as 100% energy-related.

Manitoba Hydro directly allocates purchased power, which includes the wind facility St. Leon Wind Energy (currently Manitoba's only wind generation purchased power agreement), to the export class, as directed in Manitoba Public Utilities Board Order 116/08[21]. In Tab 11.2 of

[19] Information found at: http://www.nlh.nl.ca/hydroweb/nlhydroweb.nsf/TopSubContent/Operations-Hydroelectric%20Generating%20Stations?OpenDocument
[20] Information from: http://www.ntpc.com/communities/powergeneration.html
[21] Order 116/08 page 252, also directed in Order 117/06 page 24.

Manitoba Hydro's 2010 Cost of Service Study, generation for the export class is classified as 100% energy-related[22].

BC Hydro also has one wind generation purchased power agreement to date, with Bear Mountain Wind Park[23]. BC Hydro classifies all independent power producer (IPP) purchases, as 100% energy-related[24].

Newfoundland and Labrador Hydro classifies their power purchases from the Ramea Wind facility 100% to energy.[25]

(g)

As noted in the Application, the primary economic value of Mayo Hydro is to offset the need to run the Mayo and Dawson diesel units to provide energy. Put another way, Mayo Hydro replaces the need to consume diesel fuel, which is classified 100% to energy (refer to Schedule 4-T-13 of the Application). Mayo Hydro does not replace the need to maintain the diesel units for capacity or demand benefits.

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[22] From PCOSS10 Appendix 11.2 – Based on the fact that all export costs associated with transmission are classified as "D" (ie. demand), with all export transmission costs allocated to D04 and D14. All export costs associated with generation are classified as "E" (ie. Energy), with all export generation costs allocated to E01, E02, and E12.

[23] Found from IPP list currently supplying power to BC Hydro as of April 1, 2010: http://www.bchydro.com/etc/medialib/internet/documents/planning_regulatory/acquiring_power/2010q2/20100401_ipp_supply0.Par.0001.File.20100401_IPP_Supply_List.pdf

[24] As stated in the BCUC Decision for the 2007 Rate Design Application Phase-1, pg. 97: http://www.bchydro.com/etc/medialib/internet/documents/planning_regulatory/acquiring_power/2010q2/20100401_ipp_supply0.Par.0001.File.20100401_IPP_Supply_List.pdf

[25] Refer to Schedule 4.4 of NLH's 2007 Cost-of-Service Study dated November 17, 2006.

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **Transmission Classification**

QUOTE:

The Companies propose to change the classifications used in the 1996/97 GRA for two reasons:

1) The material changes on the system since the 1996/97 GRA, including the closure of Faro Mine, the construction of the Mayo Dawson transmission line and the anticipated interconnection of the grid through the completion of the CSTP.

2) Relative importance of the transmission system in providing the benefit of avoiding expensive diesel generation.

QUESTION:

a) Please provide a detailed explanation as to why the Companies did not propose a classification change in respect of the WAF transmission line in the previous COSS.

b) Please provide examples where electrical utilities in other Canadian jurisdictions have changed the classification of transmission line from a classification that incorporated a demand/energy split.

c) Please provide examples where other Canadian electrical utilities make use of a 100% energy classification in respect of transmission lines.

d) Please provide a detailed explanation as to why an anticipated interconnection of the WAD and MD grids in 2010 should influence the 2009 re-classification of transmission lines.

e) When the Companies state that “investment is not being driven to enhance existing transmission assets (e.g., twinning lines, or reconductoring) to serve growing peak loads”, are the Companies suggesting that existing transmission system capacity is sufficient to serve system peak loads, in addition to providing new electricity customers access to surplus generation capacity, be it hydro or diesel?

f) Please provide a detailed explanation as to what is meant by "material ratebase diesel generation."[6]

g) Please provide details as to the times when the WAF transmission system has been operating at full peak capacity.

h) Please provide a detailed explanation in respect of the following statement: "…these lines exist solely to supply hydro energy to displace the need for diesel generation to supply loads in Whitehorse and elsewhere". Are the Companies suggesting that the current excess WAF transmission line capacity is not available to new electricity customers?

ANSWER:

(a)

The Companies did not propose a classification change in respect of the WAF transmission line in the previous COSS as the system (and the underlying system cost profile) was materially different at that time than it is today. As noted, at page 3-8 ther have been material changes on the system since 1996/97 which included the following:

- The closure of the Faro mine (the largest single load on the system at that time) which resulted in a large amount of surplus energy on WAF.
- The construction of the Mayo Dawson Transmission Line, which made available surplus generation from the Mayo plant to previously off-grid communities.
- The construction of the CSTP Stage 1 and anticipated completion of CSTP Stage 2 which would connect the WAF and MD grid systems and allow for surplus energy in one system to be used to serve load requirements in the other system.

Since the 1996/97 GRA, available surplus generation combined with the completion of major transmission projects allowed for communities that previously relied on costly resident diesel generation access to lower cost grid electricity. Major transmission projects built since 1996/97 were not justified based on the capacity benefits they would provide, but were justified based on the premise that diesel communities would gain access to lower cost surplus hydro generation through interconnection with the grid system.

(b) and **(c)**

To be clear. Yukon's previous classification of transmission was not "a demand/energy split" but instead 100% demand.

In its 2010 cost-of-service study Manitoba Hydro's high-voltage direct current (HVDC) facilities are classified 100% to energy.[1] This treatment is analogous to the proposed treatment of transmission assets in Yukon that proposes to classify transmission assets 100% to energy to recognize the primary purpose of transmission assets is to avoid the need to burn expensive diesel fuel.

Manitoba Hydro's approach to functionalizing and classifying HVDC facilities evolved over time in response to changes to the Manitoba system and the role of HVDC facilities on the system.

In its 1996 cost-of-service study, Manitoba Hydro functionalized HVDC facilities to transmission and classified costs 57.6% to energy and 42.4% to demand consistent with a system load factor approach to splitting the classification of transmission between demand and energy.

Manitoba Hydro stated the primary benefit of the energy-only method is that it is more reflective of electricity value in interconnected markets and therefore the opportunity value of Manitoba Hydro supply. The classification of generation costs 100% to energy was approved by the MBPUB in Order 117/06.

[1] Refer to Page 20, Manitoba Hydro PCOSS10 at
http://www.hydro.mb.ca/regulatory_affairs/electric/gra_2010_2012/Appendix_11_1.pdf

(d)

The anticipated interconnection of the WAF and MD grids in 2010 is not driving the re-classification of transmission lines *per se* – as noted in (a) above, this re-classification is being driven by material changes on the system since the last full cost of service study in 1996/97. The key function and principle benefit the transmission system now provides is the ability to provide access to grid electricity in order to displace requirements for costly diesel generation.

As noted at page 3.4A-12 of the Application, in the 2007 cost of service analysis that accompanied the Minto Mine PPA Application considered that WAF transmission should be classified as energy rather than demand to reflect the fact that transmission projects were designed to displace diesel energy generation rather than to meet system winter peak demands. This consideration is not restricted to just CSTP Phase 1 and CSTP Phase 2 once completed, but also includes the Mayo Dawson Transmission System (i.e., its function in providing access to lower cost surplus generation at Mayo Plant to communities that would otherwise need to serve load with higher cost resident diesel units). The profile of the system since the 1996/97 GRA has focused on providing these energy benefits through the transmission system and as noted at page 3-8 the system's configuration and cost profile has been oriented towards meeting these objectives (i.e., existing transmission assets have not been enhanced over this period to better serve growing peak loads through twinning or re-conductoring).

(e)

Yes. Existing transmission is sufficient to supply peak loads occurring on the system today. No major transmission upgrades are planned to address capacity driven constraints (unlike in southern grid-based jurisdictions, where justification for new transmission is often based on regional peak demand).

(f)

The statement refers to the fact that transmission in Yukon is not typically premised on connecting large capacity sources, including large diesel plants, to the grid to meet capacity related loads. This is in part supported by the fact that there is only limited diesel generation in remote areas connected by transmission intended to provide peak support to the grid. The lone exception is Faro, but even in this case the available MW of generation is well below that located at Whitehorse, for example.

This concern was discussed in detail during the recent Mayo B Part 3 hearing. It has been noted that the system is moving towards a return to “diesel on the margin”, meaning that diesel generation would be required to meet basic system load (energy) requirements. This would mean that diesel generation would be required for more than short term peaking purposes. “Material baseload diesel” refers to the requirement to utilize diesel generation for more than short-term capacity/peaking purposes.

(g)

There are no instances where the WAF transmission system has been operating at full peak capacity.

Historically, transmission has not been a capacity constraint on the WAF system – for example when the Faro mine was operating the Faro regional load (ARM, Faro & Ross River) was drawing approximately 30 MW of load, but the line in place would have a capacity to supply well beyond this amount.

(h)

No. The companies are only referencing the fact that the value of transmission today is largely to offset fuel costs in the various communities, rather than to offset the need for diesel plants in these communities.

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **Distribution Classification Methods**

QUOTE:

The Companies have reviewed and updated the customer/demand classification factors for Distribution plants using Yukon specific data and the same methodologies that were approved in ATCO Electric's 2010 Distribution Tariff Application as well as Northland Utilities (NUY) and Northland Utilities (NWT) 2008-2010 Phase II General Rate Applications.

QUESTION:

a) Please provide a Cost of Service Study (COSS) using the previous distribution classification percentages that were last approved by this Board.

b) Please provide a detailed explanation as to what has changed since the 1996/97 GRA that leads to what appears to be significant changes in respect of proposed Distribution classification factors for
   a. poles, towers, and fixtures; and
   b. OH Conductors/UG Conduits (Wires).

c) With reference to part (a) please explain how the proposed classification factors are consistent with the goals of identifying cost causation.

d) Using Page 3-11 as a template, please provide a table that compares Distribution classification factors approved in ATCO Electric's 2010 DTA, and those approved in the NUY and NWT 2008-2010 Phase II GRAs.

e) Did the Companies perform the regression analyses or was this performed by an outside consultant? Do the Companies have any recommendations as to whether the zero intercept or the minimum system more appropriately reflects the manner in which the distribution system capital costs are caused?

f) Please provide a detailed explanation regarding the revised treatment of Yukon Electrical revenue offsets referred to on Page 3-11 of the Application.

g) Please provide an explanation, complete with relevant excerpts, that support the statement that "these classifications are also supported by the National Association of Regulatory Utility Commissioners" (NARUC) Electric Utility Cost Allocation Manual."

ANSWER:

(a)

Please refer to YUB-YEC/YECL-1-7(a).xls.

(b)

The Distribution Classification Factors were previously based on ATCO Electric's (Alberta Power) material costs, installed quantities and labour rates. Data specific to YECL is now available and the study was updated using YECL specific data. Notwithstanding, it is important to note that even a wide change in Distribution Classification Factors has a negligible impact on rates. The following table shows a sensitivity analysis of the impact on cost allocation from the change in the 1996-7 GRA classification factors compared with the classification factors currently filed:

Rate Class	Allocated Cost 96-7 Classifications $ 000s	Allocated Cost 2009 Classifications $ 000s	Change $ 000s	% Change
Residential Government	$399	$401	$2	0.5%
Residential Non-Government	$24,529	$24,592	$63	0.3%
Commercial Government	$6,470	$6,442	$(28)	0.4%
Commercial Non-Government	$14,957	$14,909	$(48)	0.3%
Industrial	$2,928	$2,946	$18	0.6%
Street Lights	$1,437	$1,432	$(5)	0.3%
Sentinel Lights	$113	$112	$(1)	0.9%

(c)

The Minimum and Zero Intercept methodologies are accepted tools used in industry that are used to calculate customer and demand classification factors. As such, YECL considers that the refinement of using YECL specific PP&E and cost data results in classification factors that are more accurate and consistent with the goal of aligning cost with causation.

(d)

Please refer to the following tables.

<u>Table 1: NWT Hay River</u>

Land, Land Rights & Substation Equipment: 0% Customer, 100% Demand, 0% Energy
Poles, towers & fixtures: 50% Customer, 50% Demand, 0% Energy
OH Conductors/UG Conduits: 75% Customer, 25% Demand, 0% Energy
Line Transformers: 35% Customer, 65% Demand, 0% Energy
Services: 100% Customer, 0% Demand, 0% Energy
Meters & Metering Equipment: 100% Customer, 0% Demand, 0% Energy

Street Lights / Space Lights: Directly assigned to Rate Class

Table 2: NUY Yellowknife

Land, Land Rights & Substation Equipment: 0% Customer, 100% Demand, 0% Energy
Poles, towers & fixtures: 40% Customer, 60% Demand, 0% Energy
OH Conductors/UG Conduits: 70% Customer, 30% Demand, 0% Energy
Line Transformers: 40% Customer, 60% Demand, 0% Energy
Services: 100% Customer, 0% Demand, 0% Energy
Meters & Metering Equipment: 100% Customer, 0% Demand, 0% Energy
Street Lights / Space Lights: Directly assigned to Rate Class

Table 3: ATCO Electric

Land & Property Rights Non Rural 0% Customer, 100% Demand, 0% Energy
Land & Property Rights Rural 0% Customer, 100% Demand, 0% Energy
Land & Property Rights Rural Allocated 0% Customer, 100% Demand, 0% Energy
Poles, towers & fixtures Non Rural 70% Customer, 30% Demand, 0% Energy
Poles, towers & fixtures Rural 65% Customer, 35% Demand, 0% Energy
Poles, towers & fixtures Rural Allocated 65% Customer, 35% Demand, 0% Energy
OH Conductors Rural 70% Customer, 30% Demand, 0% Energy
OH Conductors Non Rural 65% Customer, 35% Demand, 0% Energy
OH Conductors Rural Allocated 65% Customer, 35% Demand, 0% Energy
Services Rural 100% Customer, 0% Demand, 0% Energy
Services Non Rural 100% Customer, 0% Demand, 0% Energy
Services Rural Allocated 100% Customer, 0% Demand, 0% Energy
UG Conduits Rural 45% Customer, 55% Demand, 0% Energy
UG Conduits Non Rural 45% Customer, 55% Demand, 0% Energy
UG Conduits Rural Allocated 45% Customer, 55% Demand, 0% Energy
AMR Meters Rural 100% Customer, 0% Demand, 0% Energy
AMR Meters Non Rural 100% Customer, 0% Demand, 0% Energy
AMR Meters Rural Allocated 100% Customer, 0% Demand, 0% Energy
AMR Substation Apparatus Rural 100% Customer, 0% Demand, 0% Energy
AMR Substation Apparatus Non Rural 100% Customer, 0% Demand, 0% Energy
AMR Substation Apparatus Rural Allocated 100% Customer, 0% Demand, 0% Energy
Substation Equipment Rural 0% Customer, 100% Demand, 0% Energy
Substation Equipment Non Rural 0% Customer, 100% Demand, 0% Energy

Substation Equipment Rural Allocated 0% Customer, 100% Demand, 0% Energy
Transformers Rural 60% Customer, 40% Demand, 0% Energy
Transformers Non Rural 45% Customer, 55% Demand, 0% Energy
Transformers Rural Allocated 40% Customer, 60% Demand, 0% Energy
Street Lights Rural 100% Customer, 0% Demand, 0% Energy
Street Lights Non Rural 100% Customer, 0% Demand, 0% Energy
Street Lights Rural Allocated 100% Customer, 0% Demand, 0% Energy
Sentinel Lights Rural 100% Customer, 0% Demand, 0% Energy
Sentinel Lights Non Rural 100% Customer, 0% Demand, 0% Energy
Sentinel Lights Rural Allocated 100% Customer, 0% Demand, 0% Energy
REA AMR Meters Rural 100% Customer, 0% Demand, 0% Energy
REA AMR Meters Non Rural 100% Customer, 0% Demand, 0% Energy
REA AMR Meters Rural Allocated 100% Customer, 0% Demand, 0% Energy
IMR Meters and Equipment Rural 100% Customer, 0% Demand, 0% Energy
IMR Meters and Equipment Non Rural 100% Customer, 0% Demand, 0% Energy
IMR Meters and Equipment Rural Allocated 100% Customer, 0% Demand, 0% Energy

It is important to recognize that to the extent the electric system, materials and labour rates between the utilities set out in the above tables are different, the classification factors may vary between the various asset classes.

(e)

The regression analysis was performed by the ATCO Electric Pricing Department and is based on the methodology used by Foster Associates Incorporated, Economic Consultants in ATCO Electric’s 2006 DTA.

YECL is of the view that the zero-intercept method can sometimes produce statistically unreliable results that allocate more costs to demand rate classes (i.e. large consumer) and the minimum plant method can be influenced by several factors which tend to allocate more costs to customer (i.e. residential) rate classes. YECL considers an average of the two methods to be the most appropriate and accurate to mitigate the above biases created by each of the methods.

(f)

YECL revenue offsets consist of reconnect revenue, joint use, services to outside parties and other miscellaneous items earned from the use of the distribution system. Previously, the revenue offsets were allocated to the rate classes on Production, Transmission and Distribution PP&E. To reflect cost causation revenue offsets are now allocated to rate classes only on the distribution plant assigned to each rate class.

(g)

YECL has confirmed with NARUC that this material is protected by copyright and may not be reproduced. A copy of the manual may be obtained through the NARUC website www.naruc.org or by calling (202) 898-2200. Reference to the Classification of Distribution Plant via minimum plant and zero intercept methodologies, are detailed on pages 86 through 96 of the manual. The statement refers to the fact that the minimum plant and zero intercept studies are the only two methodologies contained in the NARUC manual. Combined with the significant amount of minimum plant and zero intercept methodology content detailed in the NARUC manual, YECL would expect that the use of those two studies are supported and recommended by NARUC.

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **Allocation Methods**

PREAMBLE:

The Board seeks to understand the proposed changes to allocation methodologies.

QUOTE:

Classified costs were allocated to each firm rate class using methods adopted in past COS studies and updated estimates for the number of customers, peak demand, and energy use for each rate class.

It is important to note that no Yukon specific load studies have been conducted, and consequently the new load factors are derived from recent load studies on ATCO Electric customers in Alberta (the 1996/97 load factors were based on earlier analyses of ATCO Electric customers in Alberta as well).

QUESTION:

a) Please explain how an adjustment that is based on a U.S. Department of Agriculture bulletin released in June of 1963, is still valid considering the numerous changes that have taken place in electricity markets. Please provide the relevant excerpts and explanations that support the formulae shown on pages 3.3A-3 to 3.3A-4.

b) Please inform the Board that an adjusted AE load factor adjusted to determine a Yukon load factor is still valid, considering the significant differences between the Alberta deregulated electricity market and the Yukon electricity market.

c) Please provide an explanation regarding the similarities and dissimilarities between the electricity rate classes of the Yukon and of the Alberta de-regulated marketplace.

d) Please provide explanations respecting the differences between the formulae currently used and those that were used to determine the Yukon load factor adjustment to calculate NCP and CP demands in the 2009 COS study.

e) Please provide a revised COS study that makes use of the 1995 allocation factors.

f) Please provide the AE EDLA study and an accompanying spreadsheet with formula intact relating to the Yukon load factors currently used in the COS study.

g) With respect to rate class designation, please explain the meaning of the notation when the Residential or General Service rate classes are designated as being either Non-Government or Government.

h) Please explain the lower load factor attributed to the Minto mine. Please provide the 2009 Minto Mine load factor.

i) Please explain how a notable increase in the calculated CP and NCP load factors for the General Service rate class leads to a reduced coincident peak demand compared to the 1996/97 ratios. Additionally, could this be attributed to the underlying EDLA study that is based on an Alberta deregulated electricity retail market?

ANSWER:

(a)

The validity of the U.S. Department of Agriculture bulletin has not diminished due to the electricity market changes. This study is based on actual load data and it is independent of any electricity market scheme. There is typically no direct link between the way small customers are billed (monthly energy and demand) and the hourly price of in the deregulated Alberta electricity market. As a result, there is no significant shift in the average class usage profiles of residential and commercial customers. The referenced bulletin is provided in the attachment YUB-Companies-8(a) Attachment 1 Dmnd Tables REA Bulletin.pdf.

The formulae used are detailed as follows:

1) The primary equation, called as *KWH Factor* has been taken from the referred bulletin as:

$$Factor\ "B" = .005925\left[kWh/mo/consumer\right]^{.885} \qquad (1)$$

2) The adjustment factor for a period of 12 months is then defined by the following expression, which is the ratio between the ATCO Electric rate class demand and the demand estimated by the referenced bulletin.

$$F_{ADJ} = \frac{.005925\left[E_{AE}/12\right]^{.885}}{\left\{\dfrac{\left[E_{AE}/H\right]}{LF_{AE}}\right\}} \qquad (2)$$

Where:

E_{AE}: Annual energy sales per customer for the ATCO Electric rate class.

LF_{AE}: Load factor or coincident load factor for the ATCO Electric rate class based on load studies.

H: Number of hours in a year

3) To estimate the preliminary customer level coincident load factor for residential and commercial class the following formula is used:

$$LF_N = \frac{F_{ADJ}\ E_N/H}{.005925\left[E_N/12\right]^{.885}} \qquad (3)$$

4) By combining equations (2) and (3)

$$LF_N = \frac{.005925\left[E_{AE}/12\right]^{.885}\dfrac{LF_{AE}}{E_{AE}/H}\left[E_N/H\right]}{.005925\left[E_N/12\right]^{.885}}$$

$$= \frac{\left[E_{AE}/12\right]^{.885}\dfrac{E_N \cdot LF_{AE}}{E_{AE}}}{\left[E_N/12\right]^{.885}}$$

$$= LF_{AE}\left[\frac{E_{AE}{}^{.885}\cdot E_N}{E_N{}^{.885}\cdot E_{AE}}\right]$$

$$= LF_{AE}\left[\frac{E_N}{E_{AE}}\right]^{.115}$$

(b)

The Yukon load factor used is still valid for the reasons provided in part (a).

(c)

Electric customers in Alberta take service from a mix of investor owned and municipally owned companies with each utility having separate rate structures. Alberta has a competitive electricity market which means that electric customers are required to purchase their energy needs from an Energy provider (Retailer).

Electric customers in Yukon take service from either an investor owned electrical utility or a publicly owned electrical utility through a bundled service. However, all Yukon electric customers share common rate schedules.

Rate classes can vary between the different utility companies depending on how the utility has elected to group certain customers within a class of service. There are straightforward similarities of rate classes between the various jurisdictions such as the residential rate class. Also, to the extent that jurisdictions serve commercial and industrial customers, separate rate classes have also been designed for those group of customers.

Depending on how the utility has elected to group certain customers based on its views of cost causation, differences begin to arise even within a customer sector. A municipal owned utility in Alberta separates its commercial customers into small, medium and large; while, an investor owned utility has one rate for small commercial customers. Large commercial customers take service under an industrial/large general service rate. All Yukon commercial customers take service under one rate schedule.

Based on the differences between the electric industry structure in Alberta and Yukon, distribution rate schedules in Alberta recover costs associated with the transmission and distribution functions. While, distribution rate schedules in Yukon recover costs associated with the generation, transmission and distribution function.

(d)

The formulae currently used are the same used in the 2009 COS study.

(e)

The EDLA (Energy Demand and Loss Analysis) spreadsheet used in this Application is in a different format from the 1995 EDLA spreadsheet, as explained in Section 3 Cost of Service, Appendix 3.3 Page 3.3A-2. The format of the 1995 spreadsheet is not compatible with the 2009 model. As a result, YECL is unable to provide a revised COS study that makes use of the 1995 allocation factors at this time due to time constraints.

(f)

A copy of the ATCO Electric Energy, Demand and Loss Analysis will be provided on the CD with the complete COS Model that was requested in YUB-Companies-28 (c). Please email scott.duncan@atcoelectric.com to request a copy. A CD copy will also be provided to the YUB as part of this submission.

(g)

The notation of Non-Government or Government is based on the definition set out in Order-In-Council 1995/090, where it states:

> "government customer" means a retail customer
> (a) who is a federal or territorial department or agency; and
> (b) a body, other than one carrying on a business with a view to making a profit, that derives all or substantially all of its funding from a body referred to in paragraph (a).

(h)

The lower load factor the Minto mine can be attributed to a different load profile than the Faro mine. The Faro mine was much larger mine with a significant mining load (up to 3 electric shovels) and higher milling process related electrical loads. The Faro mine was a lead and zinc ore based mine. The Minto mine is copper ore based and has no mining electrical loads as the overburden and ore removal is all by mobile diesel equipments thus has a significantly different electrical load profile.

The 2009 Minto Mine load factor was 80%, based on an annual average load of 3.35 MW and a (non-coincident) peak demand of 4.19 MW.

(i)

Yukon Electrical Response

Consider the following definition of Load factor, which is the ratio of the total energy consumption to the demand (maximum or coincident) for a specific period (see formula below). Based on the results of the 2009 EDLA study, the CP demand in fact increased compared to the CP demand from the 1996/97 EDLA study. The increase in the calculated CP and NCP demands are a result of an increase in the forecast energy sales. These demands are calculated in the EDLA but their increase is not attributed to the Alberta deregulated electricity retail market for the reasons provided in part (a).

Yukon Energy Response

Yukon Energy cannot identify a reasonable underlying Yukon-based explanation for ATCO's calculation that the Yukon General Service load factors have increased so materially since 1996/97 (from 61.5% to 77.4% at coincident peak, and from 49.2% to 63.6% at non-coincident peak). The error appears to arise due to reliance on ATCO data from Alberta that is difficult to analyze or assess, and is of questionable value in determining the load characteristics of Yukon customers.

From Yukon Energy's perspective, this calculation, which is fundamentally derived from ATCO Electric load studies, is problematic for a number of reasons:

1) The load factors calculated exceed any range for load factors for major classes of GS customers reviewed elsewhere in Canada (including ATCO Electric, who appear to use only a 72% coincident peak load factor in their cost of service studies, and this is among the highest values identified). Most other jurisdictions reviewed, including hydro based jurisdictions in Manitoba and Newfoundland, appear to be in the range of 60-64%, consistent with Yukon's 1997 values.

2) Yukon Energy was not able to identify any cited references to other jurisdictions implementing major changes to the cost-of-service load characteristics of General Service customers in the last 10 years. Yukon Energy also cannot identify any underlying Yukon specific reason for ATCO to draw this conclusion about material load characteristic changes.

3) If the ATCO values are correct, and General Service customers are operating at such a high load factor (meaning they peak relatively low for their quantity of

energy used) the overall calculated CP based estimate of the system peak does not accord with the known system peaks. In particular, the sum of the calculated system peaks, as compared to the forecast system peak would infer that the system experiences losses at peak times approximate 25%, which does not accord with known system values. With GS load factor values from 1997 inserted the calculated peaks suggest a system demand loss at peak times of approximately 18% which, while still very high, is directionally closer to expectations.

The change in General Service load factor to the new calculated ATCO values drives changes in the R/C ratio to General Service customers approximating 3% (i.e., these customers are being allocated too low of a share of costs, while other classes are being allocated too high a share). In Yukon Energy's view, in the absence of any Yukon specific data to suggest such a material change in load characteristics for this class, the General Service CP and NCP values from 1996/97 should be retained.

$$LF = \frac{kWh}{kW\ Demand * Period}$$ where:

kWh: Total energy used.
kW Demand: Maximum or coincident demand.
Period: Total hours in the period.

D. R. McGill

Special Studies

REA BULLETIN 45-2

June, 1963

DEMAND TABLES

RURAL ELECTRIFICATION ADMINISTRATION • U.S. DEPARTMENT OF AGRICULTURE

PREFACE

The tables in this bulletin have been prepared for determining demand data to be used in connection with engineering studies on rural distribution systems. They are based on 1954-1955 load data obtained from systems throughout the country. A check of current data has shown that the tables are still* applicable. This has been confirmed by operating experience. A short discussion is included to acquaint those using the bulletin with the basic data and methods used in its preparation in order to provide a better understanding when applying the information to specific problems. An attempt has been made to anticipate and answer questions which may be in the minds of those using the "Demand Tables."

*1963

Four methods are provided for the calculation of demand, all of which will give essentially the same results. They are:

1. The use of Consumer Factor "A" and KWH Factor "B" from the tables.

2. The use of nomograms which are based on Factors "A" and "B".

3. The use of Factors "A" and "B" as obtained from the equations:

$$\text{Factor "A"} = C\left[1 - .4C + .4(C^2 + 40)^{\frac{1}{2}}\right]$$

Where C = number of consumers

$$\text{Factor "B"} = .005925(\text{KWH/mo/consumer})^{.885}$$

This method is useful for computers.

4. The use of the demand tables from which demand may be read directly.

In the methods for determining demand data, which make use of Consumer Factor (Factor "A") and KWH Factor (Factor "B"), Factor "A" reflects the improved diversity resulting from an increase in the number of consumers, and Factor "B" reflects the improvement in load factor with increased usage. KW demand is equal to the product of Factor "A" and Factor "B". It will be noted that above 1400 consumers, Factor "A" is, for all practical purposes, equal to the number of consumers. Factor "B" may be plotted as a straight line on log-log paper.

The demand obtained by any of the four methods is based on the average system, and some systems will deviate from the average because of a difference in load factor. These methods may be adapted to a particular system by selecting the appropriate table or calculating a multiplying factor as shown in Section IV.

The kw demands in this bulletin are those which may be expected for any particular monthly usage. Therefore, to obtain the maximum yearly demand, the maximum monthly usage, rather than the average usage, should be used.

DEMAND TABLES

I. BASIC INFORMATION

The information for this bulletin, except for the smaller numbers of consumers (less than 50), was taken from operating reports and power bills furnished by REA borrowers. A 25% sample was taken from each area, also representing so far as possible 25 percent of those in each state. One substation was selected from each system avoiding those with unusual loads, such as army installations, large industrial plants, and seasonal cottages. These were not used because the effect of such loads is included separately in engineering studies. In several cases it was necessary to discard a sample because of unusual conditions which were not representative of a rural system, resulting in a reduction of the sample to approximately 23 percent.

To avoid irregularities in meter reading times, the four-month peak demand period (four consecutive months) was selected for determining monthly usage and demand. The values used in preparing the tables were the average monthly usage and the average monthly demand over this four-month peak period of maximum demand. Therefore, the kw demand data in the bulletin are those which may be expected for any particular monthly usage. To obtain the maximum yearly demand, the maximum monthly usage, rather than the average usage, should be applied in reading the tables. The kwh values used are based on kwh sold at the consumer's meter, making it unnecessary to correct for losses.

Information available in REA for small numbers of consumers could not be used, since it was found that substations with only a few consumers were those with unusual loads and not representative of a typical rural area. The data in this range were obtained from a study made on 42 farms by the Agricultural Experiment Station, Iowa State College, and the Farm Electrification Section, Agricultural Research Service, U. S. Department of Agriculture. The information is contained in Iowa State College Research Bulletin 420, January 1955, "Load Characteristics of Southeastern Iowa Farms Using Electric Ranges."

II. METHOD OF PLOTTING DATA

The data were plotted as KWH/Mo/KW vs. Consumers, the ordinate being a measure of diversity. A notation was made by each point indicating the area from which it was taken. The peak month and density were also noted on a separate sheet. An examination of the points showed no noticeable difference because of area or density. However, a spot check indicated that about three-fourths of the summer peaking systems will have a lower demand than the average and one-fourth higher than average.

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*This revision combines REA Bulletin 45-2, dated August 1956, and the supplement, dated June 1957, under one cover.

From past experience and by inspection it could be seen that the plot of KWH/Mo/KW vs. Consumers would be a family of curves, each curve representing a particular value of kwh/mo/consumer. Knowing this to be true, one curve would have been sufficient, but in order to prove the point three curves were plotted. Because of the lack of sufficient points to plot specific values of usage, curves were plotted for three ranges: 101-200, 201-400, and 401-600 kwh/mo/consumer.

Figure 1 shows the spread of points for 401-600 kwh/mo/consumer. A curve was drawn through these points by the method of moving averages. The original curve was carried to 10,000 consumers but as a matter of convenience Figure 1 has not been reproduced beyond 2,000 consumers since the curve continues in a straight line.

In Figure 2 this same curve has been reproduced with the other two curves mentioned above for comparative purposes. It will be noted that the three curves have the same shape and level off at approximately 1400 consumers. Any point on either curve may now be identified as a given percentage of the maximum kwh/mo/kw for that curve. For example, using a given number of consumers, a point which is 50 percent below the maximum on one curve will be 50 percent below the maximum for any curve in the family.

To find the maximum for any curve in the family, it was necessary to find some relationship between the maximum values for the three curves plotted. The three points appeared to form a straight line on log-log paper, but more points were needed to verify this assumption. This was accomplished by making a plot of all points above 1400 consumers (Fig. 3), since the effect of the third variable, consumers, is constant in that range as shown by the curves in Figure 2. A curve drawn through these points by the method of moving averages verified the previous assumption that the plot would form a straight line on log-log paper. This straight line curve was also in agreement with a straight line drawn through the three points of maximum value found in Figure 2.

III. CALCULATION OF KW DEMAND

The following equation was derived for calculating demand from the information available from the curves:

$$KW = \frac{KWH \times KW}{KWH} \quad \text{(An identity)}$$

Dividing numerator and denominator by KW:

$$KW = \frac{KWH}{KWH/KW} \quad \text{(where KWH = KWH/Mo/Consumer} \times \text{Consumers)}$$

$$= \frac{\text{KWH/Mo/ Consumer} \times \text{Consumers}}{\text{Max. KWH/Mo/KW} \times \text{\% Max.}}$$

$$= \frac{\text{KWH/Mo/Consumer}}{\text{Max. KWH/Mo/KW}} \times \frac{\text{Consumers}}{\text{\% Max.}}$$

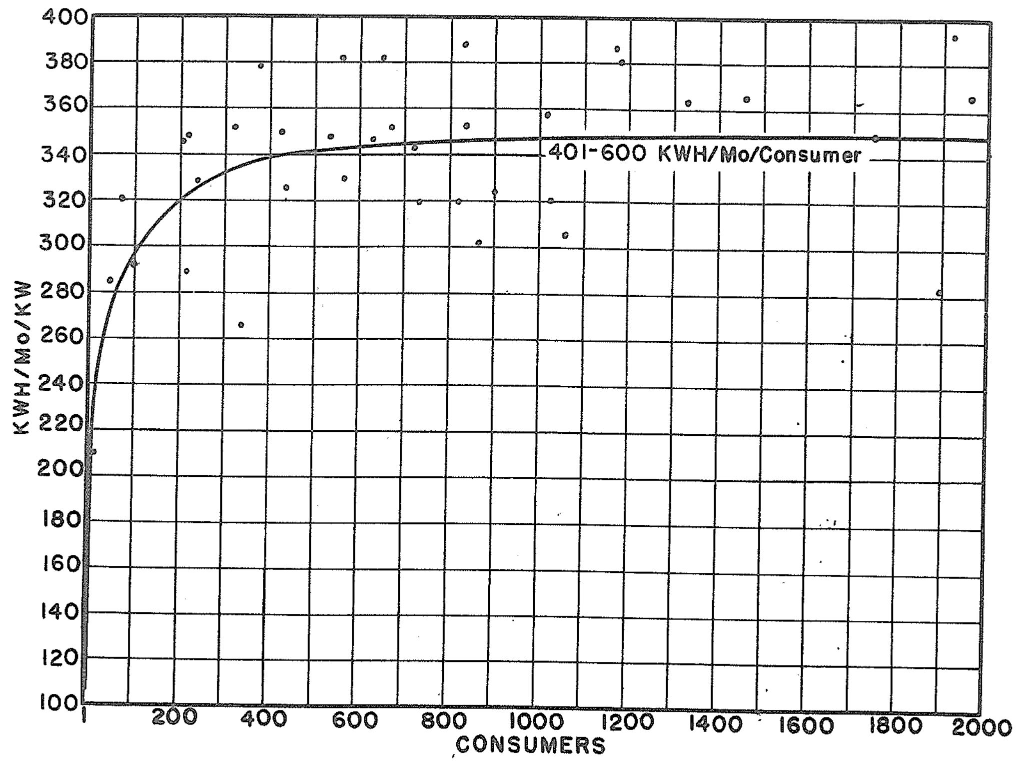

FIG. 1 KWH/MO/KW VS. CONSUMERS

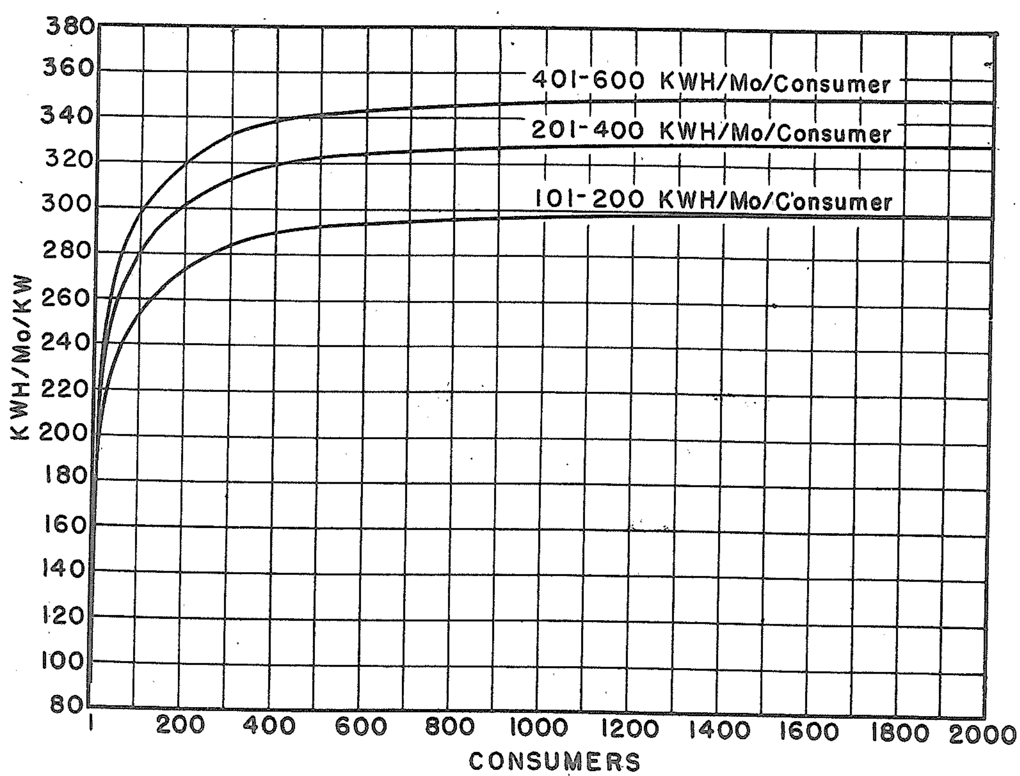

FIG. 2. KWH/MO/KW VS. CONSUMERS

The first term has been designated as kwh factor or Factor "B" and the second term as consumer factor or Factor "A". After determining Factor "A" for all numbers of consumers and Factor "B" for all values of kwh, the kw demand for any consumer density and usage may then be calculated by multiplying the two corresponding factors. Factor "A" reflects the improved diversity resulting from an increase in the number of consumers. Factor "B" reflects the improvement in load factor with increased usage, and is the kw demand per consumer to be expected on an average substation having maximum diversity (more than 1400 consumers).

KW demands may be calculated for usages higher than the 2000 kwh/mo/consumer shown in the tables by extending the curve for Factor "B" which is a straight line on log-log paper as shown in Figure 4.

Four methods of calculating demand have been prepared. These are all based upon the curves for Factors "A" and "B" and give approximately the same results.

Method 1: The use of Consumer Factor "A" and KWH Factor "B" from the tables - multiplying the factors gives the demand.

Demand = (Factor "A") (Factor "B")

Method 2: A nomogram has been included in this bulletin for convenience. The divisions on the left-hand scale of the nomogram represent the log of Factor "A" corresponding to the number of consumers; the divisions on the right-hand scale represent the log of Factor "B" corresponding to kwh/mo/consumer; and the center scale represents log Factor "A" + log Factor "B" found by placing a straightedge from "A" to "B". In this way Factor "A" and Factor "B" are multiplied by adding their logarithms.

Method 3: For use with computers it is necessary to provide equations for Factors "A" and "B" to conserve memory space. The following equations may be used for this purpose:

$$\text{Factor "A"} = C(1 - .4C + .4(C^2 + 40)^{\frac{1}{2}})$$

Where C = number of consumers

(This equation is not exact but closely approximates the curve of Factor "A".)

$$\text{Factor "B"} = .005925(\text{KWH/Mo/Consumer})^{.885}$$

(This is the equation of the line in Figure 4)

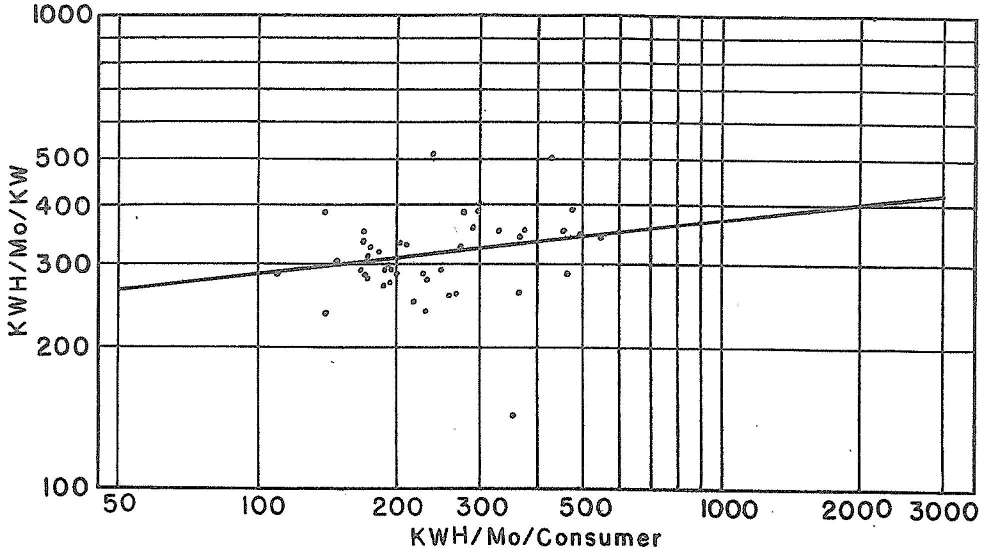

FIG. 3. KWH/MO/KW VS. KWH/MO/CONSUMER
(For 1400 consumers or more.)

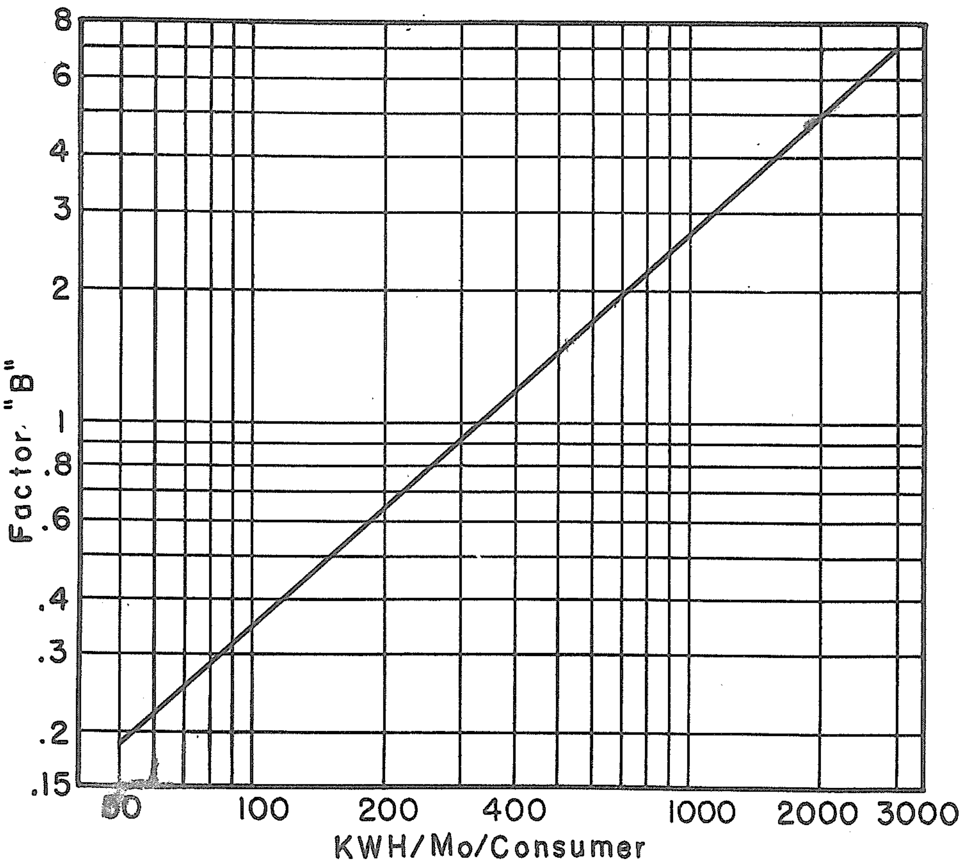

FIG. 4. KWH FACTOR (Factor "B")

Method 4: Average demand may be obtained directly from the demand tables. To use these tables, locate the table marked with the proper KWH monthly usage, find the number of consumers in the column marked NO. CONSUMERS, and read the demand in the column marked DEMAND IN KW.

IV. ADJUSTMENT FOR DIFFERENCE IN LOAD FACTOR

As stated in the preface, the demand tables are based on the average system, and some systems will deviate from the average because of load factor. If the load factor and diversity are expected to continue to bear the same relationship to the average, the tables may be easily adapted to the particular system. Three approaches to load factor adjustment are compared as follows:

Given: Present values = 254 kw
500 consumers
200 kwh/mo/consumer

To find: Table, multiplying factor, or shift in Factor "B" curve required for the same area with a usage of 600 kwh/mo/consumer.

Example 1

A demand of 254 kw for 500 consumers is found in the table for 150 kwh/mo/consumer rather than the table for 200 kwh/mo/consumer which indicates that the system has a better load factor than the average system. When the usage reaches 600 kwh/mo/consumer the table to use is found by the ratio:

$$\frac{200}{150} = \frac{600}{x}$$

Solving for x, the proper table to use is the one for 450 kwh/mo/consumer.

Example 2

For 500 consumers and 200 kwh/mo/consumer, the load factor from the tables on page 16:

$$\frac{\text{Consumers} \times \text{KWH/Mo/Consumer}}{\text{KW} \times \text{Hours}} = \frac{500(200)}{328(730)} = 41.8\%$$

The actual load factor equals:

$$\frac{\text{Consumers} \times \text{KWH/Mo/Consumer}}{\text{KW} \times \text{Hours}} = \frac{500(200)}{254(730)} = 54.0\%$$

$$\text{Multiplying factor} = \frac{41.8}{54.0} = 0.775$$

$$\text{or} = \frac{254}{328} = 0.775$$

Example 3

Consumer factor (Factor "A") does not change but kwh usage factor (Factor "B") changes with load factor. Therefore, adjustment may be made by drawing a Factor "B" curve for the particular system parallel to the average curve.

For 500 consumers, Factor "A" = 512 (p. 46)

$$\text{Factor "B"} = \frac{\text{KW}}{\text{Factor "A"}} = \frac{254}{512} = .496$$

A straight line through the point for KWH/Mo/Consumer = 200 and Factor "B" = .496 drawn parallel to the average curve is the Factor "B" curve for this system.

Comparison of kw demand found in each example for 5000 consumers:

Example 1

Using the table for 450 kwh/mo/consumer, the demand for 5000 consumers = 6600 kw.

Example 2

The table for 600 kwh/mo/consumer shows a demand of 8500 kw. Applying the multiplying factor, the corrected demand equals:

$$8500 \text{ kw} \times 0.775 = 6600 \text{ kw}$$

Example 3

The new Factor "B" curve drawn as mentioned above shows this factor to be 1.32 for 600 kwh/mo/consumer.

For 5000 consumers, Factor "A" = 5000
Factor "A" × Factor "B" = 5000 × 1.32 = 6600 kw

V. COMPARISON OF DEMAND CURVES 1939-1955

The curves prepared in 1939 and 1949 plotting KWH/Mo/KW vs. Consumers are compared in Figure 5 with the 1955 curve for the same usage value. Fifty kwh/mo/consumer has been used as a basis for comparison since the 1939 curve was based on this usage. From 1949 to 1955 the maximum kwh/mo/kw shows very little change. This indicates that the addition of new uses for electricity should not appreciably affect estimates made on the basis of present information.

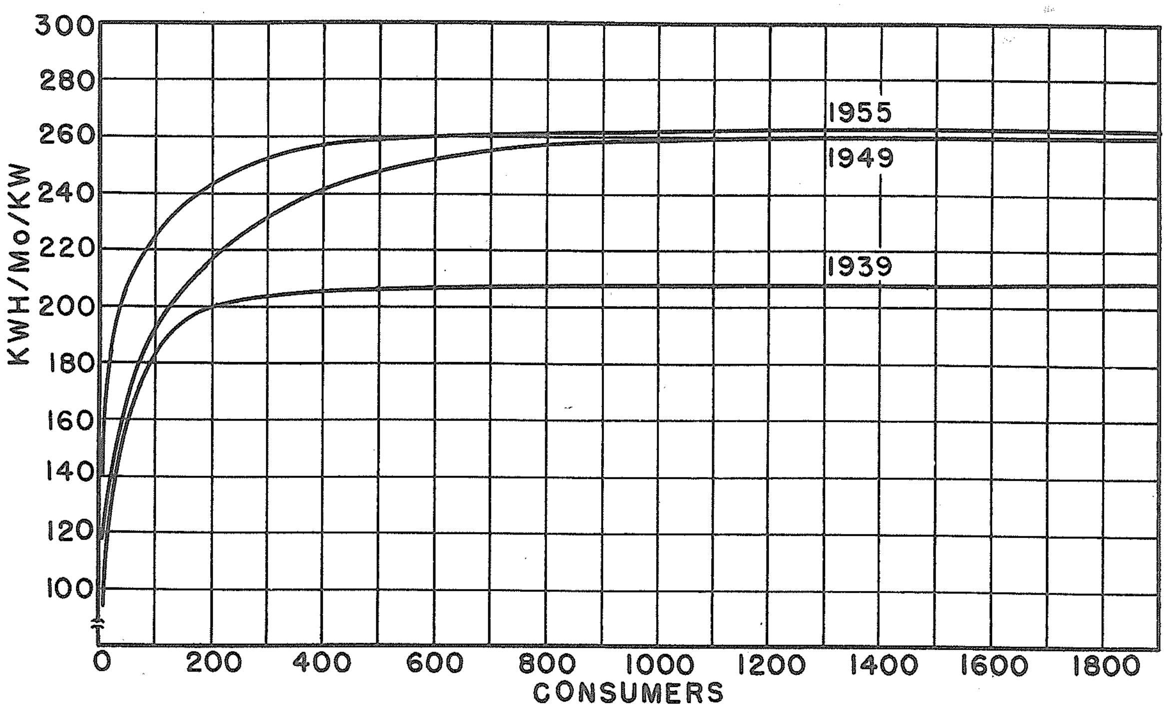

FIG. 5 KWH/MO/KW VS. CONSUMERS
(For 50 KWH/Mo/Consumer)

VI. CONVERSION EQUATIONS

Those who may wish to relate the information in the "Demand Tables" to coincidence factor, diversity factor, and average undiversified individual consumer demand may do so by use of the following equations:

$$\text{Coincidence factor} = \frac{\text{Factor "A"}}{3.29 \times \text{Consumers}}$$

$$\text{Diversity factor} = \frac{3.29 \times \text{Consumers}}{\text{Factor "A"}}$$

$$\underset{\text{(Undiversified)}}{\text{Avg. KW/Consumer}} = 3.29 \times \text{Factor "B"}$$

Where 3.29 = Factor "A" for one consumer

DEMAND TABLES

50 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	1.79								
6	2.04								
7	2.29								
8	2.55								
9	2.80								
10	3.04								
11	3.29	62	14.5	255	51.4	820	157	3100	586
12	3.53	64	14.9	260	52.2	840	161	3200	605
13	3.80	66	15.3	265	53.3	860	165	3300	624
14	4.04	68	15.7	270	54.2	880	168	3400	643
15	4.29	70	16.1	275	55.0	900	172	3500	662
16	4.53	72	16.6	280	55.9	920	176	3600	680
17	4.78	74	17.0	285	56.9	940	180	3700	699
18	5.03	76	17.4	290	57.8	960	184	3800	718
19	5.25	78	17.7	295	58.6	980	187	3900	737
20	5.52	80	18.1	300	59.5	1000	191	4000	756
21	5.75	82	18.6	310	61.4	1050	200	4100	775
22	5.99	84	18.9	320	63.3	1100	209	4200	794
23	6.20	86	19.3	330	65.0	1150	219	4300	813
24	6.41	88	19.7	340	66.9	1200	228	4400	832
25	6.60	90	20.2	350	68.8	1250	237	4500	851
26	6.80	92	20.6	360	70.5	1300	246	4600	869
27	7.03	94	21.0	370	72.4	1350	256	4700	888
28	7.35	96	21.4	380	74.3	1400	265	4800	907
29	7.47	98	21.7	390	76.2	1450	274	4900	926
30	7.69	100	22.1	400	77.9	1500	284	5000	945
31	7.92	105	23.1	410	79.8	1550	293	5100	964
32	8.15	110	24.2	420	81.6	1600	302	5200	983
33	8.37	115	25.1	430	83.5	1650	312	5300	1002
34	8.58	120	26.1	440	85.4	1700	321	5400	1021
35	8.81	125	27.0	450	87.3	1750	331	5500	1040
36	9.02	130	28.0	460	89.2	1800	340	5600	1058
37	9.24	135	28.9	470	90.9	1850	350	5700	1077
38	9.45	140	30.1	480	92.8	1900	359	5800	1096
39	9.68	145	30.8	490	94.7	1950	369	5900	1115
40	9.88	150	31.8	500	96.8	2000	378	6000	1134
41	10.1	155	32.7	510	98.7	2050	387	6200	1172
42	10.3	160	33.6	520	101	2100	397	6400	1210
43	10.5	165	34.6	530	102	2150	406	6600	1247
44	10.7	170	35.5	540	104	2200	416	6800	1285
45	10.9	175	36.5	550	106	2250	425	7000	1323
46	11.2	180	37.4	560	108	2300	435	7200	1361
47	11.4	185	38.4	570	110	2350	444	7400	1399
48	11.6	190	39.3	580	112	2400	454	7600	1436
49	11.8	195	40.3	590	114	2450	463	7800	1474
50	12.0	200	41.2	600	116	2500	473	8000	1512
51	12.2	205	42.1	620	119	2550	482	8200	1550
52	12.4	210	43.1	640	123	2600	491	8400	1588
53	12.6	215	44.0	660	127	2650	501	8600	1625
54	12.9	220	45.0	680	131	2700	510	8800	1663
55	13.0	225	45.9	700	135	2750	520	9000	1701
56	13.3	230	46.7	720	139	2800	529	9200	1739
57	13.5	235	47.6	740	142	2850	539	9400	1777
58	13.7	240	48.6	760	146	2900	548	9600	1814
59	13.9	245	49.5	780	150	2950	558	9800	1852
60	14.1	250	50.5	800	153	3000	567	10000	1890

DEMAND TABLES

75 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	2.56								
6	2.92								
7	3.27								
8	3.65								
9	4.00								
10	4.35								
11	4.70	62	20.7	255	73.4	820	224	3100	837
12	5.05	64	21.3	260	74.5	840	230	3200	864
13	5.43	66	21.9	265	76.1	860	236	3300	891
14	5.78	68	22.5	270	77.5	880	241	3400	918
15	6.13	70	23.1	275	78.6	900	246	3500	945
16	6.48	72	23.7	280	79.9	920	251	3600	972
17	6.83	74	24.2	285	81.3	940	257	3700	999
18	7.18	76	24.8	290	82.6	960	262	3800	1026
19	7.51	78	25.4	295	83.7	980	268	3900	1053
20	7.88	80	25.9	300	85.1	1000	273	4000	1080
21	8.21	82	26.5	310	87.8	1050	286	4100	1107
22	8.56	84	27.0	320	90.5	1100	299	4200	1134
23	8.86	86	27.5	330	92.9	1150	312	4300	1161
24	9.15	88	28.1	340	95.6	1200	326	4400	1188
25	9.42	90	28.9	350	98.3	1250	339	4500	1215
26	9.72	92	29.4	360	101	1300	352	4600	1242
27	10.0	94	30.0	370	103	1350	365	4700	1269
28	10.5	96	30.5	380	106	1400	378	4800	1296
29	10.7	98	31.1	390	109	1450	392	4900	1323
30	11.0	100	31.6	400	111	1500	405	5000	1350
31	11.3	105	32.9	410	114	1550	419	5100	1377
32	11.6	110	34.6	420	117	1600	432	5200	1404
33	12.0	115	35.9	430	119	1650	446	5300	1431
34	12.3	120	37.3	440	122	1700	459	5400	1458
35	12.6	125	38.6	450	125	1750	473	5500	1485
36	12.9	130	40.0	460	127	1800	486	5600	1512
37	13.2	135	41.3	470	130	1850	500	5700	1539
38	13.5	140	42.9	480	133	1900	513	5800	1566
39	13.8	145	44.0	490	135	1950	527	5900	1593
40	14.1	150	45.4	500	138	2000	540	6000	1620
41	14.4	155	46.7	510	141	2050	554	6200	1674
42	14.7	160	48.1	520	144	2100	567	6400	1728
43	15.0	165	49.4	530	146	2150	581	6600	1782
44	15.3	170	50.8	540	149	2200	594	6800	1836
45	15.6	175	52.1	550	151	2250	608	7000	1890
46	15.9	180	53.5	560	154	2300	621	7200	1944
47	16.3	185	54.8	570	157	2350	635	7400	1998
48	16.6	190	56.2	580	160	2400	648	7600	2052
49	16.8	195	57.5	590	162	2450	662	7800	2106
50	17.1	200	58.9	600	165	2500	675	8000	2160
51	17.5	205	60.2	620	170	2550	689	8200	2214
52	17.7	210	61.6	640	176	2600	702	8400	2268
53	18.0	215	62.9	660	181	2650	716	8600	2322
54	18.4	220	64.3	680	187	2700	729	8800	2376
55	18.6	225	65.6	700	193	2750	743	9000	2430
56	19.0	230	66.7	720	198	2800	756	9200	2484
57	19.2	235	68.0	740	203	2850	770	9400	2538
58	19.5	240	69.4	760	208	2900	783	9600	2592
59	19.9	245	70.7	780	214	2950	797	9800	2646
60	20.1	250	72.1	800	219	3000	810	10000	2700

DEMAND TABLES

100 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	3.30								
6	3.76								
7	4.21								
8	4.70								
9	5.15								
10	5.60								
11	6.06	62	26.7	255	94.7	820	290	3100	1079
12	6.51	64	27.5	260	96.0	840	297	3200	1114
13	6.99	66	28.2	265	98.1	860	304	3300	1148
14	7.45	68	29.0	270	99.9	880	310	3400	1183
15	7.90	70	29.7	275	101	900	317	3500	1218
16	8.35	72	30.5	280	103	920	324	3600	1253
17	8.80	74	31.2	285	105	940	331	3700	1288
18	9.26	76	31.9	290	106	960	338	3800	1322
19	9.67	78	32.7	295	108	980	345	3900	1357
20	10.2	80	33.4	300	110	1000	351	4000	1392
21	10.6	82	34.2	310	113	1050	369	4100	1427
22	11.0	84	34.8	320	117	1100	386	4200	1462
23	11.4	86	35.5	330	120	1150	403	4300	1496
24	11.8	88	36.2	340	123	1200	420	4400	1531
25	12.1	90	37.2	350	127	1250	437	4500	1566
26	12.5	92	37.9	360	130	1300	454	4600	1601
27	12.9	94	38.6	370	133	1350	471	4700	1636
28	13.5	96	39.3	380	137	1400	487	4800	1670
29	13.7	98	40.0	390	140	1450	505	4900	1705
30	14.2	100	40.7	400	143	1500	522	5000	1740
31	14.6	105	42.5	410	147	1550	539	5100	1775
32	15.0	110	44.5	420	150	1600	557	5200	1810
33	15.4	115	46.3	430	154	1650	574	5300	1844
34	15.8	120	48.0	440	157	1700	592	5400	1879
35	16.2	125	49.8	450	161	1750	609	5500	1914
36	16.6	130	51.5	460	164	1800	626	5600	1949
37	17.0	135	53.2	470	167	1850	644	5700	1984
38	17.4	140	55.3	480	171	1900	661	5800	2018
39	17.8	145	56.7	490	174	1950	679	5900	2053
40	18.2	150	58.5	500	178	2000	696	6000	2088
41	18.6	155	60.2	510	182	2050	713	6200	2158
42	19.0	160	61.9	520	185	2100	731	6400	2227
43	19.3	165	63.7	530	189	2150	748	6600	2297
44	19.7	170	65.4	540	192	2200	766	6800	2366
45	20.1	175	67.2	550	195	2250	783	7000	2436
46	20.5	180	68.9	560	199	2300	800	7200	2506
47	20.9	185	70.6	570	203	2350	818	7400	2575
48	21.4	190	72.4	580	206	2400	835	7600	2645
49	21.7	195	74.1	590	209	2450	853	7800	2714
50	22.1	200	75.9	600	213	2500	870	8000	2784
51	22.5	205	77.6	620	220	2550	887	8200	2854
52	22.9	210	79.3	640	227	2600	905	8400	2923
53	23.2	215	81.1	660	234	2650	922	8600	2993
54	23.7	220	82.8	680	241	2700	940	8800	3062
55	24.0	225	84.6	700	248	2750	957	9000	3132
56	24.4	230	86.0	720	255	2800	974	9200	3202
57	24.8	235	87.7	740	262	2850	992	9400	3271
58	25.2	240	89.4	760	269	2900	1009	9600	3341
59	25.6	245	91.2	780	276	2950	1027	9800	3410
60	25.9	250	92.9	800	283	3000	1044	10000	3480

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DEMAND TABLES

125 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	4.02								
6	4.58								
7	5.13								
8	5.72								
9	6.28								
10	6.83								
11	7.37	62	32.5	255	115	820	353	3100	1314
12	7.93	64	33.5	260	117	840	362	3200	1357
13	8.52	66	34.4	265	120	860	370	3300	1399
14	9.07	68	35.3	270	122	880	378	3400	1442
15	9.62	70	36.2	275	123	900	386	3500	1484
16	10.2	72	37.1	280	126	920	395	3600	1526
17	10.7	74	38.0	285	128	940	403	3700	1569
18	11.3	76	38.9	290	130	960	412	3800	1611
19	11.8	78	39.8	295	131	980	421	3900	1654
20	12.4	80	40.7	300	134	1000	428	4000	1696
21	12.9	82	41.7	310	138	1050	449	4100	1738
22	13.4	84	42.4	320	142	1100	470	4200	1780
23	13.9	86	43.2	330	146	1150	491	4300	1823
24	14.4	88	44.1	340	150	1200	512	4400	1866
25	14.8	90	45.4	350	154	1250	532	4500	1908
26	15.3	92	46.2	360	158	1300	553	4600	1950
27	15.8	94	47.1	370	162	1350	574	4700	1993
28	16.3	96	47.9	380	167	1400	594	4800	2035
29	16.7	98	48.8	390	171	1450	615	4900	2078
30	17.3	100	49.6	400	175	1500	636	5000	2120
31	17.8	105	51.7	410	179	1550	657	5100	2162
32	18.3	110	54.3	420	183	1600	678	5200	2205
33	18.8	115	56.4	430	187	1650	700	5300	2247
34	19.2	120	58.5	440	192	1700	721	5400	2290
35	19.8	125	60.6	450	196	1750	742	5500	2332
36	20.2	130	62.8	460	200	1800	763	5600	2374
37	20.7	135	64.9	470	204	1850	784	5700	2417
38	21.2	140	67.4	480	208	1900	806	5800	2459
39	21.7	145	69.1	490	212	1950	827	5900	2502
40	22.2	150	71.2	500	217	2000	848	6000	2544
41	22.6	155	73.4	510	221	2050	869	6200	2629
42	23.1	160	75.5	520	226	2100	890	6400	2714
43	23.5	165	77.6	530	230	2150	912	6600	2798
44	24.0	170	79.7	540	234	2200	933	6800	2883
45	24.5	175	81.8	550	238	2250	954	7000	2968
46	25.0	180	84.0	560	242	2300	975	7200	3053
47	25.5	185	86.0	570	247	2350	996	7400	3138
48	26.0	190	88.2	580	251	2400	1018	7600	3222
49	26.5	195	90.3	590	255	2450	1039	7800	3307
50	26.9	200	92.4	600	259	2500	1060	8000	3392
51	27.4	205	94.6	620	268	2550	1081	8200	3477
52	27.9	210	96.7	640	276	2600	1102	8400	3562
53	28.3	215	98.8	660	285	2650	1124	8600	3646
54	28.8	220	101	680	293	2700	1145	8800	3731
55	29.3	225	103	700	302	2750	1166	9000	3816
56	29.8	230	105	720	311	2800	1187	9200	3901
57	30.2	235	107	740	319	2850	1208	9400	3986
58	30.7	240	109	760	327	2900	1230	9600	4070
59	31.2	245	111	780	336	2950	1251	9800	4155
60	31.6	250	113	800	344	3000	1272	10000	4240

DEMAND TABLES

150 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	4.72								
6	5.37								
7	6.01								
8	6.71								
9	7.36								
10	8.00								
11	8.65	62	38.1	255	135	820	414	3100	1541
12	9.29	64	39.2	260	137	840	424	3200	1590
13	9.99	66	40.3	265	140	860	434	3300	1640
14	10.6	68	41.4	270	143	880	443	3400	1690
15	11.3	70	42.4	275	145	900	453	3500	1740
16	11.9	72	43.5	280	147	920	463	3600	1789
17	12.6	74	44.6	285	150	940	473	3700	1839
18	13.2	76	45.6	290	152	960	483	3800	1889
19	13.8	78	46.7	295	154	980	493	3900	1938
20	14.5	80	47.7	300	157	1000	502	4000	1988
21	15.1	82	48.9	310	162	1050	526	4100	2038
22	15.8	84	49.7	320	166	1100	551	4200	2087
23	16.3	86	50.7	330	171	1150	575	4300	2137
24	16.8	88	51.7	340	176	1200	600	4400	2187
25	17.3	90	53.2	350	181	1250	624	4500	2237
26	17.9	92	54.2	360	185	1300	648	4600	2286
27	18.5	94	55.2	370	190	1350	672	4700	2336
28	19.3	96	56.2	380	195	1400	696	4800	2386
29	19.6	98	57.2	390	200	1450	721	4900	2435
30	20.2	100	58.1	400	205	1500	746	5000	2485
31	20.8	105	60.6	410	210	1550	770	5100	2535
32	21.4	110	63.6	420	215	1600	795	5200	2584
33	22.0	115	66.1	430	220	1650	820	5300	2634
34	22.6	120	68.6	440	225	1700	845	5400	2684
35	23.2	125	71.1	450	230	1750	870	5500	2734
36	23.7	130	73.6	460	235	1800	895	5600	2783
37	24.3	135	76.0	470	239	1850	919	5700	2833
38	24.9	140	79.0	480	244	1900	944	5800	2883
39	25.4	145	81.0	490	249	1950	969	5900	2932
40	26.0	150	83.5	500	254	2000	994	6000	2982
41	26.5	155	86.0	510	259	2050	1019	6200	3081
42	27.1	160	88.5	520	264	2100	1044	6400	3181
43	27.6	165	91.0	530	269	2150	1069	6600	3280
44	28.2	170	93.4	540	274	2200	1093	6800	3380
45	28.8	175	95.9	550	279	2250	1118	7000	3479
46	29.3	180	98.4	560	284	2300	1140	7200	3578
47	29.9	185	101	570	289	2350	1168	7400	3678
48	30.5	190	103	580	294	2400	1193	7600	3777
49	31.0	195	106	590	299	2450	1218	7800	3877
50	31.5	200	108	600	304	2500	1243	8000	3976
51	32.2	205	111	620	314	2550	1267	8200	4075
52	32.7	210	113	640	324	2600	1292	8400	4175
53	33.1	215	116	660	334	2650	1317	8600	4274
54	33.8	220	118	680	344	2700	1342	8800	4374
55	34.3	225	121	700	354	2750	1367	9000	4473
56	34.9	230	123	720	364	2800	1392	9200	4572
57	35.4	235	125	740	374	2850	1416	9400	4672
58	35.9	240	128	760	384	2900	1441	9600	4771
59	36.6	245	130	780	394	2950	1466	9800	4871
60	37.0	250	133	800	404	3000	1491	10000	4970

DEMAND TABLES

175 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	5.41								
6	6.16								
7	6.90								
8	7.70								
9	8.44								
10	9.18								
11	9.92	62	43.7	255	155	820	474	3100	1767
12	10.7	64	45.0	260	157	840	486	3200	1824
13	11.5	66	46.2	265	161	860	498	3300	1881
14	12.2	68	47.4	270	164	880	508	3400	1938
15	12.9	70	48.7	275	166	900	519	3500	1995
16	13.7	72	49.9	280	169	920	531	3600	2052
17	14.4	74	51.1	285	172	940	542	3700	2109
18	15.2	76	52.3	290	174	960	554	3800	2166
19	15.8	78	53.5	295	177	980	565	3900	2223
20	16.6	80	54.7	300	180	1000	576	4000	2280
21	17.3	82	56.0	310	185	1050	604	4100	2337
22	18.1	84	57.0	320	191	1100	632	4200	2394
23	18.7	86	58.1	330	196	1150	659	4300	2451
24	19.3	88	59.3	340	202	1200	688	4400	2508
25	19.9	90	61.0	350	207	1250	715	4500	2565
26	20.5	92	62.1	360	213	1300	743	4600	2622
27	21.2	94	63.3	370	218	1350	771	4700	2679
28	22.2	96	64.4	380	224	1400	798	4800	2736
29	22.5	98	65.6	390	230	1450	827	4900	2793
30	23.2	100	66.7	400	235	1500	855	5000	2850
31	23.9	105	69.5	410	241	1550	884	5100	2907
32	24.6	110	73.0	420	246	1600	912	5200	2964
33	25.3	115	75.8	430	252	1650	941	5300	3021
34	25.9	120	78.7	440	258	1700	969	5400	3078
35	26.6	125	81.5	450	263	1750	996	5500	3135
36	27.2	130	84.4	460	269	1800	1026	5600	3192
37	27.9	135	87.2	470	274	1850	1055	5700	3249
38	28.5	140	90.6	480	280	1900	1083	5800	3306
39	29.2	145	92.9	490	286	1950	1112	5900	3363
40	29.8	150	95.8	500	292	2000	1140	6000	3420
41	30.4	155	98.6	510	298	2050	1169	6200	3534
42	31.1	160	101	520	303	2100	1197	6400	3648
43	31.6	165	104	530	309	2150	1226	6600	3762
44	32.3	170	107	540	314	2200	1254	6800	3876
45	33.0	175	110	550	320	2250	1283	7000	3990
46	33.6	180	113	560	325	2300	1311	7200	4104
47	34.3	185	116	570	332	2350	1340	7400	4218
48	35.0	190	119	580	337	2400	1368	7600	4332
49	35.6	195	121	590	343	2450	1397	7800	4446
50	36.2	200	124	600	349	2500	1425	8000	4560
51	36.9	205	127	620	360	2550	1454	8200	4674
52	37.4	210	130	640	372	2600	1482	8400	4788
53	38.0	215	133	660	383	2650	1511	8600	4902
54	38.8	220	136	680	394	2700	1539	8800	5016
55	39.3	225	139	700	406	2750	1568	9000	5130
56	40.0	230	141	720	418	2800	1596	9200	5244
57	40.6	235	144	740	429	2850	1625	9400	5358
58	41.2	240	146	760	440	2900	1653	9600	5472
59	42.0	245	149	780	452	2950	1682	9800	5586
60	42.5	250	152	800	463	3000	1710	10000	5700

DEMAND TABLES

200 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	6.08								
6	6.92								
7	7.76								
8	8.65								
9	9.49								
10	10.3								
11	11.2	62	49.2	255	174	820	533	3100	1987
12	12.0	64	50.6	260	177	840	547	3200	2051
13	12.9	66	52.0	265	181	860	560	3300	2115
14	13.7	68	53.3	270	184	880	571	3400	2179
15	14.6	70	54.7	275	187	900	584	3500	2243
16	15.4	72	56.2	280	190	920	597	3600	2308
17	16.2	74	57.5	285	193	940	610	3700	2372
18	17.1	76	58.8	290	196	960	623	3800	2436
19	17.8	78	60.2	295	199	980	636	3900	2500
20	18.7	80	61.5	300	202	1000	647	4000	2564
21	19.5	82	63.0	310	208	1050	679	4100	2628
22	20.3	84	64.1	320	215	1100	710	4200	2692
23	21.0	86	65.4	330	221	1150	742	4300	2756
24	21.7	88	66.7	340	227	1200	774	4400	2820
25	22.4	90	68.6	350	236	1250	804	4500	2885
26	23.1	92	69.9	360	239	1300	836	4600	2949
27	23.8	94	71.2	370	246	1350	867	4700	3013
28	24.9	96	72.4	380	252	1400	897	4800	3077
29	25.3	98	73.7	390	258	1450	929	4900	3141
30	26.1	100	75.0	400	264	1500	962	5000	3205
31	26.9	105	78.2	410	271	1550	994	5100	3269
32	27.6	110	82.0	420	277	1600	1026	5200	3333
33	28.4	115	85.3	430	283	1650	1058	5300	3397
34	29.1	120	88.5	440	290	1700	1090	5400	3461
35	29.9	125	91.7	450	296	1750	1122	5500	3526
36	30.6	130	94.9	460	303	1800	1154	5600	3590
37	31.3	135	98.1	470	308	1850	1186	5700	3654
38	32.1	140	102	480	315	1900	1218	5800	3718
39	32.8	145	104	490	321	1950	1250	5900	3782
40	33.5	150	108	500	328	2000	1282	6000	3846
41	34.2	155	111	510	335	2050	1314	6200	3974
42	34.9	160	114	520	341	2100	1346	6400	4102
43	35.6	165	117	530	347	2150	1378	6600	4231
44	36.3	170	121	540	353	2200	1410	6800	4359
45	37.1	175	124	550	360	2250	1442	7000	4487
46	37.8	180	127	560	366	2300	1474	7200	4615
47	38.6	185	130	570	373	2350	1506	7400	4743
48	39.4	190	133	580	379	2400	1538	7600	4872
49	40.0	195	137	590	385	2450	1570	7800	5000
50	40.7	200	140	600	392	2500	1603	8000	5128
51	41.5	205	143	620	404	2550	1635	8200	5256
52	42.1	210	146	640	418	2600	1667	8400	5384
53	42.8	215	149	660	431	2650	1699	8600	5513
54	43.6	220	153	680	444	2700	1731	8800	5641
55	44.2	225	156	700	457	2750	1763	9000	5769
56	45.0	230	158	720	470	2800	1795	9200	5897
57	45.6	235	162	740	483	2850	1827	9400	6025
58	46.3	240	165	760	495	2900	1859	9600	6154
59	47.2	245	168	780	508	2950	1891	9800	6282
60	47.8	250	171	800	520	3000	1923	10000	6410

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DEMAND TABLES

225 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	6.76								
6	7.69								
7	8.62								
8	9.61								
9	10.5								
10	11.5								
11	12.4	62	54.6	255	194	820	592	3100	2207
12	13.3	64	56.2	260	197	840	607	3200	2278
13	14.3	66	57.7	265	201	860	622	3300	2350
14	15.2	68	59.2	270	204	880	634	3400	2421
15	16.2	70	60.8	275	207	900	649	3500	2492
16	17.1	72	62.4	280	211	920	663	3600	2563
17	18.0	74	63.9	285	214	940	677	3700	2634
18	18.9	76	65.4	290	218	960	692	3800	2706
19	19.8	78	66.9	295	221	980	706	3900	2777
20	20.8	80	68.4	300	224	1000	719	4000	2848
21	21.6	82	70.0	310	231	1050	754	4100	2919
22	22.6	84	71.2	320	239	1100	789	4200	2990
23	23.4	86	72.6	330	245	1150	824	4300	3062
24	24.1	88	74.0	340	252	1200	859	4400	3133
25	24.8	90	76.2	350	259	1250	894	4500	3204
26	25.6	92	77.6	360	266	1300	928	4600	3275
27	26.5	94	79.0	370	273	1350	963	4700	3346
28	27.7	96	80.5	380	280	1400	997	4800	3418
29	28.1	98	81.9	390	287	1450	1032	4900	3489
30	29.0	100	83.3	400	293	1500	1068	5000	3560
31	29.8	105	86.9	410	300	1550	1104	5100	3631
32	30.7	110	91.1	420	308	1600	1139	5200	3702
33	31.5	115	94.7	430	315	1650	1175	5300	3774
34	32.3	120	98.3	440	322	1700	1210	5400	3845
35	33.2	125	102	450	329	1750	1246	5500	3916
36	34.0	130	105	460	336	1800	1282	5600	3987
37	34.8	135	109	470	342	1850	1317	5700	4058
38	35.6	140	113	480	350	1900	1353	5800	4130
39	36.5	145	116	490	357	1950	1388	5900	4201
40	37.2	150	120	500	365	2000	1424	6000	4272
41	38.0	155	123	510	372	2050	1460	6200	4414
42	38.8	160	127	520	379	2100	1495	6400	4557
43	39.5	165	130	530	386	2150	1531	6600	4699
44	40.4	170	134	540	392	2200	1566	6800	4842
45	41.2	175	137	550	399	2250	1602	7000	4984
46	42.0	180	141	560	407	2300	1638	7200	5126
47	42.9	185	145	570	414	2350	1673	7400	5269
48	43.7	190	148	580	422	2400	1709	7600	5411
49	44.4	195	152	590	428	2450	1744	7800	5554
50	45.2	200	155	600	436	2500	1780	8000	5696
51	46.1	205	159	620	449	2550	1816	8200	5838
52	46.8	210	162	640	464	2600	1851	8400	5981
53	47.5	215	166	660	478	2650	1887	8600	6123
54	48.4	220	169	680	493	2700	1922	8800	6266
55	49.1	225	173	700	508	2750	1958	9000	6408
56	50.0	230	176	720	522	2800	1994	9200	6550
57	50.7	235	179	740	536	2850	2029	9400	6693
58	51.5	240	183	760	550	2900	2065	9600	6835
59	52.4	245	187	780	565	2950	2100	9800	6978
60	53.0	250	190	800	578	3000	2136	10000	7120

DEMAND TABLES

250 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	7.44								
6	8.47								
7	9.49								
8	10.6								
9	11.6								
10	12.6								
11	13.6	62	60.1	255	213	820	652	3100	2430
12	14.7	64	61.9	260	216	840	669	3200	2509
13	15.8	66	63.6	265	221	860	684	3300	2587
14	16.8	68	65.2	270	225	880	699	3400	2666
15	17.8	70	67.0	275	228	900	714	3500	2744
16	18.8	72	68.7	280	232	920	730	3600	2822
17	19.8	74	70.3	285	236	940	746	3700	2901
18	20.9	76	72.0	290	240	960	762	3800	2979
19	21.8	78	73.6	295	243	980	778	3900	3058
20	22.9	80	75.3	300	247	1000	792	4000	3136
21	23.8	82	77.1	310	255	1050	830	4100	3214
22	24.9	84	78.4	320	263	1100	869	4200	3293
23	25.7	86	80.0	330	270	1150	907	4300	3371
24	26.6	88	81.5	340	278	1200	946	4400	3450
25	27.4	90	83.9	350	285	1250	984	4500	3528
26	28.2	92	85.5	360	292	1300	1022	4600	3606
27	29.2	94	87.0	370	300	1350	1061	4700	3685
28	30.5	96	88.6	380	308	1400	1098	4800	3763
29	31.0	98	90.2	390	316	1450	1137	4900	3842
30	31.9	100	91.7	400	323	1500	1176	5000	3920
31	32.8	105	95.6	410	331	1550	1215	5100	3998
32	33.8	110	100	420	339	1600	1254	5200	4077
33	34.7	115	104	430	347	1650	1294	5300	4155
34	35.6	120	108	440	354	1700	1333	5400	4234
35	36.5	125	112	450	362	1750	1372	5500	4312
36	37.4	130	116	460	370	1800	1411	5600	4390
37	38.3	135	120	470	377	1850	1450	5700	4469
38	39.2	140	125	480	385	1900	1490	5800	4547
39	40.1	145	128	490	393	1950	1529	5900	4626
40	41.0	150	132	500	401	2000	1568	6000	4704
41	41.9	155	136	510	409	2050	1607	6200	4861
42	42.7	160	140	520	417	2100	1646	6400	5018
43	43.5	165	143	530	425	2150	1686	6600	5174
44	44.5	170	147	540	432	2200	1725	6800	5331
45	45.4	175	151	550	440	2250	1764	7000	5488
46	46.3	180	155	560	448	2300	1803	7200	5645
47	47.2	185	159	570	456	2350	1842	7400	5802
48	48.1	190	163	580	464	2400	1882	7600	5958
49	48.9	195	167	590	471	2450	1921	7800	6115
50	49.8	200	171	600	480	2500	1960	8000	6272
51	50.7	205	175	620	495	2550	1999	8200	6429
52	51.5	210	179	640	511	2600	2038	8400	6586
53	52.3	215	183	660	527	2650	2078	8600	6742
54	53.3	220	187	680	543	2700	2117	8800	6899
55	54.1	225	191	700	559	2750	2156	9000	7056
56	55.0	230	194	720	575	2800	2195	9200	7213
57	55.8	235	198	740	590	2850	2234	9400	7370
58	56.7	240	201	760	605	2900	2274	9600	7526
59	57.7	245	205	780	622	2950	2313	9800	7683
60	58.4	250	209	800	637	3000	2352	10000	7840

DEMAND TABLES

275 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	8.10								
6	9.22								
7	10.3								
8	11.5								
9	12.6								
10	13.7								
11	14.9	62	65.5	255	232	820	711	3100	2647
12	16.0	64	67.4	260	236	840	728	3200	2733
13	17.2	66	69.3	265	241	860	746	3300	2818
14	18.3	68	71.1	270	245	880	761	3400	2904
15	19.4	70	72.9	275	249	900	778	3500	2989
16	20.5	72	74.8	280	253	920	795	3600	3074
17	21.6	74	76.6	285	257	940	812	3700	3160
18	22.7	76	78.4	290	261	960	830	3800	3245
19	23.7	78	80.2	295	265	980	847	3900	3331
20	24.9	80	82.0	300	269	1000	863	4000	3416
21	26.0	82	83.9	310	278	1050	904	4100	3501
22	27.1	84	85.4	320	286	1100	946	4200	3587
23	28.0	86	87.1	330	294	1150	988	4300	3672
24	29.0	88	88.8	340	302	1200	1031	4400	3758
25	29.8	90	91.4	350	311	1250	1072	4500	3843
26	30.7	92	93.1	360	319	1300	1114	4600	3928
27	31.8	94	94.8	370	327	1350	1155	4700	4014
28	33.2	96	96.5	380	336	1400	1196	4800	4099
29	33.7	98	98.2	390	344	1450	1238	4900	4185
30	34.8	100	99.9	400	352	1500	1281	5000	4270
31	35.8	105	104	410	360	1550	1324	5100	4355
32	36.8	110	109	420	369	1600	1366	5200	4441
33	37.8	115	114	430	377	1650	1409	5300	4526
34	38.8	120	118	440	386	1700	1452	5400	4612
35	39.8	125	122	450	395	1750	1495	5500	4697
36	40.7	130	126	460	403	1800	1537	5600	4782
37	41.8	135	131	470	411	1850	1580	5700	4868
38	42.7	140	136	480	419	1900	1623	5800	4953
39	43.7	145	139	490	428	1950	1665	5900	5039
40	44.7	150	143	500	437	2000	1708	6000	5124
41	45.6	155	148	510	446	2050	1751	6200	5295
42	46.5	160	152	520	454	2100	1793	6400	5466
43	47.4	165	156	530	463	2150	1836	6600	5636
44	48.4	170	161	540	471	2200	1879	6800	5807
45	49.4	175	165	550	479	2250	1922	7000	5978
46	50.4	180	169	560	488	2300	1964	7200	6149
47	51.4	185	174	570	497	2350	2007	7400	6320
48	52.4	190	178	580	506	2400	2050	7600	6490
49	53.3	195	182	590	513	2450	2092	7800	6661
50	54.2	200	186	600	523	2500	2135	8000	6832
51	55.3	205	190	620	539	2550	2178	8200	7003
52	56.1	210	195	640	557	2600	2220	8400	7174
53	57.0	215	199	660	574	2650	2263	8600	7344
54	58.1	220	203	680	591	2700	2306	8800	7515
55	58.9	225	208	700	609	2750	2349	9000	7686
56	60.0	230	211	720	626	2800	2391	9200	7857
57	60.8	235	215	740	643	2850	2434	9400	8028
58	61.7	240	219	760	659	2900	2477	9600	8198
59	62.9	245	224	780	677	2950	2519	9800	8369
60	63.6	250	228	800	693	3000	2562	10000	8540

DEMAND TABLES

300 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	8.76								
6	9.97								
7	11.1								
8	12.5								
9	13.7								
10	14.9								
11	16.1	62	70.8	255	251	820	768	3100	2861
12	17.3	64	72.8	260	255	840	787	3200	2954
13	18.6	66	74.9	265	260	860	806	3300	3046
14	19.8	68	76.8	270	265	880	822	3400	3138
15	21.0	70	78.8	275	269	900	841	3500	3231
16	22.2	72	80.9	280	273	920	859	3600	3323
17	23.4	74	82.8	285	278	940	878	3700	3415
18	24.6	76	84.7	290	282	960	897	3800	3507
19	25.7	78	86.7	295	286	980	916	3900	3600
20	27.0	80	88.6	300	291	1000	932	4000	3692
21	28.1	82	90.7	310	300	1050	977	4100	3784
22	29.3	84	92.3	320	309	1100	1023	4200	3877
23	30.3	86	94.1	330	318	1150	1068	4300	3969
24	31.3	88	96.0	340	327	1200	1114	4400	4061
25	32.2	90	98.8	350	336	1250	1158	4500	4154
26	33.2	92	101	360	344	1300	1204	4600	4246
27	34.3	94	102	370	354	1350	1249	4700	4338
28	35.9	96	104	380	363	1400	1292	4800	4430
29	36.5	98	106	390	372	1450	1338	4900	4523
30	37.6	100	108	400	380	1500	1385	5000	4615
31	38.7	105	113	410	390	1550	1431	5100	4707
32	39.8	110	118	420	399	1600	1477	5200	4800
33	40.9	115	123	430	408	1650	1523	5300	4892
34	41.9	120	127	440	417	1700	1569	5400	4984
35	43.0	125	132	450	426	1750	1615	5500	5077
36	44.0	130	137	460	436	1800	1661	5600	5169
37	45.1	135	141	470	444	1850	1708	5700	5261
38	46.2	140	147	480	453	1900	1754	5800	5353
39	47.3	145	150	490	462	1950	1800	5900	5446
40	48.3	150	155	500	473	2000	1846	6000	5538
41	49.3	155	160	510	482	2050	1892	6200	5723
42	50.3	160	164	520	491	2100	1938	6400	5907
43	51.2	165	169	530	500	2150	1984	6600	6092
44	52.3	170	174	540	509	2200	2031	6800	6276
45	53.4	175	178	550	518	2250	2077	7000	6461
46	54.5	180	183	560	527	2300	2123	7200	6646
47	55.6	185	187	570	537	2350	2169	7400	6830
48	56.7	190	192	580	546	2400	2215	7600	7015
49	57.6	195	197	590	555	2450	2261	7800	7199
50	58.6	200	201	600	565	2500	2308	8000	7384
51	59.7	205	206	620	582	2550	2354	8200	7569
52	60.6	210	210	640	602	2600	2400	8400	7753
53	61.6	215	215	660	620	2650	2446	8600	7938
54	62.8	220	220	680	639	2700	2492	8800	8122
55	63.7	225	224	700	658	2750	2538	9000	8307
56	64.8	230	228	720	677	2800	2584	9200	8492
57	65.7	235	233	740	695	2850	2631	9400	8676
58	66.7	240	237	760	713	2900	2677	9600	8861
59	67.9	245	242	780	732	2950	2723	9800	9045
60	68.8	250	246	800	749	3000	2769	10000	9230

DEMAND TABLES

325 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	9.38								
6	10.7								
7	12.1								
8	13.3								
9	14.6								
10	16.0								
11	17.2	62	75.8	255	269	820	822	3100	3063
12	18.5	64	78.1	260	273	840	843	3200	3162
13	19.9	66	80.1	265	279	860	863	3300	3260
14	21.1	68	82.2	270	284	880	880	3400	3359
15	22.4	70	84.4	275	288	900	900	3500	3458
16	23.7	72	86.5	280	292	920	920	3600	3557
17	25.1	74	88.6	285	297	940	940	3700	3656
18	26.2	76	90.7	290	302	960	960	3800	3754
19	27.4	78	92.8	295	306	980	980	3900	3853
20	28.8	80	94.8	300	311	1000	997	4000	3952
21	30.0	82	97.1	310	321	1050	1046	4100	4051
22	31.3	84	98.8	320	331	1100	1095	4200	4150
23	32.4	86	100	330	340	1150	1143	4300	4248
24	33.4	88	103	340	350	1200	1193	4400	4347
25	34.4	90	106	350	360	1250	1240	4500	4446
26	36.0	92	108	360	369	1300	1288	4600	4545
27	37.0	94	110	370	378	1350	1337	4700	4644
28	38.4	96	112	380	388	1400	1383	4800	4742
29	39.0	98	114	390	398	1450	1433	4900	4841
30	40.2	100	116	400	407	1500	1482	5000	4940
31	41.4	105	121	410	417	1550	1531	5100	5039
32	42.6	110	126	420	427	1600	1581	5200	5138
33	43.8	115	131	430	437	1650	1630	5300	5236
34	44.9	120	136	440	447	1700	1680	5400	5335
35	46.0	125	141	450	456	1750	1729	5500	5434
36	47.1	130	146	460	466	1800	1778	5600	5533
37	48.3	135	151	470	475	1850	1828	5700	5632
38	49.4	140	157	480	485	1900	1877	5800	5730
39	50.6	145	161	490	495	1950	1927	5900	5829
40	51.7	150	166	500	506	2000	1976	6000	5928
41	52.8	155	171	510	516	2050	2025	6200	6126
42	53.8	160	176	520	526	2100	2075	6400	6323
43	54.8	165	181	530	535	2150	2124	6600	6521
44	56.0	170	186	540	544	2200	2174	6800	6718
45	57.2	175	191	550	554	2250	2223	7000	6916
46	58.3	180	196	560	564	2300	2272	7200	7114
47	59.5	185	201	570	575	2350	2322	7400	7311
48	60.7	190	206	580	585	2400	2371	7600	7509
49	61.7	195	210	590	594	2450	2421	7800	7706
50	62.7	200	215	600	605	2500	2470	8000	7904
51	63.9	205	220	620	623	2550	2519	8200	8102
52	64.9	210	225	640	644	2600	2569	8400	8299
53	65.9	215	230	660	664	2650	2618	8600	8497
54	67.2	220	235	680	684	2700	2668	8800	8694
55	68.2	225	240	700	704	2750	2717	9000	8892
56	69.4	230	244	720	724	2800	2766	9200	9090
57	70.3	235	249	740	744	2850	2816	9400	9287
58	71.4	240	254	760	763	2900	2865	9600	9485
59	72.7	245	259	780	783	2950	2915	9800	9682
60	73.6	250	264	800	802	3000	2964	10000	9880

DEMAND TABLES

350 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	9.96								
6	11.3								
7	12.7								
8	14.2								
9	15.5								
10	16.9								
11	18.3	62	80.5	255	286	820	874	3100	3255
12	19.6	64	82.8	260	290	840	896	3200	3360
13	21.1	66	85.2	265	296	860	917	3300	3465
14	22.5	68	87.4	270	301	880	936	3400	3570
15	23.8	70	89.7	275	306	900	957	3500	3675
16	25.2	72	92.1	280	311	920	978	3600	3780
17	26.6	74	94.2	285	316	940	999	3700	3885
18	27.9	76	96.4	290	321	960	1020	3800	3990
19	29.2	78	98.6	295	326	980	1042	3900	4095
20	30.7	80	101	300	331	1000	1061	4000	4200
21	32.0	82	103	310	341	1050	1112	4100	4305
22	33.3	84	105	320	352	1100	1163	4200	4410
23	34.4	86	107	330	361	1150	1215	4300	4515
24	35.6	88	109	340	372	1200	1267	4400	4620
25	36.7	90	112	350	382	1250	1318	4500	4725
26	37.8	92	114	360	392	1300	1369	4600	4830
27	39.1	94	117	370	402	1350	1421	4700	4935
28	40.8	96	119	380	413	1400	1470	4800	5040
29	41.5	98	121	390	423	1450	1523	4900	5145
30	42.7	100	123	400	433	1500	1575	5000	5250
31	44.1	105	128	410	443	1550	1628	5100	5355
32	45.3	110	134	420	454	1600	1680	5200	5460
33	46.5	115	140	430	464	1650	1733	5300	5565
34	47.7	120	145	440	475	1700	1785	5400	5670
35	48.9	125	150	450	485	1750	1838	5500	5775
36	50.0	130	155	460	496	1800	1890	5600	5880
37	51.3	135	161	470	505	1850	1943	5700	5985
38	52.5	140	167	480	516	1900	1995	5800	6090
39	53.8	145	171	490	526	1950	2048	5900	6195
40	54.9	150	176	500	538	2000	2100	6000	6300
41	56.1	155	182	510	548	2050	2153	6200	6510
42	57.2	160	187	520	559	2100	2205	6400	6720
43	58.3	165	192	530	569	2150	2258	6600	6930
44	59.5	170	197	540	578	2200	2310	6800	7140
45	60.8	175	203	550	589	2250	2363	7000	7350
46	62.1	180	208	560	600	2300	2415	7200	7560
47	63.2	185	213	570	611	2350	2468	7400	7770
48	64.5	190	218	580	622	2400	2520	7600	7980
49	65.5	195	224	590	631	2450	2573	7800	8190
50	66.7	200	229	600	643	2500	2625	8000	8400
51	67.9	205	234	620	663	2550	2678	8200	8610
52	69.1	210	239	640	685	2600	2730	8400	8820
53	70.0	215	245	660	706	2650	2783	8600	9030
54	71.4	220	250	680	727	2700	2835	8800	9240
55	72.5	225	255	700	749	2750	2888	9000	9450
56	73.7	230	259	720	770	2800	2940	9200	9660
57	74.8	235	265	740	791	2850	2993	9400	9870
58	75.9	240	270	760	811	2900	3045	9600	10080
59	77.3	245	275	780	833	2950	3098	9800	10290
60	78.2	250	280	800	853	3000	3150	10000	10500

DEMAND TABLES

375 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	10.6								
6	12.1								
7	13.5								
8	15.1								
9	16.6								
10	18.0								
11	19.5	62	85.9	255	305	820	932	3100	3472
12	20.9	64	88.4	260	309	840	955	3200	3584
13	22.5	66	90.8	265	316	860	978	3300	3696
14	24.1	68	93.2	270	321	880	998	3400	3808
15	25.4	70	95.6	275	326	900	1020	3500	3920
16	26.8	72	98.1	280	332	920	1043	3600	4032
17	28.3	74	100	285	337	940	1065	3700	4144
18	29.8	76	103	290	343	960	1089	3800	4256
19	31.1	78	105	295	347	980	1111	3900	4368
20	32.7	80	108	300	353	1000	1131	4000	4480
21	34.0	82	110	310	364	1050	1186	4100	4592
22	35.5	84	112	320	375	1100	1241	4200	4704
23	36.7	86	114	330	385	1150	1296	4300	4816
24	38.1	88	116	340	396	1200	1352	4400	4928
25	39.0	90	120	350	408	1250	1406	4500	5040
26	40.3	92	122	360	418	1300	1460	4600	5152
27	41.7	94	124	370	429	1350	1515	4700	5264
28	43.6	96	127	380	440	1400	1568	4800	5376
29	44.2	98	129	390	451	1450	1624	4900	5488
30	35.6	100	131	400	461	1500	1680	5000	5600
31	46.9	105	137	410	473	1550	1736	5100	5712
32	48.3	110	143	420	484	1600	1792	5200	5824
33	49.6	115	149	430	495	1650	1848	5300	5936
34	50.8	120	155	440	506	1700	1904	5400	6048
35	52.1	125	160	450	517	1750	1960	5500	6160
36	53.4	130	166	460	529	1800	2016	5600	6272
37	54.8	135	171	470	539	1850	2072	5700	6384
38	56.0	140	178	480	550	1900	2128	5800	6496
39	57.3	145	183	490	561	1950	2184	5900	6608
40	58.6	150	188	500	573	2000	2240	6000	6720
41	59.8	155	194	510	585	2050	2296	6200	6944
42	61.0	160	199	520	596	2100	2352	6400	7168
43	62.2	165	205	530	607	2150	2408	6600	7392
44	63.5	170	211	540	617	2200	2464	6800	7616
45	64.8	175	216	550	628	2250	2520	7000	7840
46	66.1	180	222	560	640	2300	2576	7200	8064
47	67.4	185	227	570	652	2350	2632	7400	8288
48	68.8	190	233	580	663	2400	2688	7600	8512
49	69.9	195	239	590	673	2450	2744	7800	8736
50	71.1	200	244	600	685	2500	2800	8000	8960
51	72.5	205	250	620	707	2550	2856	8200	9184
52	73.6	210	255	640	730	2600	2912	8400	9408
53	74.7	215	261	660	753	2650	2968	8600	9632
54	76.2	220	267	680	775	2700	3024	8800	9856
55	77.2	225	272	700	799	2750	3080	9000	10080
56	78.6	230	277	720	821	2800	3136	9200	10304
57	79.7	235	282	740	843	2850	3192	9400	10528
58	81.1	240	288	760	865	2900	3248	9600	10752
59	82.4	245	293	780	888	2950	3304	9800	10976
60	83.4	250	299	800	909	3000	3360	10000	11200

DEMAND TABLES

400 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	11.3								
6	12.9								
7	14.4								
8	16.1								
9	17.6								
10	19.2								
11	20.7	62	91.3	255	324	820	990	3100	3689
12	22.3	64	93.9	260	328	840	1015	3200	3808
13	23.9	66	96.5	265	336	860	1039	3300	3927
14	25.5	68	99.0	270	342	880	1060	3400	4046
15	27.0	70	102	275	346	900	1084	3500	4165
16	28.6	72	104	280	352	920	1108	3600	4284
17	30.1	74	107	285	358	940	1132	3700	4403
18	31.7	76	109	290	364	960	1157	3800	4522
19	33.1	78	112	295	369	980	1180	3900	4641
20	34.7	80	114	300	375	1000	1202	4000	4760
21	36.2	82	117	310	387	1050	1260	4100	4879
22	37.7	84	119	320	399	1100	1319	4200	4998
23	39.0	86	121	330	409	1150	1377	4300	5117
24	40.3	88	124	340	421	1200	1436	4400	5236
25	41.5	90	127	350	433	1250	1493	4500	5355
26	42.8	92	130	360	444	1300	1552	4600	5474
27	44.3	94	132	370	456	1350	1610	4700	5593
28	46.3	96	134	380	468	1400	1666	4800	5712
29	47.0	98	137	390	480	1450	1726	4900	5831
30	48.4	100	139	400	490	1500	1785	5000	5950
31	49.9	105	145	410	502	1550	1845	5100	6069
32	51.3	110	152	420	514	1600	1904	5200	6188
33	52.7	115	158	430	526	1650	1964	5300	6307
34	54.0	120	164	440	538	1700	2023	5400	6426
35	55.5	125	170	450	550	1750	2083	5500	6545
36	56.8	130	176	460	562	1800	2142	5600	6664
37	58.2	135	182	470	572	1850	2202	5700	6783
38	59.5	140	189	480	584	1900	2261	5800	6902
39	60.9	145	194	490	596	1950	2321	5900	7021
40	62.2	150	200	500	609	2000	2380	6000	7140
41	63.5	155	206	510	621	2050	2440	6200	7378
42	64.9	160	212	520	633	2100	2499	6400	7616
43	66.0	165	218	530	645	2150	2559	6600	7854
44	67.5	170	224	540	656	2200	2618	6800	8092
45	68.9	175	230	550	668	2250	2678	7000	8330
46	70.2	180	236	560	679	2300	2737	7200	8568
47	71.6	185	242	570	693	2350	2797	7400	8806
48	73.1	190	248	580	704	2400	2856	7600	9044
49	74.3	195	253	590	715	2450	2916	7800	9282
50	75.6	200	259	600	728	2500	2975	8000	9520
51	77.0	205	265	620	751	2550	3035	8200	9758
52	78.2	210	271	640	776	2600	3094	8400	9996
53	79.4	215	277	660	800	2650	3154	8600	10234
54	80.9	220	283	680	823	2700	3213	8800	10472
55	82.1	225	289	700	848	2750	3273	9000	10710
56	83.5	230	294	720	872	2800	3332	9200	10948
57	84.7	235	300	740	896	2850	3392	9400	11186
58	86.0	240	306	760	919	2900	3451	9600	11424
59	87.6	245	312	780	944	2950	3511	9800	11662
60	88.7	250	318	800	966	3000	3570	10000	11900

DEMAND TABLES

425 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	11.9								
6	13.5								
7	15.1								
8	16.9								
9	18.5								
10	20.1								
11	21.8	62	95.9	255	340	820	1040	3100	3875
12	23.4	64	98.6	260	345	840	1066	3200	4000
13	25.1	66	101	265	353	860	1091	3300	4125
14	26.8	68	104	270	359	880	1114	3400	4250
15	28.4	70	107	275	364	900	1139	3500	4375
16	30.0	72	110	280	370	920	1164	3600	4500
17	31.6	74	112	285	376	940	1189	3700	4625
18	33.3	76	115	290	383	960	1215	3800	4750
19	34.8	78	117	295	388	980	1240	3900	4875
20	36.5	80	120	300	394	1000	1263	4000	5000
21	38.0	82	123	310	406	1050	1324	4100	5125
22	39.6	84	125	320	419	1100	1385	4200	5250
23	41.0	86	128	330	430	1150	1446	4300	5375
24	42.4	88	130	340	443	1200	1509	4400	5500
25	43.6	90	134	350	455	1250	1569	4500	5625
26	45.0	92	136	360	466	1300	1630	4600	5750
27	46.5	94	139	370	479	1350	1691	4700	5875
28	48.6	96	141	380	491	1400	1750	4800	6000
29	49.4	98	144	390	504	1450	1813	4900	6125
30	50.9	100	146	400	515	1500	1875	5000	6250
31	52.4	105	153	410	528	1550	1938	5100	6375
32	53.9	110	160	420	540	1600	2000	5200	6500
33	55.4	115	166	430	553	1650	2063	5300	6625
34	56.8	120	173	440	565	1700	2125	5400	6750
35	58.3	125	179	450	578	1750	2188	5500	6875
36	59.6	130	185	460	590	1800	2250	5600	7000
37	61.1	135	191	470	601	1850	2313	5700	7125
38	62.5	140	199	480	614	1900	2375	5800	7250
39	64.0	145	204	490	626	1950	2438	5900	7375
40	65.4	150	210	500	640	2000	2500	6000	7500
41	66.8	155	216	510	653	2050	2563	6200	7750
42	68.1	160	223	520	665	2100	2625	6400	8000
43	69.4	165	229	530	678	2150	2688	6600	8250
44	70.9	170	235	540	689	2200	2750	6800	8500
45	72.4	175	241	550	701	2250	2813	7000	8750
46	73.8	180	248	560	714	2300	2875	7200	9000
47	75.3	185	254	570	728	2350	2938	7400	9250
48	76.8	190	260	580	740	2400	3000	7600	9500
49	78.0	195	266	590	751	2450	3063	7800	9750
50	79.4	200	273	600	765	2500	3125	8000	10000
51	80.9	205	279	620	789	2550	3188	8200	10250
52	82.1	210	285	640	815	2600	3250	8400	10500
53	83.4	215	291	660	840	2650	3313	8600	10750
54	85.0	220	298	680	865	2700	3375	8800	11000
55	86.3	225	304	700	891	2750	3438	9000	11250
56	87.8	230	309	720	916	2800	3500	9200	11500
57	89.0	235	315	740	941	2850	3563	9400	11750
58	90.4	240	321	760	965	2900	3625	9600	12000
59	92.0	245	328	780	991	2950	3688	9800	12250
60	93.1	250	334	800	1015	3000	3750	10000	12500

DEMAND TABLES

450 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	12.5								
6	14.3								
7	16.1								
8	17.8								
9	19.5								
10	21.3								
11	22.1	62	101	255	359	820	1098	3100	4092
12	24.7	64	104	260	364	840	1126	3200	4224
13	26.5	66	107	265	372	860	1152	3300	4356
14	28.2	68	110	270	379	880	1176	3400	4488
15	30.1	70	113	275	384	900	1203	3500	4620
16	31.7	72	116	280	391	920	1229	3600	4752
17	33.4	74	118	285	397	940	1255	3700	4884
18	35.1	76	121	290	404	960	1283	3800	5016
19	36.7	78	124	295	409	980	1309	3900	5148
20	38.5	80	127	300	416	1000	1333	4000	5280
21	40.1	82	130	310	429	1050	1398	4100	5412
22	41.8	84	132	320	442	1100	1463	4200	5544
23	43.3	86	135	330	454	1150	1527	4300	5676
24	44.7	88	137	340	467	1200	1593	4400	5808
25	46.1	90	141	350	480	1250	1657	4500	5940
26	47.5	92	144	360	492	1300	1721	4600	6072
27	49.1	94	147	370	506	1350	1786	4700	6204
28	51.3	96	149	380	519	1400	1848	4800	6336
29	52.1	98	152	390	532	1450	1914	4900	6468
30	53.7	100	154	400	544	1500	1980	5000	6600
31	55.3	105	161	410	557	1550	2046	5100	6732
32	56.9	110	169	420	570	1600	2112	5200	6864
33	58.5	115	176	430	583	1650	2178	5300	6996
34	60.0	120	182	440	597	1700	2244	5400	7128
35	61.5	125	189	450	610	1750	2310	5500	7260
36	63.1	130	195	460	623	1800	2376	5600	7392
37	64.5	135	202	470	635	1850	2442	5700	7524
38	66.0	140	210	480	648	1900	2508	5800	7656
39	67.6	145	215	490	661	1950	2574	5900	7788
40	69.0	150	222	500	676	2000	2640	6000	7920
41	70.5	155	228	510	689	2050	2706	6200	8184
42	72.0	160	235	520	702	2100	2772	6400	8448
43	73.3	165	242	530	715	2150	2838	6600	8712
44	74.8	170	248	540	727	2200	2904	6800	8976
45	76.4	175	255	550	741	2250	2970	7000	9240
46	77.8	180	261	560	754	2300	3036	7200	9504
47	79.5	185	268	570	768	2350	3102	7400	9768
48	81.0	190	275	580	781	2400	3168	7600	10032
49	82.3	195	281	590	793	2450	3234	7800	10296
50	83.8	200	288	600	808	2500	3300	8000	10560
51	85.4	205	294	620	833	2550	3366	8200	10824
52	86.7	210	301	640	861	2600	3432	8400	11088
53	88.0	215	308	660	887	2650	3498	8600	11352
54	89.7	220	314	680	913	2700	3564	8800	11616
55	91.1	225	321	700	941	2750	3630	9000	11880
56	92.6	230	326	720	968	2800	3696	9200	12144
57	94.1	235	333	740	994	2850	3762	9400	12408
58	95.4	240	339	760	1019	2900	3828	9600	12672
59	97.2	245	346	780	1047	2950	3894	9800	12936
60	98.3	250	352	800	1072	3000	3960	10000	13200

DEMAND TABLES

475 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	13.1								
6	14.9								
7	16.7								
8	18.6								
9	20.4								
10	22.2								
11	24.0	62	106	255	375	820	1148	3100	4278
12	25.8	64	109	260	381	840	1177	3200	4416
13	27.7	66	112	265	389	860	1205	3300	4554
14	29.5	68	115	270	396	880	1230	3400	4692
15	31.3	70	118	275	402	900	1257	3500	4830
16	33.1	72	121	280	408	920	1285	3600	4968
17	34.9	74	124	285	415	940	1312	3700	5106
18	36.7	76	127	290	422	960	1341	3800	5244
19	38.3	78	130	295	428	980	1369	3900	5382
20	40.2	80	132	300	435	1000	1394	4000	5520
21	41.9	82	136	310	449	1050	1461	4100	5658
22	43.7	84	138	320	462	1100	1529	4200	5796
23	45.2	86	141	330	475	1150	1597	4300	5934
24	46.7	88	144	340	489	1200	1666	4400	6072
25	48.1	90	148	350	502	1250	1732	4500	6210
26	49.6	92	150	360	515	1300	1800	4600	6348
27	51.3	94	153	370	529	1350	1867	4700	6486
28	53.6	96	156	380	542	1400	1932	4800	6624
29	54.5	98	159	390	556	1450	2001	4900	6762
30	56.1	100	161	400	569	1500	2070	5000	6900
31	57.8	105	168	410	582	1550	2139	5100	7038
32	59.4	110	177	420	596	1600	2208	5200	7176
33	61.1	115	184	430	610	1650	2277	5300	7314
34	62.6	120	190	440	624	1700	2346	5400	7452
35	64.3	125	197	450	638	1750	2415	5500	7590
36	65.8	130	204	460	651	1800	2484	5600	7728
37	67.4	135	211	470	664	1850	2553	5700	7866
38	69.0	140	219	480	678	1900	2622	5800	8004
39	70.6	145	225	490	691	1950	2691	5900	8142
40	72.1	150	232	500	707	2000	2760	6000	8280
41	73.6	155	239	510	720	2050	2829	6200	8556
42	75.2	160	246	520	734	2100	2898	6400	8832
43	76.5	165	253	530	748	2150	2967	6600	9108
44	78.2	170	259	540	760	2200	3036	6800	9384
45	79.9	175	266	550	774	2250	3105	7000	9660
46	81.4	180	273	560	788	2300	3174	7200	9936
47	83.0	185	280	570	803	2350	3243	7400	10212
48	84.7	190	287	580	817	2400	3312	7600	10488
49	86.1	195	294	590	829	2450	3381	7800	10764
50	87.6	200	301	600	845	2500	3450	8000	11040
51	89.2	205	308	620	871	2550	3519	8200	11316
52	90.6	210	315	640	900	2600	3588	8400	11592
53	92.0	215	322	660	927	2650	3657	8600	11868
54	93.8	220	328	680	955	2700	3726	8800	12144
55	95.2	225	335	700	984	2750	3795	9000	12420
56	96.8	230	341	720	1012	2800	3864	9200	12696
57	98.2	235	348	740	1039	2850	3933	9400	12972
58	99.7	240	355	760	1065	2900	4002	9600	13248
59	102	245	362	780	1094	2950	4071	9800	13524
60	103	250	368	800	1121	3000	4140	10000	13800

DEMAND TABLES

500 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	13.8								
6	15.7								
7	17.5								
8	19.6								
9	21.5								
10	23.3								
11	25.2	62	111	255	394	820	1206	3100	4495
12	27.1	64	114	260	400	840	1237	3200	4640
13	29.2	66	118	265	409	860	1266	3300	4785
14	31.0	68	121	270	416	880	1292	3400	4930
15	32.9	70	124	275	422	900	1321	3500	5075
16	34.8	72	127	280	429	920	1350	3600	5220
17	36.7	74	130	285	436	940	1379	3700	5365
18	38.6	76	133	290	444	960	1409	3800	5510
19	40.3	78	136	295	450	980	1438	3900	5655
20	42.3	80	139	300	457	1000	1465	4000	5800
21	44.1	82	143	310	471	1050	1536	4100	5945
22	46.0	84	145	320	486	1100	1607	4200	6090
23	47.6	86	148	330	499	1150	1678	4300	6235
24	49.2	88	151	340	513	1200	1750	4400	6380
25	50.6	90	155	350	528	1250	1820	4500	6525
26	52.2	92	158	360	541	1300	1891	4600	6670
27	53.9	94	161	370	555	1350	1962	4700	6815
28	56.4	96	164	380	570	1400	2030	4800	6960
29	57.3	98	167	390	584	1450	2103	4900	7105
30	59.0	100	170	400	597	1500	2175	5000	7250
31	60.8	105	177	410	612	1550	2248	5100	7395
32	62.5	110	186	420	626	1600	2320	5200	7540
33	64.2	115	193	430	641	1650	2393	5300	7685
34	65.8	120	200	440	655	1700	2465	5400	7830
35	67.6	125	207	450	670	1750	2538	5500	7975
36	69.2	130	215	460	684	1800	2610	5600	8120
37	70.9	135	222	470	697	1850	2683	5700	8265
38	72.5	140	231	480	712	1900	2755	5800	8410
39	74.2	145	236	490	726	1950	2828	5900	8555
40	75.8	150	244	500	742	2000	2900	6000	8700
41	77.4	155	251	510	760	2050	2973	6200	8990
42	79.0	160	258	520	771	2100	3045	6400	9280
43	80.5	165	265	530	786	2150	3118	6600	9570
44	82.2	170	273	540	799	2200	3190	6800	9860
45	84.0	175	280	550	813	2250	3263	7000	10150
46	85.6	180	287	560	828	2300	3335	7200	10440
47	87.3	185	294	570	844	2350	3408	7400	10730
48	89.0	190	302	580	858	2400	3480	7600	11020
49	90.5	195	309	590	871	2450	3553	7800	11310
50	92.1	200	316	600	887	2500	3625	8000	11600
51	93.8	205	323	620	915	2550	3698	8200	11890
52	95.3	210	331	640	945	2600	3770	8400	12180
53	96.7	215	338	660	974	2650	3843	8600	12470
54	98.6	220	345	680	1003	2700	3915	8800	12760
55	100	225	352	700	1034	2750	3988	9000	13050
56	102	230	358	720	1063	2800	4060	9200	13340
57	103	235	365	740	1092	2850	4133	9400	13630
58	105	240	373	760	1119	2900	4205	9600	13920
59	107	245	380	780	1150	2950	4278	9800	14210
60	108	250	387	800	1177	3000	4350	10000	14500

DEMAND TABLES

550 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	15.0								
6	17.1								
7	19.1								
8	21.3								
9	23.3								
10	25.4								
11	27.5	62	121	255	430	820	1315	3100	4898
12	29.5	64	125	260	436	840	1348	3200	5056
13	31.8	66	128	265	446	860	1379	3300	5214
14	33.8	68	131	270	453	880	1408	3400	5372
15	35.9	70	135	275	460	900	1439	3500	5530
16	37.9	72	138	280	468	920	1471	3600	5688
17	40.1	74	142	285	476	940	1503	3700	5846
18	42.0	76	145	290	483	960	1536	3800	6004
19	43.9	78	148	295	490	980	1567	3900	6162
20	46.1	80	152	300	498	1000	1596	4000	6320
21	48.0	82	155	310	514	1050	1673	4100	6478
22	50.1	84	158	320	529	1100	1751	4200	6636
23	51.8	86	161	330	544	1150	1828	4300	6794
24	53.6	88	164	340	559	1200	1907	4400	6952
25	55.1	90	169	350	575	1250	1983	4500	7110
26	56.9	92	172	360	589	1300	2060	4600	7268
27	58.8	94	175	370	605	1350	2138	4700	7426
28	61.5	96	179	380	621	1400	2212	4800	7584
29	62.4	98	182	390	637	1450	2291	4900	7742
30	64.3	100	185	400	651	1500	2370	5000	7900
31	66.2	105	193	410	667	1550	2449	5100	8058
32	68.1	110	202	420	683	1600	2528	5200	8216
33	70.1	115	210	430	698	1650	2607	5300	8374
34	71.7	120	218	440	714	1700	2686	5400	8532
35	73.6	125	226	450	730	1750	2765	5500	8690
36	75.4	130	234	460	746	1800	2844	5600	8848
37	77.3	135	242	470	760	1850	2923	5700	9006
38	79.0	140	251	480	776	1900	3002	5800	9164
39	80.9	145	258	490	792	1950	3081	5900	9322
40	82.6	150	265	500	809	2000	3160	6000	9480
41	84.4	155	273	510	825	2050	3239	6200	9796
42	86.1	160	281	520	841	2100	3318	6400	10112
43	87.7	165	289	530	856	2150	3397	6600	10428
44	89.6	170	297	540	871	2200	3476	6800	10744
45	91.5	175	305	550	886	2250	3555	7000	11060
46	93.2	180	313	560	902	2300	3634	7200	11376
47	95.1	185	321	570	920	2350	3713	7400	11692
48	97.0	190	329	580	935	2400	3792	7600	12008
49	98.6	195	337	590	950	2450	3871	7800	12324
50	100	200	344	600	967	2500	3950	8000	12640
51	102	205	352	620	997	2550	4029	8200	12956
52	104	210	360	640	1030	2600	4108	8400	13272
53	105	215	368	660	1062	2650	4187	8600	13588
54	107	220	376	680	1093	2700	4266	8800	13904
55	109	225	384	700	1127	2750	4345	9000	14220
56	111	230	390	720	1158	2800	4424	9200	14536
57	112	235	398	740	1190	2850	4503	9400	14852
58	114	240	406	760	1220	2900	4582	9600	15168
59	116	245	414	780	1253	2950	4661	9800	15484
60	118	250	422	800	1283	3000	4740	10000	15800

DEMAND TABLES

600 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	16.1								
6	18.4								
7	20.6								
8	23.1								
9	25.2								
10	27.3								
11	29.6	62	130	255	462	820	1414	3100	5270
12	31.8	64	134	260	469	840	1450	3200	5440
13	34.2	66	138	265	479	860	1484	3300	5610
14	36.4	68	141	270	488	880	1515	3400	5780
15	38.6	70	145	275	495	900	1549	3500	5950
16	40.8	72	149	280	503	920	1583	3600	6120
17	43.0	74	152	285	512	940	1617	3700	6290
18	45.2	76	156	290	520	960	1652	3800	6460
19	47.3	78	160	295	527	980	1686	3900	6630
20	49.6	80	163	300	536	1000	1717	4000	6800
21	51.7	82	167	310	553	1050	1800	4100	6970
22	53.9	84	170	320	570	1100	1884	4200	7140
23	55.8	86	173	330	585	1150	1967	4300	7310
24	57.6	88	177	340	602	1200	2052	4400	7480
25	59.3	90	182	350	619	1250	2134	4500	7650
26	61.2	92	185	360	634	1300	2217	4600	7820
27	63.2	94	189	370	651	1350	2300	4700	7990
28	66.1	96	192	380	668	1400	2380	4800	8160
29	67.2	98	196	390	685	1450	2465	4900	8330
30	69.2	100	199	400	700	1500	2550	5000	8500
31	71.2	105	207	410	717	1550	2635	5100	8670
32	73.3	110	218	420	734	1600	2720	5200	8840
33	75.3	115	226	430	751	1650	2805	5300	9010
34	77.2	120	235	440	768	1700	2890	5400	9180
35	79.2	125	243	450	785	1750	2975	5500	9350
36	81.1	130	252	460	802	1800	3060	5600	9520
37	83.1	135	260	470	818	1850	3145	5700	9690
38	85.0	140	270	480	835	1900	3230	5800	9860
39	87.0	145	277	490	852	1950	3315	5900	10030
40	88.9	150	286	500	870	2000	3400	6000	10200
41	90.8	155	294	510	887	2050	3485	6200	10540
42	92.7	160	303	520	904	2100	3570	6400	10880
43	94.4	165	311	530	921	2150	3655	6600	11220
44	96.4	170	320	540	937	2200	3740	6800	11560
45	98.4	175	328	550	954	2250	3825	7000	11900
46	100	180	337	560	971	2300	3910	7200	12240
47	102	185	345	570	989	2350	3995	7400	12580
48	104	190	354	580	1006	2400	4080	7600	12920
49	106	195	362	590	1022	2450	4165	7800	13260
50	108	200	371	600	1040	2500	4250	8000	13600
51	110	205	379	620	1073	2550	4335	8200	13940
52	112	210	388	640	1108	2600	4420	8400	14280
53	113	215	396	660	1142	2650	4505	8600	14620
54	116	220	405	680	1176	2700	4590	8800	14960
55	117	225	413	700	1212	2750	4675	9000	15300
56	119	230	420	720	1246	2800	4760	9200	15640
57	121	235	428	740	1280	2850	4845	9400	15980
58	123	240	437	760	1312	2900	4930	9600	16320
59	125	245	445	780	1348	2950	5015	9800	16660
60	127	250	454	800	1380	3000	5100	10000	17000

DEMAND TABLES

650 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	17.4								
6	19.8								
7	22.1								
8	24.7								
9	27.1								
10	29.4								
11	31.8	62	140	255	498	820	1523	3100	5673
12	34.2	64	144	260	505	840	1561	3200	5856
13	36.8	66	148	265	516	860	1598	3300	6039
14	39.2	68	152	270	525	880	1631	3400	6222
15	41.5	70	156	275	533	900	1667	3500	6405
16	43.9	72	160	280	542	920	1704	3600	6588
17	46.3	74	164	285	551	940	1740	3700	6771
18	48.7	76	168	290	560	960	1778	3800	6954
19	50.9	78	172	295	567	980	1815	3900	7137
20	53.4	80	176	300	576	1000	1848	4000	7320
21	55.6	82	180	310	595	1050	1938	4100	7503
22	58.0	84	183	320	613	1100	2028	4200	7686
23	60.0	86	186	330	630	1150	2117	4300	7869
24	62.0	88	190	340	648	1200	2209	4400	8052
25	63.9	90	196	350	666	1250	2297	4500	8235
26	65.9	92	199	360	683	1300	2386	4600	8418
27	68.1	94	203	370	701	1350	2476	4700	8601
28	71.2	96	206	380	719	1400	2562	4800	8784
29	72.3	98	210	390	737	1450	2654	4900	8967
30	74.5	100	214	400	754	1500	2745	5000	9150
31	76.7	105	223	410	772	1550	2837	5100	9333
32	78.9	110	234	420	791	1600	2928	5200	9516
33	81.1	115	243	430	809	1650	3020	5300	9699
34	83.1	120	252	440	827	1700	3111	5400	9882
35	85.3	125	262	450	845	1750	3203	5500	10065
36	87.3	130	271	460	864	1800	3294	5600	10248
37	89.5	135	280	470	880	1850	3386	5700	10431
38	91.5	140	291	480	899	1900	3477	5800	10614
39	93.7	145	298	490	917	1950	3569	5900	10797
40	95.7	150	307	500	937	2000	3660	6000	10980
41	97.7	155	317	510	955	2050	3752	6200	11346
42	99.7	160	326	520	974	2100	3843	6400	11712
43	102	165	335	530	992	2150	3935	6600	12078
44	104	170	344	540	1008	2200	4026	6800	12444
45	106	175	353	550	1027	2250	4118	7000	12810
46	108	180	362	560	1045	2300	4209	7200	13176
47	110	185	371	570	1065	2350	4301	7400	13542
48	112	190	381	580	1083	2400	4392	7600	13908
49	114	195	389	590	1100	2450	4484	7800	14274
50	116	200	399	600	1120	2500	4575	8000	14640
51	118	205	408	620	1155	2550	4667	8200	15006
52	120	210	417	640	1193	2600	4758	8400	15372
53	122	215	426	660	1230	2650	4850	8600	15738
54	124	220	436	680	1266	2700	4941	8800	16104
55	126	225	445	700	1305	2750	5033	9000	16470
56	128	230	452	720	1341	2800	5124	9200	16836
57	130	235	461	740	1378	2850	5216	9400	17202
58	132	240	470	760	1413	2900	5307	9600	17568
59	135	245	479	780	1415	2950	5399	9800	17934
60	136	250	489	800	1486	3000	5490	10000	18300

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DEMAND TABLES

700 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	18.6								
6	21.2								
7	23.7								
8	26.5								
9	29.0								
10	31.6								
11	34.1	62	150	255	533	820	1631	3100	6076
12	36.7	64	155	260	541	840	1672	3200	6272
13	39.4	66	159	265	553	860	1711	3300	6468
14	41.9	68	163	270	563	880	1746	3400	6664
15	44.5	70	167	275	570	900	1786	3500	6860
16	47.0	72	172	280	580	920	1825	3600	7056
17	49.6	74	176	285	590	940	1864	3700	7252
18	52.1	76	180	290	600	960	1905	3800	7448
19	54.5	78	184	295	608	980	1944	3900	7644
20	57.2	80	188	300	617	1000	1980	4000	7840
21	59.6	82	193	310	637	1050	2076	4100	8036
22	62.1	84	196	320	657	1100	2172	4200	8232
23	64.3	86	200	330	674	1150	2268	4300	8428
24	66.4	88	204	340	694	1200	2366	4400	8624
25	68.4	90	210	350	713	1250	2460	4500	8820
26	70.6	92	214	360	731	1300	2556	4600	9016
27	72.9	94	218	370	751	1350	2652	4700	9212
28	76.2	96	221	380	770	1400	2744	4800	9408
29	77.4	98	225	390	790	1450	2842	4900	9604
30	79.8	100	229	400	808	1500	2940	5000	9800
31	82.1	105	239	410	827	1550	3038	5100	9996
32	84.5	110	251	420	847	1600	3136	5200	10192
33	86.8	115	261	430	866	1650	3234	5300	10388
34	89.0	120	270	440	886	1700	3332	5400	10584
35	91.3	125	280	450	906	1750	3430	5500	10780
36	93.5	130	290	460	925	1800	3528	5600	10976
37	95.8	135	300	470	943	1850	3626	5700	11172
38	98.0	140	312	480	962	1900	3724	5800	11368
39	100	145	319	490	982	1950	3822	5900	11564
40	103	150	329	500	1004	2000	3920	6000	11760
41	105	155	339	510	1023	2050	4018	6200	12152
42	107	160	349	520	1043	2100	4116	6400	12544
43	109	165	359	530	1062	2150	4214	6600	12936
44	111	170	368	540	1080	2200	4312	6800	13328
45	113	175	378	550	1100	2250	4410	7000	13720
46	116	180	388	560	1119	2300	4508	7200	14112
47	118	185	398	570	1141	2350	4606	7400	14504
48	120	190	408	580	1160	2400	4704	7600	14896
49	122	195	417	590	1178	2450	4802	7800	15288
50	125	200	427	600	1200	2500	4900	8000	15680
51	127	205	437	620	1237	2550	4998	8200	16072
52	129	210	447	640	1278	2600	5096	8400	16464
53	131	215	457	660	1317	2650	5194	8600	16856
54	133	220	466	680	1356	2700	5292	8800	17248
55	135	225	476	700	1397	2750	5390	9000	17640
56	138	230	484	720	1437	2800	5488	9200	18032
57	140	235	494	740	1476	2850	5586	9400	18424
58	142	240	504	760	1513	2900	5684	9600	18816
59	144	245	514	780	1554	2950	5782	9800	19208
60	146	250	523	800	1592	3000	5880	10000	19600

DEMAND TABLES

750 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	19.7								
6	22.5								
7	25.2								
8	28.1								
9	30.8								
10	33.5								
11	36.2	62	160	255	566	820	1731	3100	6448
12	38.9	64	164	260	574	840	1774	3200	6656
13	41.8	66	169	265	587	860	1816	3300	6864
14	44.5	68	173	270	597	880	1853	3400	7072
15	47.2	70	178	275	605	900	1895	3500	7280
16	49.9	72	182	280	616	920	1936	3600	7488
17	52.6	74	187	285	626	940	1978	3700	7696
18	55.3	76	191	290	636	960	2022	3800	7904
19	57.8	78	195	295	645	980	2063	3900	8112
20	60.7	80	200	300	655	1000	2101	4000	8320
21	63.2	82	204	310	676	1050	2203	4100	8528
22	65.9	84	208	320	697	1100	2305	4200	8736
23	68.2	86	212	330	716	1150	2407	4300	8944
24	70.5	88	216	340	736	1200	2511	4400	9152
25	72.6	90	223	350	757	1250	2610	4500	9360
26	74.9	92	227	360	776	1300	2712	4600	9568
27	77.4	94	231	370	797	1350	2814	4700	9776
28	80.9	96	235	380	817	1400	2912	4800	9984
29	82.2	98	239	390	838	1450	3016	4900	10192
30	84.7	100	243	400	857	1500	3120	5000	10400
31	87.2	105	254	410	878	1550	3224	5100	10608
32	89.6	110	266	420	899	1600	3328	5200	10816
33	92.1	115	277	430	919	1650	3432	5300	11024
34	94.4	120	287	440	940	1700	3536	5400	11232
35	96.9	125	297	450	961	1750	3640	5500	11440
36	99.2	130	308	460	982	1800	3744	5600	11648
37	102	135	318	470	1000	1850	3848	5700	11856
38	104	140	331	480	1021	1900	3952	5800	12064
39	106	145	339	490	1042	1950	4056	5900	12272
40	109	150	349	500	1065	2000	4160	6000	12480
41	111	155	360	510	1086	2050	4264	6200	12896
42	113	160	370	520	1107	2100	4368	6400	13312
43	115	165	381	530	1127	2150	4472	6600	13728
44	118	170	391	540	1146	2200	4576	6800	14144
45	120	175	401	550	1167	2250	4680	7000	14560
46	123	180	412	560	1188	2300	4784	7200	14976
47	125	185	422	570	1211	2350	4888	7400	15392
48	128	190	433	580	1231	2400	4992	7600	15808
49	130	195	443	590	1250	2450	5096	7800	16224
50	132	200	453	600	1273	2500	5200	8000	16640
51	135	205	464	620	1312	2550	5304	8200	17056
52	137	210	474	640	1356	2600	5408	8400	17472
53	139	215	485	660	1398	2650	5512	8600	17888
54	141	220	495	680	1439	2700	5616	8800	18304
55	144	225	505	700	1483	2750	5720	9000	18720
56	146	230	514	720	1525	2800	5824	9200	19136
57	148	235	524	740	1566	2850	5928	9400	19552
58	150	240	535	760	1606	2900	6032	9600	19968
59	153	245	545	780	1649	2950	6136	9800	20384
60	155	250	555	800	1689	3000	6240	10000	20800

DEMAND TABLES

800 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	20.9								
6	23.8								
7	26.6								
8	29.7								
9	32.6								
10	35.4								
11	38.3	62	169	255	598	820	1830	3100	6820
12	41.1	64	174	260	607	840	1877	3200	7040
13	44.2	66	178	265	620	860	1921	3300	7260
14	47.1	68	183	270	631	880	1960	3400	7480
15	49.9	70	188	275	640	900	2004	3500	7700
16	52.8	72	193	280	651	920	2048	3600	7920
17	55.7	74	197	285	662	940	2092	3700	8140
18	58.5	76	202	290	673	960	2138	3800	8360
19	61.2	78	207	295	682	980	2182	3900	8580
20	64.2	80	211	300	693	1000	2222	4000	8800
21	66.9	82	216	310	715	1050	2330	4100	9020
22	69.7	84	220	320	737	1100	2438	4200	9240
23	72.2	86	224	330	757	1150	2545	4300	9460
24	74.6	88	229	340	779	1200	2655	4400	9680
25	76.8	90	235	350	801	1250	2761	4500	9900
26	79.2	92	240	360	821	1300	2869	4600	10120
27	81.8	94	244	370	843	1350	2977	4700	10340
28	85.6	96	249	380	865	1400	3080	4800	10560
29	86.9	98	253	390	887	1450	3190	4900	10780
30	89.5	100	257	400	906	1500	3300	5000	11000
31	92.2	105	268	410	928	1550	3410	5100	11220
32	94.2	110	282	420	950	1600	3520	5200	11440
33	97.5	115	293	430	972	1650	3630	5300	11660
34	99.9	120	304	440	994	1700	3740	5400	11880
35	103	125	315	450	1016	1750	3850	5500	12100
36	105	130	326	460	1038	1800	3960	5600	12320
37	108	135	337	470	1058	1850	4070	5700	12540
38	110	140	350	480	1080	1900	4180	5800	12760
39	113	145	359	490	1102	1950	4290	5900	12980
40	115	150	370	500	1126	2000	4400	6000	13200
41	117	155	381	510	1148	2050	4510	6200	13640
42	120	160	392	520	1170	2100	4620	6400	14080
43	122	165	403	530	1192	2150	4730	6600	14520
44	125	170	414	540	1212	2200	4840	6800	14960
45	127	175	425	550	1234	2250	4950	7000	15400
46	130	180	436	560	1256	2300	5060	7200	15840
47	132	185	447	570	1280	2350	5170	7400	16280
48	135	190	458	580	1302	2400	5280	7600	16720
49	137	195	469	590	1322	2450	5390	7800	17160
50	140	200	480	600	1346	2500	5500	8000	17600
51	142	205	491	620	1388	2550	5610	8200	18040
52	145	210	502	640	1434	2600	5720	8400	18480
53	147	215	513	660	1478	2650	5830	8600	18920
54	150	220	524	680	1522	2700	5940	8800	19360
55	152	225	535	700	1569	2750	6050	9000	19800
56	154	230	543	720	1613	2800	6160	9200	20240
57	157	235	554	740	1657	2850	6270	9400	20680
58	159	240	565	760	1698	2900	6380	9600	21120
59	162	245	576	780	1745	2950	6490	9800	21560
60	164	250	587	800	1786	3000	6600	10000	22000

DEMAND TABLES

850 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	22.0								
6	25.1								
7	28.1								
8	31.3								
9	34.3								
10	37.4								
11	40.4	62	178	255	631	820	1930	3100	7192
12	43.4	64	183	260	640	840	1979	3200	7424
13	46.6	66	188	265	654	860	2025	3300	7656
14	49.6	68	193	270	666	880	2067	3400	7888
15	52.7	70	198	275	675	900	2114	3500	8120
16	55.7	72	203	280	687	920	2160	3600	8352
17	58.7	74	208	285	698	940	2206	3700	8584
18	61.7	76	213	290	710	960	2255	3800	8816
19	64.5	78	218	295	719	980	2301	3900	9048
20	67.7	80	223	300	731	1000	2343	4000	9280
21	70.5	82	228	310	754	1050	2457	4100	9512
22	73.5	84	232	320	777	1100	2571	4200	9744
23	76.1	86	237	330	798	1150	2684	4300	9976
24	78.6	88	241	340	821	1200	2800	4400	10208
25	81.0	90	248	350	844	1250	2912	4500	10440
26	83.5	92	253	360	865	1300	3025	4600	10672
27	86.3	94	258	370	889	1350	3139	4700	10904
28	90.2	96	262	380	912	1400	3248	4800	11136
29	91.6	98	267	390	935	1450	3364	4900	11368
30	94.4	100	271	400	956	1500	3480	5000	11600
31	97.2	105	283	410	979	1550	3596	5100	11832
32	100	110	297	420	1002	1600	3712	5200	12064
33	103	115	309	430	1025	1650	3828	5300	12296
34	105	120	320	440	1049	1700	3944	5400	12528
35	108	125	332	450	1072	1750	4060	5500	12760
36	111	130	343	460	1095	1800	4176	5600	12992
37	113	135	355	470	1116	1850	4292	5700	13224
38	116	140	369	480	1139	1900	4408	5800	13456
39	119	145	378	490	1162	1950	4524	5900	13688
40	121	150	390	500	1188	2000	4640	6000	13920
41	124	155	401	510	1211	2050	4756	6200	14384
42	126	160	413	520	1234	2100	4872	6400	14848
43	129	165	425	530	1257	2150	4988	6600	15312
44	132	170	436	540	1278	2200	5104	6800	15776
45	134	175	448	550	1302	2250	5220	7000	16240
46	137	180	459	560	1325	2300	5336	7200	16704
47	140	185	471	570	1350	2350	5452	7400	17168
48	142	190	483	580	1373	2400	5568	7600	17632
49	145	195	494	590	1394	2450	5684	7800	18096
50	147	200	506	600	1420	2500	5800	8000	18560
51	150	205	517	620	1464	2550	5916	8200	19024
52	152	210	529	640	1513	2600	6032	8400	19488
53	155	215	541	660	1559	2650	6148	8600	19952
54	158	220	552	680	1605	2700	6264	8800	20416
55	160	225	564	700	1654	2750	6380	9000	20880
56	163	230	573	720	1701	2800	6496	9200	21344
57	165	235	585	740	1747	2850	6612	9400	21808
58	168	240	596	760	1791	2900	6728	9600	22272
59	171	245	608	780	1840	2950	6844	9800	22736
60	173	250	619	800	1884	3000	6960	10000	23200

DEMAND TABLES

900 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	23.2								
6	26.4								
7	29.5								
8	32.9								
9	36.1								
10	39.3								
11	42.5	62	187	255	664	820	2030	3100	7564
12	45.6	64	193	260	673	840	2081	3200	7808
13	49.0	66	198	265	688	860	2130	3300	8052
14	52.2	68	203	270	700	880	2174	3400	8296
15	55.4	70	208	275	710	900	2223	3500	8540
16	58.6	72	214	280	722	920	2272	3600	8784
17	61.7	74	219	285	734	940	2320	3700	9028
18	64.9	76	224	290	747	960	2372	3800	9272
19	67.8	78	229	295	756	980	2420	3900	9516
20	71.2	80	234	300	769	1000	2464	4000	9760
21	74.2	82	240	310	793	1050	2584	4100	10004
22	77.3	84	244	320	817	1100	2704	4200	10248
23	80.0	86	249	330	839	1150	2823	4300	10492
24	82.7	88	254	340	864	1200	2945	4400	10736
25	85.2	90	261	350	888	1250	3062	4500	10980
26	87.8	92	266	360	910	1300	3182	4600	11224
27	90.8	94	271	370	935	1350	3301	4700	11468
28	94.9	96	276	380	959	1400	3416	4800	11712
29	96.4	98	281	390	983	1450	3538	4900	11956
30	99.3	100	285	400	1005	1500	3660	5000	12200
31	102	105	298	410	1030	1550	3782	5100	12444
32	105	110	312	420	1054	1600	3904	5200	12688
33	108	115	325	430	1078	1650	4026	5300	12932
34	111	120	337	440	1103	1700	4148	5400	13176
35	114	125	349	450	1127	1750	4270	5500	13420
36	116	130	361	460	1152	1800	4392	5600	13664
37	119	135	373	470	1174	1850	4514	5700	13908
38	122	140	388	480	1198	1900	4636	5800	14152
39	125	145	398	490	1222	1950	4758	5900	14396
40	128	150	410	500	1249	2000	4880	6000	14640
41	130	155	422	510	1274	2050	5002	6200	15128
42	133	160	434	520	1298	2100	5124	6400	15616
43	135	165	447	530	1322	2150	5246	6600	16104
44	138	170	459	540	1344	2200	5368	6800	16592
45	141	175	471	550	1369	2250	5490	7000	17080
46	144	180	483	560	1393	2300	5612	7200	17568
47	147	185	495	570	1420	2350	5734	7400	18056
48	150	190	508	580	1444	2400	5856	7600	18544
49	152	195	520	590	1466	2450	5978	7800	19032
50	155	200	532	600	1493	2500	6100	8000	19520
51	158	205	544	620	1540	2550	6222	8200	20008
52	160	210	556	640	1591	2600	6344	8400	20496
53	163	215	569	660	1640	2650	6466	8600	20984
54	166	220	581	680	1688	2700	6588	8800	21472
55	168	225	593	700	1740	2750	6710	9000	21960
56	171	230	603	720	1789	2800	6832	9200	22448
57	174	235	615	740	1837	2850	6954	9400	22936
58	176	240	627	760	1884	2900	7076	9600	23424
59	180	245	639	780	1935	2950	7198	9800	23912
60	182	250	651	800	1981	3000	7320	10000	24400

DEMAND TABLES

950 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	24.3								
6	27.6								
7	31.0								
8	34.6								
9	37.9								
10	41.2								
11	44.5	62	196	255	696	820	2130	3100	7936
12	47.9	64	202	260	707	840	2184	3200	8192
13	51.5	66	208	265	722	860	2235	3300	8448
14	54.8	68	213	270	735	880	2281	3400	8704
15	58.1	70	219	275	745	900	2332	3500	8960
16	61.4	72	224	280	758	920	2383	3600	9216
17	64.8	74	230	285	771	940	2435	3700	9472
18	68.1	76	235	290	783	960	2488	3800	9728
19	71.2	78	240	295	794	980	2540	3900	9984
20	74.8	80	246	300	806	1000	2586	4000	10240
21	77.8	82	252	310	832	1050	2711	4100	10496
22	81.2	84	256	320	858	1100	2836	4200	10752
23	84.0	86	261	330	881	1150	2962	4300	11008
24	86.8	88.	266	340	906	1200	3090	4400	11264
25	89.3	90	274	350	932	1250	3213	4500	11520
26	92.2	92	279	360	955	1300	3338	4600	11776
27	95.2	94	284	370	980	1350	3464	4700	12032
28	99.6	96	289	380	1006	1400	3584	4800	12288
29	101	98	294	390	1032	1450	3712	4900	12544
30	104	100	300	400	1055	1500	3840	5000	12800
31	107	105	312	410	1080	1550	3968	5100	13056
32	110	110	328	420	1106	1600	4096	5200	13312
33	113	115	340	430	1132	1650	4224	5300	13568
34	116	120	353	440	1157	1700	4352	5400	13824
35	119	125	366	450	1183	1750	4480	5500	14080
36	122	130	379	460	1208	1800	4608	5600	14336
37	125	135	392	470	1231	1850	4736	5700	14592
38	128	140	407	480	1257	1900	4864	5800	14848
39	131	145	417	490	1283	1950	4992	5900	15104
40	134	150	430	500	1311	2000	5120	6000	15360
41	137	155	443	510	1336	2050	5248	6200	15872
42	140	160	456	520	1362	2100	5376	6400	16384
43	142	165	468	530	1388	2150	5504	6600	16896
44	145	170	481	540	1411	2200	5632	6800	17408
45	148	175	494	550	1436	2250	5760	7000	17920
46	151	180	507	560	1462	2300	5888	7200	18432
47	154	185	520	570	1490	2350	6016	7400	18944
48	157	190	532	580	1516	2400	6144	7600	19456
49	160	195	545	590	1539	2450	6272	7800	19968
50	163	200	558	600	1567	2500	6400	8000	20480
51	166	205	571	620	1615	2550	6528	8200	20992
52	168	210	584	640	1669	2600	6656	8400	21504
53	171	215	596	660	1720	2650	6784	8600	22016
54	174	220	609	680	1770	2700	6912	8800	22528
55	177	225	622	700	1825	2750	7040	9000	23040
56	180	230	632	720	1876	2800	7168	9200	23552
57	182	235	645	740	1928	2850	7296	9400	24064
58	185	240	658	760	1976	2900	7424	9600	24576
59	188	245	671	780	2030	2950	7552	9800	25088
60	191	250	684	800	2079	3000	7680	10000	25600

DEMAND TABLES

1000 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	25.4								
6	28.9								
7	32.4								
8	36.2								
9	39.7								
10	43.1								
11	46.6	62	206	255	729	820	2230	3100	8308
12	50.1	64	211	260	740	840	2286	3200	8576
13	53.9	66	217	265	756	860	2340	3300	8844
14	57.4	68	223	270	769	880	2388	3400	9112
15	60.8	70	229	275	780	900	2441	3500	9380
16	64.3	72	235	280	793	920	2495	3600	9648
17	67.8	74	240	285	807	940	2549	3700	9916
18	71.3	76	246	290	820	960	2605	3800	10184
19	74.5	78	252	295	831	980	2659	3900	10452
20	78.3	80	257	300	844	1000	2707	4000	10720
21	81.5	82	263	310	871	1050	2838	4100	10988
22	85.0	84	268	320	898	1100	2965	4200	11256
23	87.9	86	273	330	922	1150	3101	4300	11524
24	90.9	88	279	340	949	1200	3235	4400	11792
25	93.5	90	287	350	976	1250	3363	4500	12060
26	96.5	92	292	360	1000	1300	3495	4600	12328
27	99.7	94	297	370	1026	1350	3626	4700	12596
28	104	96	303	380	1053	1400	3752	4800	12864
29	106	98	308	390	1080	1450	3886	4900	13132
30	109	100	314	400	1104	1500	4020	5000	13400
31	112	105	327	410	1131	1550	4154	5100	13668
32	116	110	343	420	1158	1600	4288	5200	13936
33	119	115	356	430	1185	1650	4422	5300	14204
34	122	120	370	440	1211	1700	4556	5400	14472
35	125	125	383	450	1238	1750	4690	5500	14740
36	128	130	397	460	1265	1800	4824	5600	15008
37	131	135	410	470	1289	1850	4958	5700	15276
38	134	140	426	480	1316	1900	5092	5800	15544
39	137	145	437	490	1343	1950	5226	5900	15812
40	140	150	450	500	1372	2000	5360	6000	16080
41	143	155	464	510	1399	2050	5494	6200	16616
42	146	160	477	520	1426	2100	5628	6400	17152
43	149	165	490	530	1453	2150	5762	6600	17688
44	152	170	504	540	1477	2200	5896	6800	18224
45	155	175	517	550	1503	2250	6030	7000	18760
46	158	180	531	560	1530	2300	6164	7200	19296
47	161	185	544	570	1560	2350	6298	7400	19832
48	165	190	557	580	1587	2400	6432	7600	20368
49	167	195	571	590	1611	2450	6566	7800	20904
50	170	200	584	600	1640	2500	6700	8000	21440
51	174	205	598	620	1691	2550	6834	8200	21976
52	176	210	611	640	1747	2600	6968	8400	22512
53	179	215	624	660	1801	2650	7102	8600	23048
54	182	220	638	680	1855	2700	7236	8800	23584
55	185	225	651	700	1911	2750	7370	9000	24120
56	188	230	662	720	1964	2800	7504	9200	24656
57	191	235	675	740	2018	2850	7638	9400	25192
58	194	240	689	760	2069	2900	7772	9600	25728
59	197	245	702	780	2125	2950	7906	9800	26264
60	200	250	716	800	2176	3000	8040	10000	26800

DEMAND TABLES

1200 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	29.9								
6	34.0								
7	38.1								
8	42.5								
9	46.6								
10	50.7								
11	54.8	62	242	255	857	820	2621	3100	9765
12	58.9	64	249	260	869	840	2687	3200	10080
13	63.3	66	255	265	888	860	2750	3300	10395
14	67.4	68	262	270	904	880	2807	3400	10710
15	71.5	70	269	275	926	900	2870	3500	11025
16	75.6	72	276	280	932	920	2933	3600	11340
17	79.7	74	283	285	948	940	2996	3700	11655
18	83.8	76	289	290	964	960	3062	3800	11970
19	87.6	78	296	295	977	980	3125	3900	12285
20	92.0	80	302	300	992	1000	3182	4000	12600
21	95.8	82	310	310	1024	1050	3336	4100	12915
22	99.9	84	315	320	1055	1100	3490	4200	13230
23	103	86	321	330	1084	1150	3645	4300	13545
24	107	88	328	340	1115	1200	3802	4400	13860
25	110	90	337	350	1147	1250	3953	4500	14175
26	113	92	343	360	1175	1300	4108	4600	14490
27	117	94	350	370	1206	1350	4262	4700	14805
28	122	96	356	380	1238	1400	4410	4800	15120
29	124	98	362	390	1269	1450	4568	4900	15435
30	128	100	369	400	1298	1500	4725	5000	15750
31	132	105	384	410	1329	1550	4883	5100	16065
32	136	110	403	420	1361	1600	5040	5200	16380
33	140	115	419	430	1392	1650	5198	5300	16695
34	143	120	435	440	1424	1700	5355	5400	17010
35	147	125	450	450	1455	1750	5513	5500	17325
36	150	130	466	460	1487	1800	5670	5600	17640
37	154	135	482	470	1515	1850	5828	5700	17955
38	158	140	501	480	1547	1900	5985	5800	18270
39	161	145	513	490	1578	1950	6143	5900	18585
40	165	150	529	500	1613	2000	6300	6000	18900
41	168	155	545	510	1644	2050	6458	6200	19530
42	172	160	561	520	1676	2100	6615	6400	20160
43	175	165	576	530	1707	2150	6773	6600	20790
44	179	170	592	540	1736	2200	6930	6800	21420
45	182	175	608	550	1767	2250	7088	7000	22050
46	186	180	624	560	1799	2300	7245	7200	22680
47	190	185	639	570	1833	2350	7403	7400	23310
48	193	190	655	580	1865	2400	7560	7600	23940
49	197	195	671	590	1893	2450	7718	7800	24570
50	200	200	687	600	1928	2500	7875	8000	25200
51	204	205	702	620	1988	2550	8033	8200	25830
52	207	210	718	640	2054	2600	8190	8400	26460
53	210	215	734	660	2117	2650	8348	8600	27090
54	214	220	750	680	2180	2700	8505	8800	27720
55	217	225	765	700	2246	2750	8663	9000	28350
56	221	230	778	720	2309	2800	8820	9200	28980
57	224	235	794	740	2372	2850	8978	9400	29610
58	228	240	810	760	2432	2900	9135	9600	30240
59	232	245	825	780	2498	2950	9293	9800	30870
60	235	250	841	800	2558	3000	9450	10000	31500

DEMAND TABLES

1400 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	34.4								
6	39.1								
7	43.8								
8	48.9								
9	53.6								
10	58.3								
11	63.0	62	278	255	985	820	3012	3100	11222
12	67.7	64	286	260	999	840	3088	3200	11584
13	72.8	66	294	265	1021	860	3160	3300	11946
14	77.5	68	301	270	1039	880	3225	3400	12308
15	82.2	70	309	275	1053	900	3298	3500	12670
16	86.9	72	317	280	1072	920	3370	3600	13032
17	91.6	74	325	285	1090	940	3443	3700	13394
18	96.3	76	332	290	1108	960	3519	3800	13756
19	101	78	340	295	1122	980	3591	3900	14118
20	106	80	348	300	1140	1000	3656	4000	14480
21	110	82	356	310	1177	1050	3834	4100	14842
22	115	84	362	320	1213	1100	4011	4200	15204
23	119	86	369	330	1245	1150	4188	4300	15566
24	123	88	376	340	1281	1200	4369	4400	15928
25	126	90	387	350	1318	1250	4543	4500	16290
26	130	92	395	360	1350	1300	4720	4600	16652
27	135	94	402	370	1386	1350	4898	4700	17014
28	141	96	409	380	1423	1400	5068	4800	17376
29	143	98	416	390	1459	1450	5249	4900	17738
30	147	100	424	400	1491	1500	5430	5000	18100
31	152	105	442	410	1528	1550	5611	5100	18462
32	156	110	463	420	1564	1600	5792	5200	18824
33	160	115	481	430	1600	1650	5973	5300	19186
34	164	120	500	440	1636	1700	6154	5400	19548
35	169	125	518	450	1672	1750	6335	5500	19910
36	173	130	536	460	1709	1800	6516	5600	20272
37	177	135	554	470	1741	1850	6697	5700	20634
38	181	140	576	480	1777	1900	6878	5800	20996
39	185	145	590	490	1814	1950	7059	5900	21358
40	189	150	608	500	1853	2000	7240	6000	21720
41	193	155	626	510	1890	2050	7421	6200	22444
42	197	160	644	520	1926	2100	7602	6400	23168
43	201	165	662	530	1962	2150	7783	6600	23892
44	205	170	681	540	1995	2200	7964	6800	24616
45	210	175	699	550	2031	2250	8145	7000	25340
46	214	180	717	560	2067	2300	8326	7200	26064
47	218	185	735	570	2107	2350	8507	7400	26788
48	222	190	753	580	2143	2400	8688	7600	27512
49	226	195	771	590	2176	2450	8869	7800	28236
50	230	200	789	600	2215	2500	9050	8000	28960
51	234	205	807	620	2284	2550	9231	8200	29684
52	238	210	825	640	2360	2600	9412	8400	30408
53	241	215	843	660	2433	2650	9593	8600	31132
54	246	220	862	680	2505	2700	9774	8800	31856
55	250	225	880	700	2581	2750	9955	9000	32580
56	254	230	894	720	2653	2800	10136	9200	33304
57	258	235	912	740	2726	2850	10317	9400	34028
58	262	240	930	760	2795	2900	10498	9600	34752
59	266	245	948	780	2871	2950	10679	9800	35476
60	270	250	967	800	2939	3000	10860	10000	36200

DEMAND TABLES

1600 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	38.6								
6	44.0								
7	49.2								
8	54.9								
9	60.2								
10	65.5								
11	70.8	62	312	255	1107	820	3386	3100	12617
12	76.1	64	321	260	1123	840	3472	3200	13024
13	81.8	66	330	265	1148	860	3553	3300	13431
14	87.1	68	339	270	1168	880	3626	3400	13838
15	92.4	70	348	275	1184	900	3708	3500	14245
16	97.7	72	357	280	1205	920	3789	3600	14652
17	103	74	365	285	1225	940	3871	3700	15059
18	108	76	374	290	1245	960	3956	3800	15466
19	113	78	382	295	1262	980	4037	3900	15873
20	119	80	391	300	1282	1000	4111	4000	16280
21	124	82	400	310	1323	1050	4310	4100	16687
22	129	84	407	320	1363	1100	4510	4200	17094
23	133	86	415	330	1400	1150	4709	4300	17501
24	138	88	423	340	1441	1200	4912	4400	17908
25	142	90	435	350	1481	1250	5108	4500	18315
26	147	92	444	360	1518	1300	5307	4600	18722
27	151	94	452	370	1559	1350	5507	4700	19129
28	158	96	460	380	1600	1400	5698	4800	19536
29	161	98	468	390	1640	1450	5902	4900	19943
30	166	100	476	400	1677	1500	6105	5000	20350
31	171	105	497	410	1718	1550	6309	5100	20757
32	175	110	521	420	1758	1600	6512	5200	21164
33	180	115	541	430	1799	1650	6716	5300	21571
34	185	120	562	440	1840	1700	6919	5400	21978
35	190	125	582	450	1880	1750	7123	5500	22385
36	194	130	602	460	1921	1800	7326	5600	22792
37	199	135	623	470	1958	1850	7530	5700	23199
38	204	140	647	480	1998	1900	7733	5800	23606
39	208	145	663	490	2039	1950	7937	5900	24013
40	213	150	684	500	2084	2000	8140	6000	24420
41	217	155	704	510	2125	2050	8344	6200	25234
42	222	160	724	520	2165	2100	8547	6400	26048
43	226	165	745	530	2206	2150	8751	6600	26862
44	231	170	765	540	2243	2200	8954	6800	27676
45	236	175	786	550	2283	2250	9158	7000	28490
46	240	180	806	560	2324	2300	9361	7200	29304
47	245	185	826	570	2369	2350	9565	7400	30118
48	250	190	847	580	2409	2400	9768	7600	30932
49	254	195	867	590	2446	2450	9972	7800	31746
50	258	200	887	600	2491	2500	10175	8000	32560
51	263	205	908	620	2568	2550	10379	8200	33374
52	267	210	928	640	2654	2600	10582	8400	34188
53	271	215	948	660	2735	2650	10786	8600	35002
54	277	220	969	680	2816	2700	10989	8800	35816
55	281	225	989	700	2902	2750	11193	9000	36630
56	286	230	1005	720	2983	2800	11396	9200	37444
57	290	235	1026	740	3065	2850	11600	9400	38258
58	294	240	1046	760	3142	2900	11803	9600	39072
59	300	245	1066	780	3228	2950	12007	9800	39886
60	303	250	1087	800	3305	3000	12210	10000	40700

DEMAND TABLES

1800 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	42.8								
6	48.7								
7	54.6								
8	60.9								
9	66.7								
10	72.6								
11	78.5	62	346	255	1227	820	3752	3100	13981
12	84.3	64	356	260	1245	840	3847	3200	14432
13	90.7	66	366	265	1272	860	3937	3300	14883
14	96.5	68	375	270	1294	880	4018	3400	15334
15	102	70	385	275	1312	900	4109	3500	15785
16	108	72	395	280	1335	920	4199	3600	16236
17	114	74	405	285	1358	940	4289	3700	16687
18	120	76	414	290	1380	960	4384	3800	17138
19	125	78	423	295	1398	980	4474	3900	17589
20	132	80	433	300	1421	1000	4555	4000	18040
21	137	82	443	310	1466	1050	4776	4100	18491
22	143	84	451	320	1511	1100	4997	4200	18942
23	148	86	460	330	1551	1150	5218	4300	19393
24	153	88	469	340	1597	1200	5444	4400	19844
25	157	90	483	350	1642	1250	5660	4500	20295
26	162	92	492	360	1682	1300	5881	4600	20746
27	168	94	501	370	1727	1350	6102	4700	21197
28	175	96	510	380	1772	1400	6314	4800	21648
29	178	98	519	390	1818	1450	6540	4900	22099
30	184	100	528	400	1858	1500	6765	5000	22550
31	189	105	550	410	1903	1550	6991	5100	23001
32	194	110	577	420	1948	1600	7216	5200	23452
33	200	115	600	430	1993	1650	7442	5300	23903
34	205	120	622	440	2039	1700	7667	5400	24354
35	210	125	645	450	2084	1750	7893	5500	24805
36	215	130	667	460	2129	1800	8118	5600	25256
37	221	135	690	470	2169	1850	8344	5700	25707
38	226	140	717	480	2214	1900	8569	5800	26158
39	231	145	735	490	2260	1950	8795	5900	26609
40	236	150	758	500	2309	2000	9020	6000	27060
41	241	155	780	510	2354	2050	9246	6200	27962
42	246	160	803	520	2399	2100	9471	6400	28864
43	250	165	825	530	2444	2150	9697	6600	29766
44	256	170	848	540	2485	2200	9922	6800	30668
45	261	175	870	550	2530	2250	10148	7000	31570
46	266	180	893	560	2575	2300	10373	7200	32472
47	272	185	916	570	2625	2350	10599	7400	33374
48	277	190	938	580	2670	2400	10824	7600	34276
49	281	195	961	590	2711	2450	11050	7800	35178
50	286	200	983	600	2760	2500	11275	8000	36080
51	292	205	1006	620	2846	2550	11501	8200	36982
52	296	210	1028	640	2941	2600	11726	8400	37884
53	301	215	1051	660	3031	2650	11952	8600	38786
54	307	220	1073	680	3121	2700	12177	8800	39688
55	311	225	1096	700	3216	2750	12403	9000	40590
56	317	230	1114	720	3306	2800	12628	9200	41492
57	321	235	1137	740	3396	2850	12854	9400	42394
58	326	240	1159	760	3482	2900	13079	9600	43296
59	332	245	1182	780	3576	2950	13305	9800	44198
60	336	250	1204	800	3662	3000	13530	10000	45100

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DEMAND TABLES

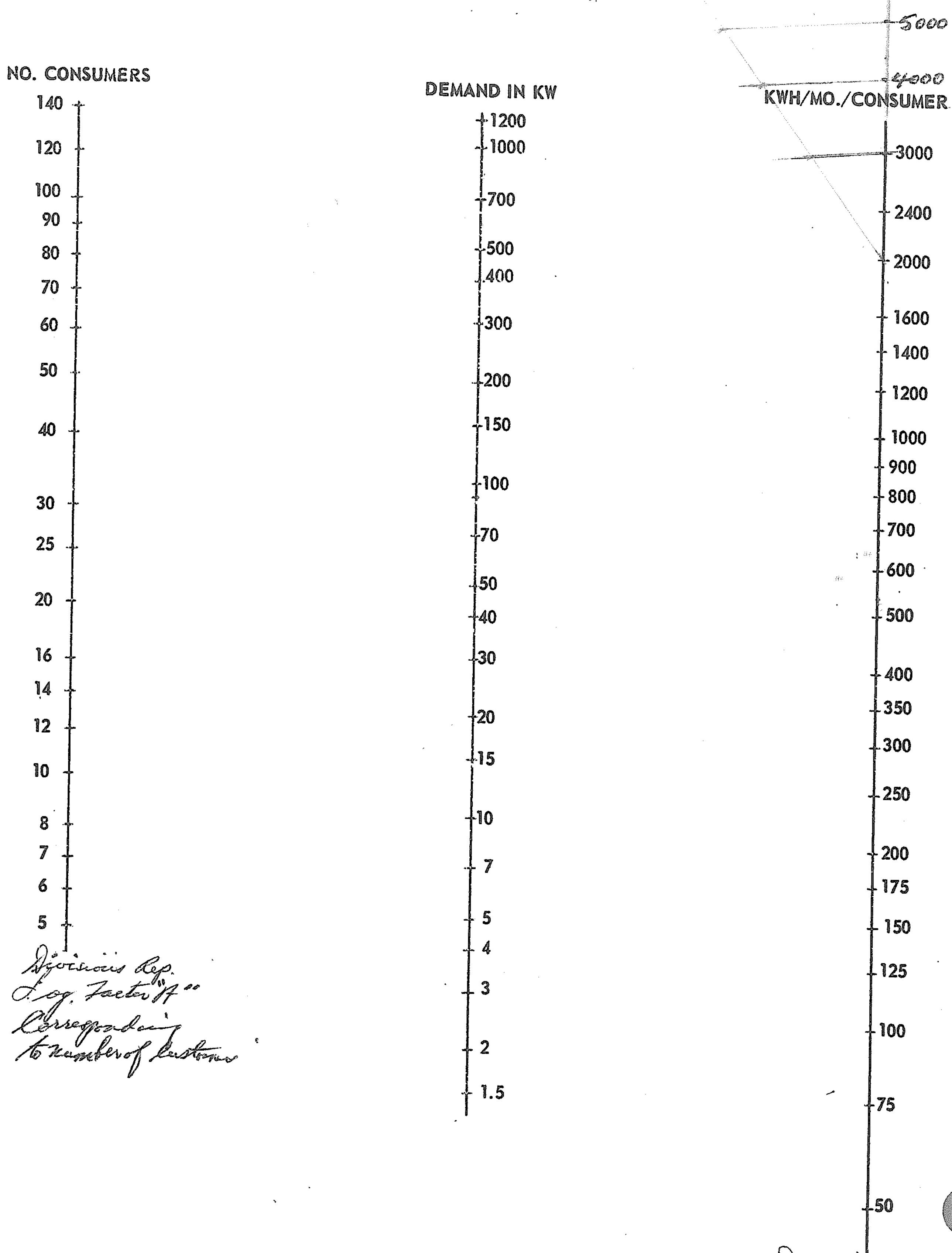
2000 KWH/MO/CONSUMER

FOR USE WITH VOLTAGE DROP STUDY

NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW	NO. CONSUMERS	DEMAND IN KW
5	47.0								
6	53.5								
7	59.9								
8	66.8								
9	73.3								
10	79.7								
11	86.1	62	380	255	1346	820	4118	3100	15345
12	92.6	64	391	260	1366	840	4222	3200	15840
13	99.5	66	401	265	1396	860	4321	3300	16335
14	106	68	412	270	1421	880	4410	3400	16830
15	112	70	423	275	1440	900	4509	3500	17325
16	119	72	434	280	1465	920	4608	3600	17820
17	125	74	444	285	1490	940	4707	3700	18315
18	132	76	454	290	1515	960	4811	3800	18810
19	138	78	465	295	1535	980	4910	3900	19305
20	145	80	475	300	1559	1000	5000	4000	19800
21	150	82	487	310	1609	1050	5242	4100	20295
22	157	84	495	320	1658	1100	5485	4200	20790
23	162	86	505	330	1703	1150	5727	4300	21285
24	168	88	515	340	1752	1200	5975	4400	21780
25	173	90	530	350	1802	1250	6212	4500	22275
26	178	92	540	360	1846	1300	6455	4600	22770
27	184	94	549	370	1896	1350	6697	4700	23265
28	193	96	559	380	1945	1400	6930	4800	23760
29	196	98	569	390	1995	1450	7178	4900	24255
30	201	100	579	400	2039	1500	7425	5000	24750
31	207	105	604	410	2089	1550	7673	5100	25245
32	213	110	634	420	2138	1600	7920	5200	25740
33	219	115	658	430	2188	1650	8168	5300	26235
34	225	120	683	440	2237	1700	8415	5400	26730
35	231	125	708	450	2287	1750	8663	5500	27225
36	236	130	733	460	2336	1800	8910	5600	27720
37	242	135	757	470	2381	1850	9158	5700	28215
38	248	140	787	480	2430	1900	9405	5800	28710
39	253	145	807	490	2480	1950	9653	5900	29205
40	259	150	832	500	2534	2000	9900	6000	29700
41	264	155	856	510	2584	2050	10148	6200	30690
42	270	160	881	520	2633	2100	10395	6400	31680
43	275	165	906	530	2683	2150	10643	6600	32670
44	281	170	931	540	2727	2200	10890	6800	33660
45	287	175	955	550	2777	2250	11138	7000	34650
46	292	180	980	560	2826	2300	11385	7200	35640
47	298	185	1005	570	2881	2350	11633	7400	36630
48	304	190	1030	580	2930	2400	11880	7600	37620
49	309	195	1054	590	2975	2450	12128	7800	38610
50	314	200	1079	600	3029	2500	12375	8000	39600
51	320	205	1104	620	3123	2550	12623	8200	40590
52	325	210	1129	640	3227	2600	12870	8400	41580
53	330	215	1153	660	3326	2650	13118	8600	42570
54	337	220	1178	680	3425	2700	13365	8800	43560
55	342	225	1203	700	3529	2750	13613	9000	44550
56	347	230	1223	720	3628	2800	13860	9200	45540
57	352	235	1247	740	3727	2850	14108	9400	46530
58	358	240	1272	760	3821	2900	14355	9600	47520
59	364	245	1297	780	3925	2950	14603	9800	48510
60	369	250	1322	800	4019	3000	14850	10000	49500

NOMOGRAM FOR KW DEMAND

(Place straightedge from number of consumer in left-hand column to KWH/Mo./Consumer in right-hand column, and read demand in center column.)



Divisions Rep. Log. Factor "A" Corresponding to number of Customers

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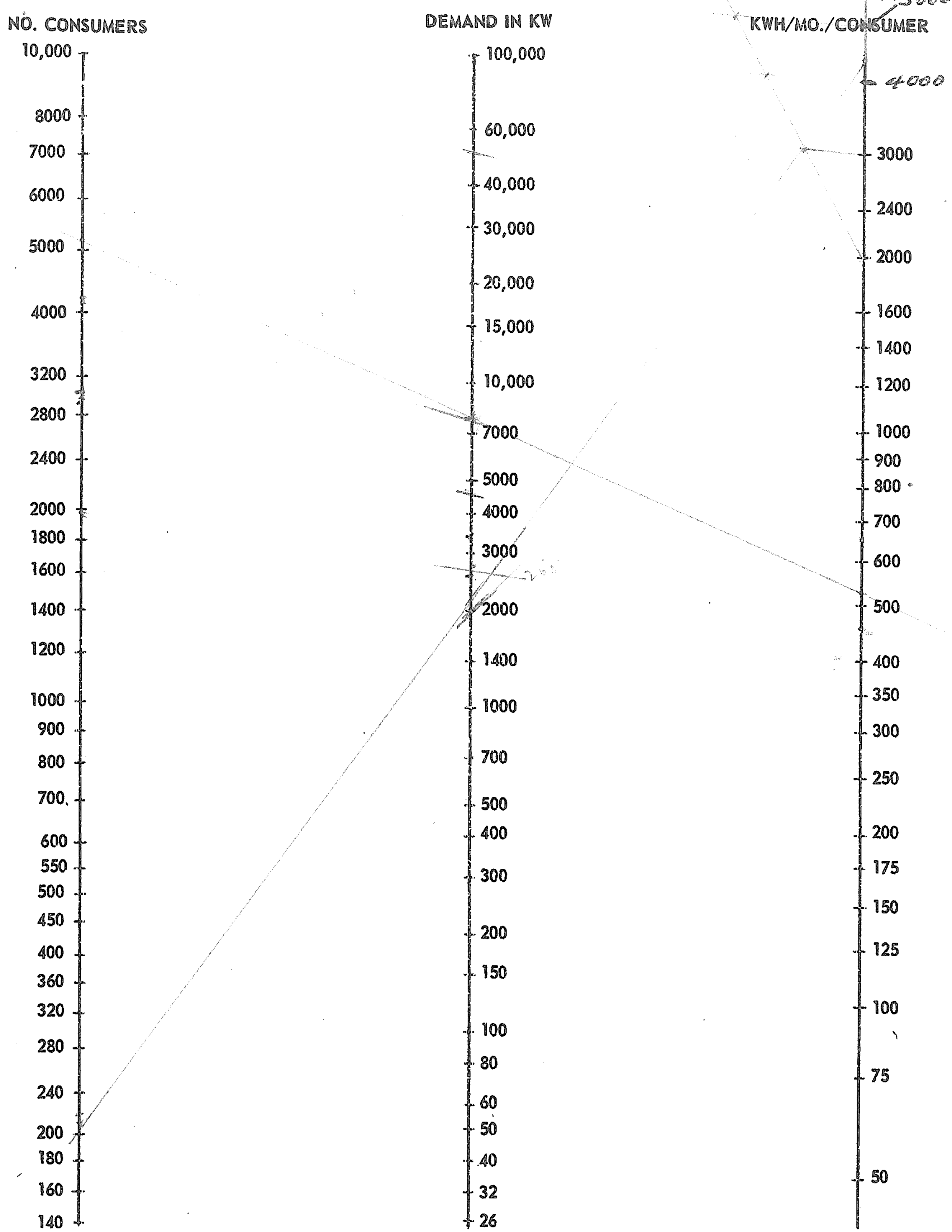
Divisions Represent the Log of Factor "B" corresponding to KWH/Cons/Mo


NO. CONSUMERS
10,000
8000
7000
6000
5000
4000
3200
2800
2400
2000
1800
1600
1400
1200
1000
900
800
700
600
550
500
450
400
360
320
280
240
200
180
160
140
DEMAND IN KW
100,000
60,000
40,000
30,000
20,000
15,000
10,000
7000
5000
4000
3000
2000
1400
1000
700
500
400
300
200
150
100
80
60
50
40
32
26
KWH/MO./CONSUMER
5000
4000
3000
2400
2000
1600
1400
1200
1000
900
800
700
600
500
400
350
300
250
200
175
150
125
100
75
50

DEMAND TABLES

CONSUMER FACTOR
(FACTOR "A")

NO. CONSUMERS	FACTOR "A"	NO. CONSUMERS	FACTOR "A"	NO. CONSUMERS	FACTOR "A"	NO. CONSUMERS	FACTOR "A"	NO. CONSUMERS	FACTOR "A"
5	9.49								
6	10.8								
7	12.1								
8	13.5								
9	14.8								
10	16.1								
11	17.4	62	76.7	255	272	820	832	3100	
12	18.7	64	78.9	260	276	840	853	3200	
13	20.1	66	81.1	265	282	860	873	3300	
14	21.4	68	83.2	270	287	880	891	3400	
15	22.7	70	85.4	275	291	900	911	3500	
16	24.0	72	87.6	280	296	920	931	3600	
17	25.3	74	89.7	285	301	940	951	3700	
18	26.6	76	91.8	290	306	960	972	3800	
19	27.8	78	93.9	295	310	980	992	3900	
20	29.2	80	96.0	300	315	1000	1010	4000	
21	30.4	82	98.3	310	325	1050	1059	4100	SAME AS NUMBER OF CONSUMERS
22	31.7	84	100	320	335	1100	1108	4200	
23	32.8	86	102	330	344	1150	1157	4300	
24	33.9	88	104	340	354	1200	1207	4400	
25	34.9	90	107	350	364	1250	1255	4500	
26	36.0	92	109	360	373	1300	1304	4600	
27	37.2	94	111	370	383	1350	1353	4700	
28	38.9	96	113	380	393	1400	1400	4800	
29	39.5	98	115	390	403	1450	1450	4900	
30	40.7	100	117	400	412	1500	1500	5000	
31	41.9	105	122	410	422	1550	SAME AS NUMBER OF CONSUMERS	5100	
32	43.1	110	128	420	432	1600		5200	
33	44.3	115	133	430	442	1650		5300	
34	45.4	120	138	440	452	1700		5400	
35	46.6	125	143	450	462	1750		5500	
36	47.7	130	148	460	472	1800		5600	
37	48.9	135	153	470	481	1850		5700	
38	50.0	140	159	480	491	1900		5800	
39	51.2	145	163	490	501	1950		5900	
40	52.3	150	168	500	512	2000		6000	
41	53.4	155	173	510	522	2050		6200	
42	54.5	160	178	520	532	2100		6400	
43	55.5	165	183	530	542	2150		6600	
44	56.7	170	188	540	551	2200		6800	
45	57.9	175	193	550	561	2250		7000	
46	59.0	180	198	560	571	2300		7200	
47	60.2	185	203	570	582	2350		7400	
48	61.4	190	208	580	592	2400		7600	
49	62.4	195	213	590	601	2450		7800	
50	63.5	200	218	600	612	2500		8000	
51	64.7	205	223	620	631	2550		8200	
52	65.7	210	228	640	652	2600		8400	
53	66.7	215	233	660	672	2650		8600	
54	68.0	220	238	680	692	2700		8800	
55	69.0	225	243	700	713	2750		9000	
56	70.2	230	247	720	733	2800		9200	
57	71.2	235	252	740	753	2850		9400	
58	72.3	240	257	760	772	2900		9600	
59	73.6	245	262	780	793	2950		9800	
60	74.5	250	267	800	812	3000		10000	

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DEMAND TABLES

KWH FACTOR
(FACTOR "B")

KWH/MO/CONSUMER	FACTOR "B"	KWH/MO/CONSUMER	FACTOR "B"
50	.189	420	1.24
55	.203	440	1.29
60	.220	460	1.34
65	.237	480	1.40
70	.254	500	1.45
75	.270	525	1.51
80	.286	550	1.58
85	.301	575	1.64
90	.317	600	1.70
95	.333	625	1.77
100	.348	650	1.83
110	.379	675	1.90
120	.409	700	1.96
130	.439	725	2.02
140	.468	750	2.08
150	.497	775	2.14
160	.525	800	2.20
170	.554	825	2.26
180	.583	850	2.32
190	.612	875	2.38
200	.641	900	2.44
210	.669	925	2.50
220	.697	950	2.56
230	.726	975	2.62
240	.755	1000	2.68
250	.784	1100	2.92
260	.810	1200	3.15
270	.836	1300	3.39
280	.864	1400	3.62
290	.893	1500	3.84
300	.923	1600	4.07
320	.972	1700	4.29
340	1.03	1800	4.51
360	1.08	1900	4.73
380	1.14	2000	4.95
400	1.19		

NOTE: The above table may be plotted as a straight line on log-log paper.

REFERENCE: **Application, page 4**

ISSUE/SUB-ISSUE: **Option A**

QUOTE:

Reflects runoff rates at 80% of 2009 incremental diesel generation costs, with resulting increased bill impacts for a minority of higher use customers and reduced bills for the majority of customers using only first block energy.

QUESTION:

a) Have diesel prices declined since what was proposed and approved in either the YEC or YECL Phase 1 proceedings?

b) If the answer to (a) of the question is affirmative, please provide all reasons why 80% of 2009 incremental diesel generation costs are still applicable as opposed to a lower rate.

ANSWER:

(a)

Yes, based on the attached most recent Rider F change notification both companies are currently paying lower fuel prices than their approved GRA rates. As noted in Attachment A to this response, which is the latest “Rider F” deferred fuel price rider update to the YUB, the present and forecast diesel prices today are approximately 10% below the 2009 approved GRA prices.

(b)

Please see response to CW-YEC/YECL-1-16(l).

Note that the 80% ratio to 2009 approved diesel prices means that the Option A proposed runoff rates remain below the incremental cost of diesel based on today’s prices.

The Yukon Electrical Company Limited
An ATCO Company

June 3, 2010

Yukon Utilities Board
Box 31728
Whitehorse, YT
Y1A 6L3

Attention: Mr. Bruce McLennan, Chair

Re: Rate Change – Rider F - Fuel Adjustment Rider – Effective July 1, 2010

Pursuant to Section 8 of OIC 1995/90, Yukon Electrical Company Limited and Yukon Energy Corporation (the Companies) are hereby notifying the Board of a change in the automatic fuel price adjustment rider (Rider F) from a refund rate of 0.354 cents per kW.h to a refund rate of 0.09 cents per kW.h based on the attached forecast. This refund rider will be effective for bills rendered on or after July 1, 2010.

With both companies resetting their GRA fuel rates in 2009, monthly diesel fuel price variances have been significantly reduced. The rebate rider instituted at December 1, 2009 has paid down the balance owing to ratepayers. As both companies are currently paying lower fuel prices than their GRA rates, the Rider F will remain as a rebate rider until future increases in fuel prices create a receivable balance.

The Companies will continue to monitor the variables impacting Rider F with the general intent of making annual or semi-annual adjustments to maintain the Companies' combined accounts close to a neutral balance.

Yours sincerely,

The Yukon Electrical Company Limited

Jerome Babyn
General Manager

Yukon Energy Corporation

David Morrison
President and CEO

Encl.

Serving the Yukon since 1901
100 - 1100 1st Avenue, Whitehorse, YT. Y1A 3T4 • tel: 867-633-7000 or 1-800-661-0513 • fax: 867-668-6692

The Yukon Electrical Company Limited
Yukon Energy Corporation
Rider F Calculation
As At May 31, 2010
(Forecast Implementation Date in CIS = July 1, 2010)

The Yukon Electrical Company Limited

	Fuel Price in Rates	Forecast Fuel Price	Forecast Litres	Monthly Shortfall	
Due From (To)	Customers - as at May 31, 2010				(19,278)
Jun-10	Estimated Net			35,000	
Jul-10	96.07	87.96	386,721	(31,363)	
Aug-10	96.07	87.96	395,984	(32,114)	
Sep-10	96.07	87.96	401,571	(32,567)	
Oct-10	96.07	87.96	425,274	(34,490)	
Nov-10	96.07	87.96	460,686	(37,362)	
Dec-10	96.07	87.96	603,069	(48,909)	
Jan-11	96.07	87.96	549,132	(44,535)	
Feb-11	96.07	87.96	473,186	(38,375)	
Mar-11	96.07	87.96	530,440	(43,019)	
Apr-11	96.07	87.96	382,068	(30,986)	
May-11	96.07	87.96	373,559	(30,296)	
Sub total				(369,015)	(369,015)
YECL Shortfall (Over-collection)					**(388,293)**

Yukon Energy Corporation

	Fuel Price in Rates	Forecast Fuel Price	Forecast Litres	Monthly Shortfall	Secondary Sales Adjmt	
Due From (To)	Customers - as at May 31, 2010					-
Jun-10	Estimated Net			20,000		
Jul-10	97.57	89.59	9,408	(751)	4,376	
Aug-10	97.57	89.59	9,102	(726)	4,787	
Sep-10	97.57	89.59	9,398	(750)	5,843	
Oct-10	97.57	89.59	8,184	(653)	8,049	
Nov-10	98.88	87.58	36,639	(4,141)	8,049	
Dec-10	98.86	87.60	37,161	(4,182)	8,639	
Jan-11	98.80	87.70	38,967	(4,326)	9,917	
Feb-11	98.91	87.53	44,758	(5,093)	8,982	
Mar-11	98.91	87.52	44,565	(5,077)	8,392	
Apr-11	97.57	89.59	8,738	(697)	7,395	
May-11	97.57	89.59	7,962	(635)	7,918	
Sub total			254,883	(7,033)	82,346	75,314
YEC Shortfall (Over-collection)						**75,314**

Combined YEC/YECL Shortfall (Over-collection) **(312,979)**

2010 Forecast Retail Sales (kwh's) - June 2010-May 2011			
	YECL	281,864,892	
	YEC - Retail	28,961,552	
	YEC - Industrial	34,774,499	
	Total		345,600,944

Rider F Rate - price per kwh (cents) to distribute proceeds by May 31, 2011 **-0.090560939**

REFERENCE: **Application, page 4**

ISSUE/SUB-ISSUE: **Residential Government rates 1180, 1280, 1380**

QUESTION:

a) Please provide the history and rationale for Residential Government Rate Classes.

b) Please describe the characteristic differences between Residential Government Rate Classes 1180, 1280, 1380, 1480 and those of Residential Non-Government Rate Classes 1160, 1260, 1360, and 1460.

c) Please provide the history and rationale for General Service Federal and Territorial Government Rate Classes (2180, 2280, 2380, 2480).

d) Please describe the characteristic differences between General Service Federal and Territorial Government Rate Classes (2180, 2280, 2380, 2480) and General Service Non-Government and Municipal Government Rate Classes (2160, 2170, 2260, 2270, 2360, 2370, 2460, 2470).

ANSWER:

(a) and **(c)**

On March 31, 1987, the Government of Yukon acquired the assets of the Northern Canada Power Commission. Following the transfer of these assets to the Yukon Energy Corporation, the Government issued its policies with respect to Yukon electricity rates in Order-In-Council 1988/150 dated September 12, 1988. The OIC introduced the policy of equalized rates for all Yukon communities. The policy of equalization, which applied to all Non Government customers served by both Yukon Electrical and Yukon Energy, was based on two criteria. They are: (1) the first block of energy had to be set at the same level for all communities (equalized), regardless of generation type. This effectively created one rate zone for all Non Government Yukon customers. (2) The rates for the Government rate classes were to be adjusted to simplify the rate structure and make rates more consistent throughout the Yukon. In essence, the revenue from this rate class was to be sufficient to recover costs not received from Non Government classes. This rate class applied to all Federal and Territorial customers.

(b)

Any customer, whether Government or Non-Government, served from a single phase electric service at secondary voltage through a single meter, for normal use by a single and separate household is deemed to be a residential customer. The rate assignment as a government or non government class is determined by the end use customer rather than by usage characteristics. A government customer is defined in Rate Policy Directive 1995 (OIC 1995/90) as "(a) a retail customer who is a federal or territorial department agency; (b) a body, other than one carrying on a business with a view to making a profit that derives all or substantially all of it funding from a body referred to in paragraph (a);" As a result, there are no differences that differentiate a 'residential' customer other than its Government/Non-Government classification. This applies to all residential Government and Non-Government rate classes in Yukon.

However, load characteristics for residential customers (Government and Non-Government) may vary in usage patterns as illustrated in the graphs provided in Appendix 7.1, Page 7.1A-4 of the Application. A copy of the Total YECL Residential Energy Usage by Rate Code is provided in YUB-YEC/YECL-1-10(b), Attachment 1 as an example of the residential characteristics between the various residential rate classes.

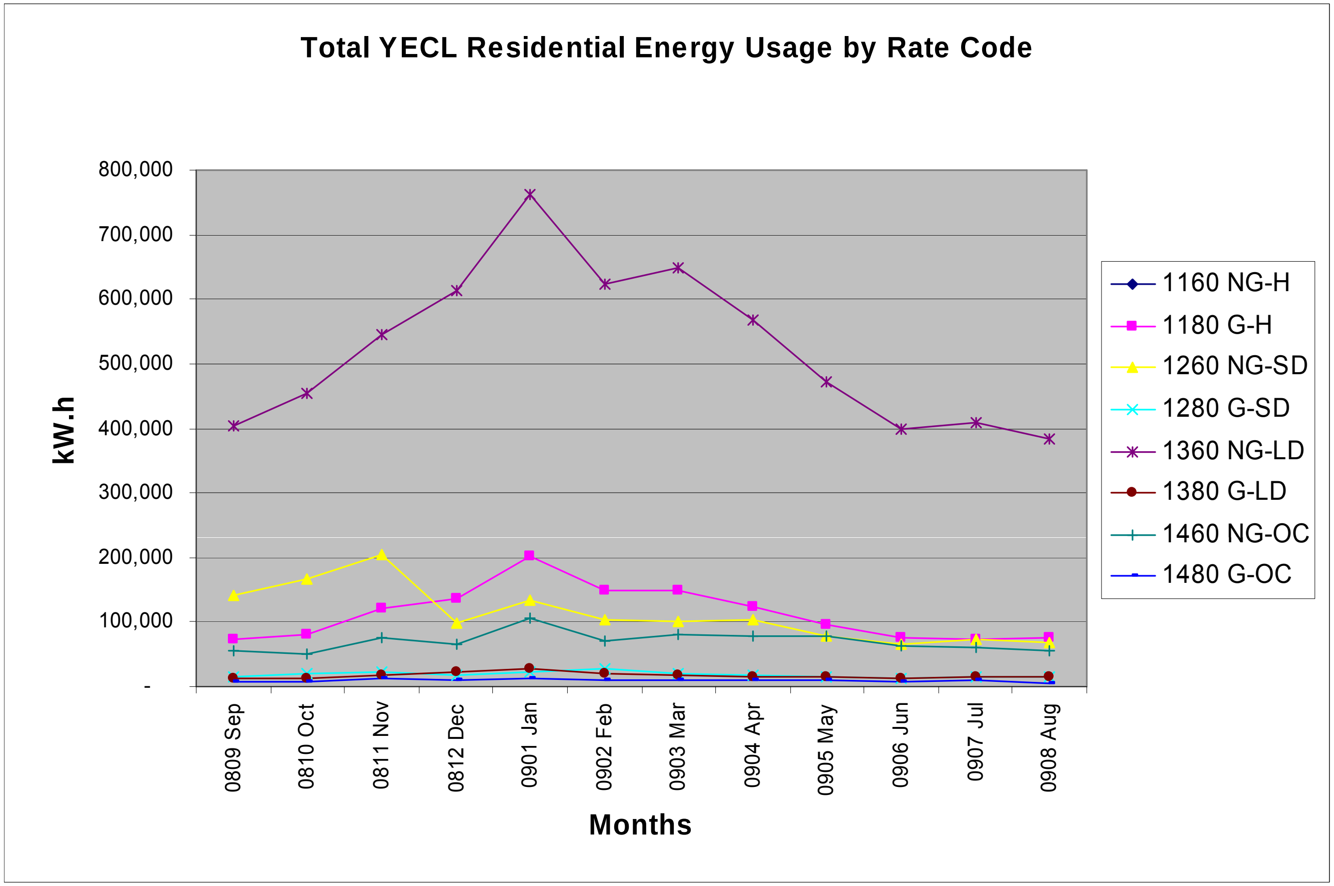
(d)

Similar to the response provided in part (a), there are no differences that differentiate a 'commercial' customer other than its Government/Non-Government classification. As previously stated, the rate assignment as a government or non government class is determined by the end use customer rather than by usage characteristics. As a government customer is defined as a federal or territorial agency, a Municipal Government rate class was created. The rates assigned to this class are currently the same as the non government class with the exception of the inclusion of the Income Tax Rebate.

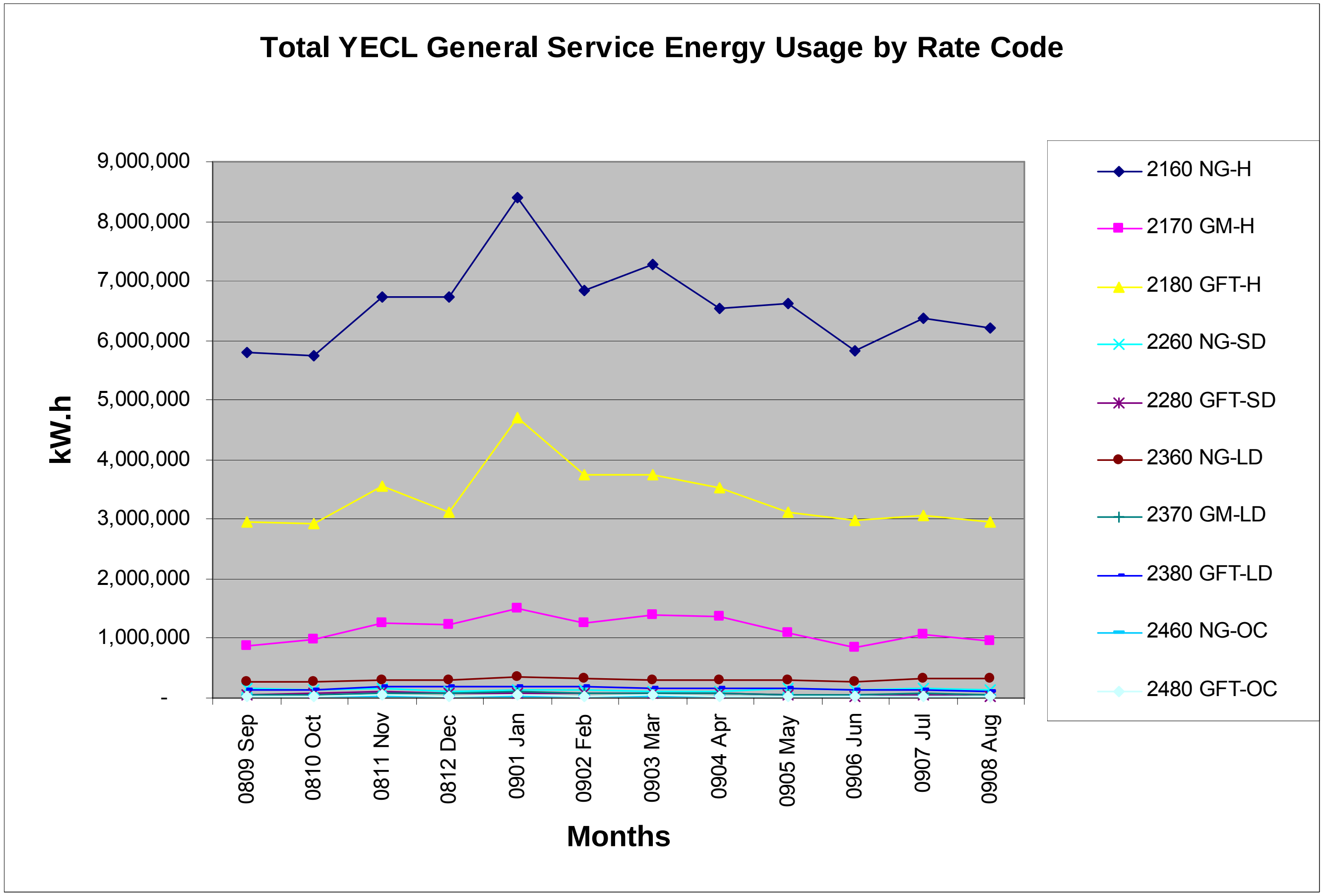
However, load characteristics for commercial customers (Government and Non-Government) may vary in usage patters as illustrated in the graphs provided in Appendix 7.1, Page 7.1A-7 of the Application. A copy of the Total YECL General Service Energy

Usage by Rate Code is provided in YUB-YEC/YECL-1-10(d), Attachment 1 as an example of the general service (commercial) characteristics between the various general service rate classes.

Yukon Briefing – November 4, 2009



Yukon Briefing – November 4, 2009



REFERENCE: **Application, page 5**

ISSUE/SUB-ISSUE: **Energy Blocks**

QUESTION:

a) What is the average annual consumption of a residential customer, if the average does not include loads for summer cottages and cabins (seasonal loads)?

b) Does YEC/YECL take the annual average and divide by twelve to determine a monthly average for average monthly residential consumption?

ANSWER:

(a)

YECL does not have the data to readily identify customers that are summer cottages and cabins. Most of these types of loads remain connected throughout the year whether they are consuming electricity or not.

(b)

No, the monthly energy forecast is derived on a monthly basis using monthly historical data.

REFERENCE: **Application, page 5**

ISSUE/SUB-ISSUE: **Option A/Option B**

QUESTION:

a) Please provide reasons as to why YEC believes the blocking structure it proposes for residential rates (Government and Non-Government) in Option A is superior to the blocking structure proposed for the same rates in Option B.

b) Please provide reasons as to why YECL believes the blocking structure it proposes for residential rates in Option B (Government and Non-Government) is superior to the blocking structure proposed for the same rates in Option A.

c) Please provide reasons as to why YEC believes the blocking structure it proposes for General Service rates (Government (Federal and Territorial) and Non-Government and Municipal Government) in Option A is superior to the blocking structure proposed for the same rates in Option B.

d) Please provide reasons as to why YECL believes the blocking structure it proposes for General Service rates (Government (Federal and Territorial) and Non-Government and Municipal Government) in Option B is superior to the blocking structure proposed for the same rates in Option A.

ANSWER:

(a)

Yukon Energy Response

Yukon Energy has put forward both Option A and Option B for consideration of the Board. While Yukon Energy believes Option A is a superior overall rate design, this is primarily related to the pricing within the blocks rather than the blocking structure per se. For a discussion as to the superiority of Option A overall, please see CW-YEC/YECL-1-19.

As to the blocking structure itself, energy blocks for Option A are as follows:

- Energy 1 0-1,000 kWh
- Energy 2 1,001-1,500 kWh
- Energy 3 >1,500 kWh

Energy blocks for Option B are as follows:

- Energy 1 0-1,000 kWh
- Energy 2 1,001-2,500 kWh
- Energy 3 >2,500 kWh

As part of an overall rate design structure intended to provide efficient runoff price signals, Option A is preferable as approximately 10.3% of customers will see some units (typically very few actual kW.h) consumed at the runoff rate, which is a reasonable proportion of the population so as to make this provision effective. Option B provides this same signal to only about 1.7% of residential customers.

(b)

Yukon Electrical Response

To help frame this response, YECL has provided a table setting out the blocking structure for each option and the percentage of customers estimated to fall in each block.

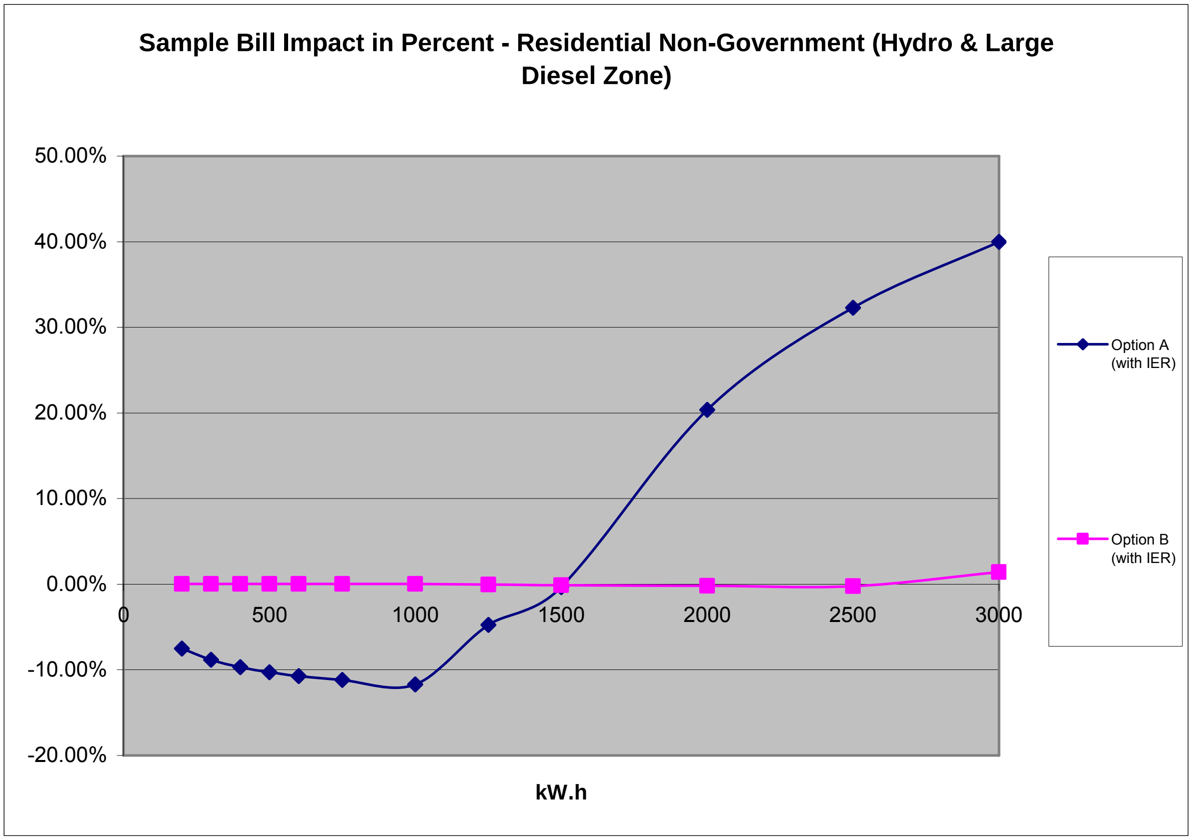
Option A			Option B		
Energy 1	Energy 2	Energy 3	Energy 1	Energy 2	Energy 3
0-1000 kWh	1001-1500 kWh	>1500 kWh	0-1000 kWh	1001-2500 kWh	>2500 kWh
~ 70% of non-government customers	~ 20% of non-government customers	~ 10% of non-government customers	~ 70% of non-government customers	~ 28% of non-government customers	~ 2% of non-government customers
~ 79% of government customers	~ 13% of government customers	~ 8% of government customers	~ 79% of government customers	~ 19% of government customers	~2% of government customers

Energy 1 of Option A and Option B are the same. Energy 2 under Option 2 was extended to consumption up to 2,500 kWh to allow for a smooth transition from the current approved pricing structure allowing for a staged progress over time towards reflecting how costs move with usage. Customers who consume more than 2500 kWh may be considered to have more discretionary consumption choices. This is also consistent with the percentage of customers served under the general service rate for Energy Blocks 3 and 4.

YECL's proposed pricing structure (Option B) avoids too steeply differentiated energy blocks, which YECL believes are excessive in Option A and inequitable under the current costing environment. This is illustrated in the following table that sets out the percentage change between the energy blocks for Options A and B for non-government residential rate class.

RATE CLASS	OPTION A		OPTION B	
	Percentage Change Energy 1 & Energy 2	Percentage Change Energy 2 & Energy 3	Percentage Change Energy 1 & Energy 2	Percentage Change Energy 2 & Energy 3
1160 Hydro Non-Gov	40%	47%	6%	9%
1260 Sm Diesel Non-Gov	40%	47%	6%	9%
1360 Lg Diesel Non-Gov	40%	47%	6%	9%
1460 Old Crow Non-Gov	40%	223%	6%	140%

One of the rate criteria used in this Application is rate stability. The above blocking structure leads to a moderate change under Option B, while material rate swings occur under Option A resulting in rate shock for customers in the third energy block, as noted in the following graph for non-government customers. It is also important to note that under Option A, the first block experiences a reduction in rate which YECL believes sends inappropriate price signals signaling to customers to consume more for consumption under 1,000 kWh. Also, YECL considers the runoff block under Option A to be large considering that diesel generation is not forecasted to be on for any extended period in the near future.



In addition, revenue predictability is considered a key rate design principal for YECL. YECL is uncertain how customers (both government and non-government) may respond to the proposed pricing structure change. As a result, reducing the energy block 2 to cap at 1,500 kWh under Option A may result in significant variances in revenue for YECL from customers that are near blocking break point.

(c)

Yukon Energy Response

Please see Page 4YEC-3 of the Application. The blocking structure for Option A and the blocking structure for Option B are identical as follows:

- Energy 1 — 0-2,000 kWh
- Energy 2 — 2001-15,000 kWh
- Energy 3 — 15,001- 20,000 kWh
- Energy 4 — > 20,000 kWh

With respect to the preferability of the Option A rate design, please see CW-YEC/YECL-19.

(d)

Yukon Electrical Response

To help frame this response, YECL has provided a table setting out the blocking structure for each option and the percentage of customers estimated to fall in each block.

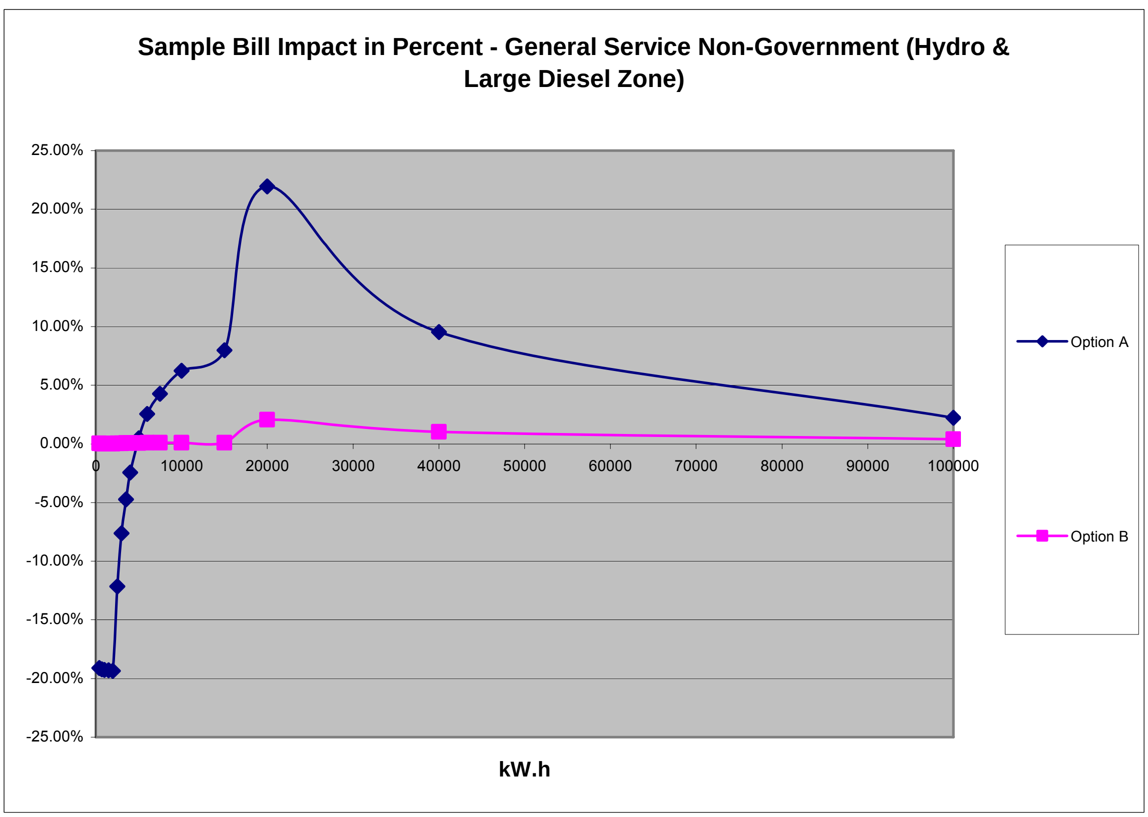
Option A (YEC)				Option B (YECL)			
Energy 1	Energy 2	Energy 3	Energy 4	Energy 1	Energy 2	Energy 3	Energy 4
0-2000 kWh	2001-15000 kWh	15001-20000 kWh	>20000 kWh	0-2000 kWh	2001-15000 kWh	15001-20000 kWh	>20000 kWh
~ 66% of non-government customers	~ 30% of non-government customers	~ 2% of non-government customers	~ 2% of non-government customers	~ 66% of non-government customers	~ 30% of non-government customers	~ 2% of non-government customers	~ 2% of non-government customers
~ 63% of government customers	~ 27% of government customers	~ 2% of government customers	~ 2% of government customers	~ 63% of government customers	~ 27% of government customers	~ 2% of government customers	~ 2% of government customers

The blocking structure for Option A and Option B are the same.

Similar to the residential rate class, YECL's proposed pricing structure (Option B) for general service customers avoids too steeply differentiated energy blocks, which YECL believes are excessive in Option A and inequitable. This is illustrated in the following table that sets out the percentage change between the energy blocks for Options A and B for non-government and municipal general service rate class.

RATE CLASS	OPTION A			OPTION B		
	Percentage Change Energy 1 & Energy 2	Percentage Change Energy 2 & Energy 3	Percentage Change Energy 3 & Energy 4	Percentage Change Energy 1 & Energy 2	Percentage Change Energy 2 & Energy 3	Percentage Change Energy 3 & Energy 4
2160 Hydro Non-Gov	79%	50%	-43%	26%	9%	-8%
2260 Sm Diesel Non-Gov	79%	50%	-32%	26%	9%	9%
2360 Lg Diesel Non-Gov	79%	50%	-43%	26%	9%	-8%
2460 Old Crow Non-Gov	79%	50%	42%	26%	9%	127%
2170 Hydro Municipal	79%	50%	-43%	26%	9%	-8%
2270 Sm Diesel Municipal	79%	50%	-32%	26%	9%	9%
2370 Lg Diesel Municipal	79%	50%	-43%	26%	9%	-8%
2470 Old Crow Municipal	79%	50%	42%	26%	9%	127%

Rate shock impact is illustrated in the following table.



REFERENCE: **Application, page 8**

ISSUE/SUB-ISSUE: **Energy Reconciliation Adjustment**

QUOTE:

…approval to incorporate the full incremental cost of diesel generation on the major systems (27.67 cents/kW.h) as the Energy Reconciliation Adjustment Rate.

QUESTION:

a) Please compare and contrast the Energy Reconciliation Adjustment rate to the previously applied for Energy Reconciliation Account (ERA).

b) If the Energy Reconciliation Adjustment is similar to the Energy Reconciliation Account, please provide the previous Board rulings on the ERA.

ANSWER:

(a) and **(b)**

Yukon Energy Response

Rate Schedule 42 provides for an Energy Reconciliation Adjustment rate not an Energy Reconciliation Account. There is no separate Energy Reconciliation Account. The proposed ERA is identical to the ERA that was approved in 1996/97.

The structure of the Energy Reconciliation Adjustment is designed for the following:

(1) To ensure that YECL receives a pass through of the incremental costs of diesel generation (when diesel is on the margin) driven by increases in the volume of wholesale sales, and

(2) To ensure that Yukon Energy is able to recover its costs (as required by OIC 1995/90 section 7(b)) when diesel generation is on the margin.

The only variation in the ERA proposed as opposed to past practice is that the residential runoff rate proposed (under either Option A or Option B) does not equal 100% of the cost of diesel. In the event the Option A approach is adopted, the ERA can retain its linkage to the residential runoff rate as reasonably representing the incremental cost of diesel. In the event the ratio ultimately approved in less than 80%, the ERA is proposed to be set without reference to the residential rate schedule, but rather simply be set at the approved incremental cost of diesel (27.67 cents/kW.h).

The Board previously addressed the ERA specifically in Order 1999-4 following a settlement process undertaken between YEC and YECL.

Yukon Electrical Response

YECL has also proposed an amendment to the ERA component of Rate Schedule 42 as set out in its Application to implement Rider D.

REFERENCE: **Application, page 8**

ISSUE/SUB-ISSUE: **Rate Schedule 51**

QUESTION:

a) Given that YEC and YECL agree on the COSS, please provide the rationale for providing two different options (Option A and Option B) for Rate Schedule 51.

ANSWER:

(a)

Depending on what Option is used, Wholesale Expenses, Wholesale Revenues and Retail Revenues (less Secondary Sales Revenues) vary to ensure that the Revenue Requirement is met. Please refer to YUB-YEC/YECL-1-14 Schedule 1 for Option A calculation and YUB-YEC/YECL-1-14 Schedule 2 for Option B calculation. The rate proposed for Rate Schedule 51 will be equal to Rate Schedule 42.

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Calculation of Wholesale Rates (42 & 51) - Option A

Row		YECL ($000's)		YEC ($000's)	
1	Revenue Requirement	45,264		31,031	
2	Purchase Power	23,910		54	
3 =1-2	Difference	21,354		30,977	
4	Proposed Revenues	43,933		8,398	80% of ICOD
5=3-4	Difference	(22,579)		22,579	
6	Adjustment for Wholesale Sec. Sales	424		(424)	
7=5+6	Adjusted total	(22,155)		22,155	
8	Purchase Power Energy (MW.h)	267,747		489	
9	Wholesale Rate:	8.290	¢/kW.h		

	Verification	YECL ($000's)	YEC ($000's)
10=8*9/100	Wholesale Expenses	(22,196)	(41)
11	Wholesale Revenues	41	22,196
12	Retail Revenues (less Sec. Sales)	43,433	8,352
13	Secondary Sales Expenses	(424)	-
14	Secondary Sales Revenues	501	470
15	Total	21,354	30,977

Yukon Energy Corporation & Yukon Electrical Company Limited - 2009 Phase II Application

Calculation of Wholesale Rates (42 & 51) - Option B

Row		YECL ($000's)	YEC ($000's)	
1	Revenue Requirement	45,264	31,031	
2	Purchase Power	23,910	54	
3 =1-2	Difference	21,354	30,977	
4	Proposed Revenues	43,959	8,372	50% of ICOD
5=3-4	Difference	(22,605)	22,605	
6	Adjustment for Wholesale Sec. Sales	424	(424)	
7=5+6	Adjusted total	(22,181)	22,181	
8	Purchase Power Energy (MW.h)	267,747	489	
9	Wholesale Rate:	8.299	¢/kW.h	

Row	Verification	YECL ($000's)	YEC ($000's)
10=8*9/100	Wholesale Expenses	(22,221)	(41)
11	Wholesale Revenues	41	22,221
12	Retail Revenues (less Sec. Sales)	43,458	8,327
13	Secondary Sales Expenses	(424)	-
14	Secondary Sales Revenues	501	470
15	Total	21,354	30,977

REFERENCE: **Application, page 1-8**

ISSUE/SUB-ISSUE: **Surplus Hydro**

QUOTE:

Based on Yukon Energy's current forecasts, ongoing load growth and expressed interest from other future industrial customers will likely cause the existing hydro generation on both the WAF and MD grids to be basically fully utilized within the next few years.

QUESTION:

a) Please confirm that for the current test period existing hydro is not forecast to be fully utilized.

ANSWER:

(a)

As reviewed in section 2.3 of the 2009 Phase II Rate Application, the 2009 Consolidated Firm Revenue Requirements assume that for the current test period (2009) existing hydro is not forecast to be fully utilized.

The 2009 Consolidated Firm Revenue Requirements are based on system supply with only limited use of diesel generation for peaking and maintenance reasons on the integrated systems (WAF and MD grids where hydro continues to be the dominant generation supply source). While there remains surplus hydro at times of the year on these grid systems to supply secondary loads, the availability of secondary energy is diminished in 2009, such that the forecast secondary supply quantities reflect material sustained interruptions to aid in avoiding diesel generation.

Since the 2009 Consolidated Firm Revenue Requirements were approved by the Board, Yukon Energy has proceeded with its Part 3 application for Mayo B and the review by the Board of this Mayo B Part 3 Application. As concluded in the Board's Report to the Minister (May 17, 2010, p. 11 and 13) recommending that the Mayo B Project proceed as proposed for in-service by 2012, "…the Mayo B Project is premised on Mayo B being a renewable energy resource project meant to displace diesel generation and the associated greenhouse gas emissions resulting from diesel generation to meet load requirements. The cost savings to Yukon ratepayers and other benefits from displacing diesel generation led the Board to recommend that the public benefit is significant enough that YEC should proceed with the Mayo B Project."

Based on the load forecasts in that application, Yukon Energy's Mayo B Part 3 Application[1] indicated that material baseload diesel generation would be required in the 2012-2017 period (see Figure 2 showing the overall integrated grid forecast generation).

For the 2009 test year on WAF, the methods used to prepare the diesel generation forecasts in the Mayo B Part 3 Application can similarly be applied. These system models look at the possible flow conditions that can arise on the hydro systems, and indicate that at the GRA approved load levels (approximately 325 GW.h YEC WAF hydro generation), no diesel would be required in 90% of cases (the wetter years on record), while in the remaining 10% of cases between 25 and 50 GW.h of diesel could be required (i.e., in the driest years that would be expected to arise). Over a long-term average, a load that required 325 GW.h of YEC baseload dispatchable generation (i.e., net of Fish Lake and wind generation) would be supplied by an average of approximately 321 GW.h of hydro and 4 GW.h of diesel.

YEC's GRA application however did not forecast any baseload diesel generation, on average.

For load growth going beyond 2009 levels, and without new renewable generation, diesel would have to begin to be forecast to be on the margin in a small but increasing way, in order to ensure rates are appropriately recovering the average diesel consumption that would be required under the various potential water flow conditions that could arise.

[1] YEC's Application for an Energy Project Certificate and an Energy Operation Certificate regarding the Proposed Mayo Hydro Enhancement Project (Mayo B), December 10, 2009.

REFERENCE: **Application, page 2-5**

ISSUE/SUB-ISSUE: **Secondary Loads**

QUOTE:

While there remains surplus hydro at times of the year on the grid systems to supply secondary sales, the availability of secondary energy is diminishing, such that the forecast secondary supply quantities reflect material sustained interruptions to aid in avoiding diesel generation.

QUESTION:

a) Please list the dates and durations of sustained secondary supply interruptions in 2009 and up to the end of May 2010 where the interruptions occurred for economic reasons not peaking related (avoid running of diesel units) versus other outage reasons (generation outage, transmission line outage, distribution outage).

ANSWER:

(a)

Secondary Sales curtailment dates are as listed below. All instances are peak related due to cold temperatures.

Secondary Sales Curtailment Dates		
Start	Stop	Days
15-Dec-08	31-Dec-08	16.00
1-Jan-09	12-Jan-09	11.00
11-Dec-09	17-Dec-09	6.00
29-Dec-09	31-Dec-09	2.00
1-Jan-10	11-Jan-10	10.00

There are no recorded instances in 2009 and up to the end of May 2010 where the interruption of secondary sales occurred for outage reasons. As standard practice during unplanned outages secondary sales are often curtailed at larger customers (e.g., the Whitehorse hospital) but these instances are not recorded as curtailments as they are usually limited duration associated with the outage.

REFERENCE: **Application, page 4YEC-1**

ISSUE/SUB-ISSUE: **New Equalized Second Energy Block**

QUESTION:

a) What does YEC mean by "equalized" energy block?

ANSWER:

(a)

As noted in the Application at page 4YEC-13, Yukon rate policy as set out in OIC 1995/90 requires (per section 4(1)(b)) that "rates for each class of non-governmental retail customer must be the same throughout the Yukon without variation between Yukon Energy Corporation and the Yukon Electrical Company Limited customers". This provision is subject to section 4(2) and 4(3) of OIC 1995/90, which permit variation only in a runoff block designed to promote economy and efficiency.

Page 4 YEC-18 of the Application describes the implications this rate policy directive has on the proposed rate design, i.e., new (or multiple) non-runoff rate blocks can be considered, subject to ensuring that rates within each new non-government retail rate block, other than the runoff block, are the same (i.e., equalized) throughout Yukon.

REFERENCE: **Application, page 4 YEC-2**

ISSUE/SUB-ISSUE: **Blocking Levels – Residential (Option A)**

QUESTION:

a) What criteria were used to set the energy levels for each energy block?

b) Why was the criteria used in response to the (a) part of the question utilized? What other alternatives were reviewed?

c) What criteria were used to determine the energy levels for each energy block with respect to General Service?

d) Why was the criteria used in response to the (c) part of the question utilized? What other alternatives were reviewed?

ANSWER:

(a) and **(b)**

Energy levels for each energy block for non-government residential customers were set based on a balancing a set of criteria that included consideration of the number of customers with usage in each block, and the rates required to derive the appropriate revenue. The rate design was also required to reflect OIC requirements and to the extent possible to reflect the criteria noted at page 4YEC-12. Specifically, the following is noted:

- Per OIC 1995/90 requirements (section 4(3)) runoff rate levels were required to be re-set to more closely reflect economy and efficiency. Option A of the Application (set based on 80% of the full incremental cost of diesel generation) provides a step toward reflecting full incremental cost in order to meet the requirements of the OIC and reflect the general rate design criteria to promote efficient usage.

- In setting the energy levels for each block consideration was given to the OIC requirement (section 4(1)) that (except for the runoff where separate rates may be allowed for customers in different community or rate zones[1]) the Board must fix rates for retail customers (other than government customers) that are the same throughout Yukon without variation between YEC and YECL. In this respect, multiple energy blocks could be created between the runoff block and the first block, but these new blocks would have be to equalized throughout Yukon. Alternative block sizes considered are noted on page 4YEC-20 of the Application.

- It was determined that multiple blocks were necessary to better balance the impact of re-setting the runoff rate to reflect economy and efficiency and ensure that a price signal based on full incremental cost was not being set at a threshold that would provide for efficiency at the margin without resulting in material rate impacts or an unfair rate burden for the majority of customers.

Alternative blocking structure and rates were considered and are reflected in Option B (which provides a blocking structure that sets the runoff rate at a higher level (2500 KWh/month as opposed to 1500 kWh per month in Option A) and sets the runoff rate at 50% the incremental cost of diesel as opposed to 80% the incremental cost of diesel).

(c) and **(d)**

Similar to residential customers, energy levels for each energy block for non-government residential customers were set based on a balancing a set of criteria that included consideration of the number of customers with usage in each block, and the rates required to derive the appropriate revenue. The rate blocks were also developed to parallel the residential rate design in terms of percentage of customers in each block and the resulting second and third block rates.

Energy levels for each energy block for non-government general service customers were set to reflect OIC requirements.

The notable difference for GS customers is discussed at page 4YEC-19 and 4YEC-20; due to the non-homogenous nature of the class were a runoff block set too low a

[1] Provided that such rate are fixed for each community or rate zone throughout Yukon in accordance with the same rate design principles.

material amount of usage by very large customer would be subject to incremental costs (leading to rate shock and fairness concerns for a number of large customers). If the block is set too high than a majority of customers will not receive any efficiency signal.

REFERENCE: **Application, page 4 YEC-6**

ISSUE/SUB-ISSUE: **Rider D**

QUOTE:

YEC does not propose a new Rider D to collect for YECL the actual cost of purchase power for the Hydro zone, as this new rider does not reflect any past practice in Yukon and would, in effect, shift load forecast variance risk from YECL to all Yukon retail ratepayers.

QUESTION:

a) Does YEC believe that the load forecast variance risk is already included in the allowed return for YECL?

ANSWER:

(a)

The question relates to the YECL Application for a new Rider D, to which YEC is not an applicant.

In regards to this matter, Yukon Energy will participate in the testing of YECL's Rider D Application at the appropriate time in the hearing process, and provide its position on the merits of that Rider D Application in argument (including argument on YEC's beliefs regarding load forecast variance risk).

REFERENCE: **Application, page 4 YEC-9**

ISSUE/SUB-ISSUE: **Option B**

QUOTE:

Option B substantially reduces the focus on evolving system generation requirements and economic efficiency in the rate design for larger users. As a result, Option B reduces the price signal and bill effects to the largest users and concurrently reduces or eliminates rate decrease benefits for small customers.

QUESTION:

a) Will growth in residential or general service loads be the main driver for evolving system generation requirements?

b) Please define IER. Please comment on any knowledge YEC has on the future reduction or elimination of IER.

ANSWER:

(a)

Both – all load growth (and indeed all existing load) drives decreases in the surpluses and ultimately the need for new generation.

As noted in the Yukon Energy 2008/2009 GRA and the recent Mayo B Part III Application, the surplus hydro generation available on the system is diminishing and the system is expected to return to a state where diesel generation will be required to meet baseload generation needs. This requirement is driven by all load growth on the system. Attachment D of the Mayo B Part 3 Application provides a summary of both industrial and non-industrial loads and notes in Figure D-2 of that Attachment a requirement for diesel generation in 2019 absent industrial loads on the system.

(b)

“IER” is the Interim Energy Rebate provided by the Government of Yukon. Please see Attachment 1 to this response. It provides for a 2.662 cents/kW.h rebate for up to first 1000 kW.h per month (first block) for residential non-government customers (since the termination of the RSF there is no longer similar rate relief for general service or municipal customers).

As noted at page 1-6 of the Application, the IER was implemented in 2009 as an interim measure that was to terminate in 2010 (subsequent to the Phase II proceeding).

Also see LE-YEC/YECL-1-15.

REFERENCE: **Application, page 4 YEC-12**

ISSUE/SUB-ISSUE: **Normal Utility Principles of Rate Design**

PREAMBLE:

YEC lists 7 principles of rate design.

QUESTION:

a) Please rank the principles listed on page 4 YEC-12 in order of priority or weighting based on what YEC views as the most important principle to the principle with the least weighting.

b) Is YEC aiming to achieve a balance between each of the principles? If yes, explain how it has done so.

ANSWER:

(a) and **(b)**

As noted at page 4YEC-12, the overall objective in ratesetting is to achieve an appropriate balance between the differing rate principles. Given these objectives may conflict with each other it may not be possible to achieve full compliance with all principles. Also based on policy or other specific requirements, different principles may take precedents over other principles in ratesetting.

In terms of the current environment the rate policy framework for ratesetting in Yukon is established by OIC 1995/90, OIC 2008/149 and OIC 2007/94. Further, consideration would need to be given to the priorities and limitations currently in place, as follows:

- The OIC requires the Board to establish runout rates that provide for economy and efficiency (and past precedent provides that economy and efficiency is defined by the incremental cost of diesel.)

- OIC 2008/149 prevents rate rebalancing until after December 12, 2012.

- At present runoff rates are based off out-dated diesel prices (last set in the 1996/97 GRA).

- Further, the system is moving towards having diesel on the margin and in this respect beginning to re-establish appropriate efficiency price signals for consumers at this time is critical.

The priorities listed on page 4YEC-12 would need to be balanced within the above noted framework. In this respect priority objectives at this time and in the current ratesetting environment would focused on promoting efficient usage. However, considerations related to avoiding undue discrimination would have the highest priority, while rate stability and rate simplification would also have prominence in ensuring just and reasonable rates. Comparisons with practices in other jurisdictions would also have higher prominence. Recovery of cost of service by the rate class would be constrained by the limit on rate rebalancing at this time.

As noted in the application at pages 4YEC-17 through 4YEC-21, the current rate design is focused on restoring efficiency signals (as required by OIC 1995/90) within the rate policy framework established in Yukon by OIC 1995/90. At the same time, the proposed approach considers the principles noted at page 4YEC-12 in the following respects:

- Attempts to ensure rate stability through adopting a stepped increase towards incremental cost, i.e., setting the runoff rate at 80% of incremental cost instead of 100% of incremental cost (as noted at page 4YEC-19).

- A variety of options to address general service rate design issues were considered, but the assessment was that the options considered were too complex to implement (including cost of service implications) or could not be implemented within the timing constraints surrounding the application. For simplicity and ease of understanding the blocking structure for rates (and current rate classes) was essentially retained (albeit a second equalized block was added).

- The proposed rates avoid undue discrimination between customers or customer classes.

- The companies considered practices in other jurisdictions related design of runoff and other efficiency rates prior to filing.

REFERENCE: **Application, page 4 YEC-16**

ISSUE/SUB-ISSUE: **OIC 1995/90**

QUOTE:

To meet the OIC requirement of "economy and efficiency", runoff rates were set at levels which approximated the incremental short term cost of generating an extra kW.h using diesel generation.

QUESTION:

a) What is the YECL view of meeting the requirement of "economy and efficiency"? How does it differ from that of YEC?

ANSWER:

(a)

YECL has been unable to determine from past Yukon proceedings the definition of "economy and efficiency". It is a term that is not defined in any Orders in Council (OIC). As a result, YECL's understanding of the term is based on the explanation as set out on Page 4YEC-10, footnote no. 5, of the Application, "based on Board precedent, economy and efficiency in the Yukon context is expressed by sending a price signal for consumption on the margin based on the short run incremental cost of diesel."

In YECL's view, economic and efficient rate design under the framework used in the Yukon should encompass the following principles: (1) rates for electricity that are set equal to the short run incremental costs should result in an amount of consumption which maximizes the benefit to ratepayers of utilizing its production resources. When price equals the incremental cost, the production cost of the last unit should equal the value of that unit to the customer. The dimensions of short run incremental costs are costs of existing and planned situations including periods of excess capacity. YECL notes that diesel is not expected to be 'on the margin' for any material duration in the near future. As a result, YECL has no ability to link incremental diesel costs to customers consuming incremental sales. (2) YECL submits that to the extent possible under OIC 1995/090, no group of customers should be subsidized by another group of customers. No rate class ought to pay more for service than the cost of serving them. While YECL recognizes that current OICs restrict the ability to move more closely to full cost recovery, the proposed runoff rates are intended to be transitional until the current OIC's expire. By considering both points noted above this should help eliminate the distortions caused by the uncertainty in the incremental production costs, enabling customers to face the true costs of additional electricity purchases.

REFERENCE: **Application, Page 4 YECL-5**

ISSUE/SUB-ISSUE: **New Rate Class**

QUOTE:

A new equalized third energy block, and an adjusted runoff energy block to address large users prior to future consideration of a possible separate General Service Large User rate class.

QUESTION:

a) What criteria would YECL use to define a new rate class?

b) Would a new rate class be proposed in collaboration with YEC and in consultation with interested parties?

c) Would YECL propose a new rate class without consensus from YEC?

ANSWER:

(a)

Customers with similar characteristics or attributes are often grouped together. For instance, a household served through a single-phase service at secondary voltage through a single meter are very common and share similar cost causation patterns. As a result, these customers would generally take service under a common residential rate class. As loads grow in size and vary in operating characteristics, such as changes in load factor, service configurations, and demands the load places on the system, this may result in a separate and distinct rate class specific to a group of customers that share similar cost causation patterns. These different operating patterns may generally arise for customers served under a general service or industrial rates.

(b)

Yes. YECL would collaborate with YEC and interested parties in the creation of a new rate class.

(c)

YECL is uncertain whether it would proceed with a new rate class without consensus from YEC. To the extent that YECL and YEC may have its own views how best to address certain rate design matters, YECL may propose a rate design alternative that YEC may not agree with.

REFERENCE: **Application, page 4 YECL-6**

ISSUE/SUB-ISSUE: **Rate Design Considerations**

QUOTE:

The logic behind Yukon Electrical's proposed rate design is based on taking a balanced approach between sending customers an effective price signal that tells them that costs increase as consumption increases and the economic considerations regarding the price of incremental cost of diesel generation today.

QUESTION:

a) How does YECL believe that its rate design provides a superior balanced approach compared to the rate design proposed by YEC?

ANSWER:

(a)

YECL believes the Option B rate design structure is set up to allow for a reasonable price signal to be sent now and in the near future. As mentioned on PAGE4YECL-10, selecting 50% of incremental cost as the run-off rate for residential and general service rates was considered more reasonable at this time due to:

- Limits related to inter-class rate balancing (i.e, OIC 2008/149);
- Reducing rate shock impact across customer classes;
- Avoidance of undue discrimination; and
- Allowing further adjustments to rates when more accurate signals showing how costs move with usage is identified.

While YECL and YEC did not agree on one rate design proposal for the residential rate class, it did agree on adjusting the base rates to include a new second energy block. Both proposed Options are designed to include a 3 energy block (3 tier) structure. The difference is in the setting of the 2nd and 3rd block that reflects a level of the incremental short term cost of diesel generation.

As explained in YECL's proposed rate design in TAB 4YECL, YECL's proposal seeks to reflect the degree to which the optimal level of current incremental costs should be reflected in the base rates at this time due to the inherent uncertainty in supply conditions. It is an important rate design goal for YECL to reflect costs more accurately in its rate design including across the different energy tiers. YECL believes that its proposal promotes efficient usage in the context of sending a reasonable price signal that reflects costs as reasonably as possible in the current costing environment. As noted in the Application on Page 4YECL-7, footnote no. 4, "the Companies noted in 1992 Submission on COS and Rate Design, that an important step in promoting efficient use of electric energy is the provision of an effective price signal to the customer, such that the price paid for extra energy consumption reflects the cost of providing that same extra energy." Pricing structures need to take into account underlying costs. YECL is of the view that reflecting more than 50% of incremental cost of diesel would be considered excessive and unfair to customers, when generation from diesel sources are not expected to occur (or forecasted) for any significant duration within the foreseeable period.

Both YECL and YEC have introduced an inclining block structure with an objective to provide price signals to customers that suggests energy consumption becomes more expensive as a customer consumes more energy. In "theory", this signal should incent customers to reduce consumption thereby providing meaningful reductions in total energy use across the system. In this Application, YECL's proposal is based on making a modest change to the residential blocking structure and the prices customers pay per energy block until such time short term diesel generation becomes more prominent and planned on the system today. An inclining block rate tariff structure is commonly used to charge for electric usage that signals to a customer that the more they use, the higher the average price. The objective of the inclining block tariff is to provide protection for lower usage customers against high price increases resulting in a reduction in tariff to these customers. However, customers who increase consumption should not see increasingly punitive charges for their electricity usage if costs do not move with usage.

The question that YECL has considered is to "how to design just and reasonable rates that reflect costs more accurately than existing rates that still promotes energy efficiency under the current costing environment." YECL has elected to take this approach for a number of reasons.

(1) How Best to Encourage Efficient Consumption

YECL stated in the Application, page 4YECL – 6, "an optimum rate design should be a mechanism whereby the cost of the more expensive resources is recovered in higher rates charged for consumption above a certain level, so that customers that take actions to reduce energy consumption will realize savings in their electricity bills based more closely on the actual cost of the energy saved". The intention of charging an incremental runoff rate as contemplated in the Application is to properly reflect the incremental costs for new generation that are required to meet today's demands. This is core to ensuring that customers are provided with the right information for making better resource allocation decisions. As noted on Page 4YECL – 8 of the Application, "the Board has previously noted that, to promote economy and efficiency, runoff rates should reflect at least short-run incremental costs." A customer's consumption decision should be based on the short-run incremental cost that reflects the "actual" incremental cost to rate payers imposed by the use of one more unit of output.

YECL does not consider it appropriate to be providing phantom price signals to customers when the short-run incremental costs are not forecast to change. Customers that take action to reduce energy consumption should realize savings in their electricity bills based more closely on the actual cost of the energy saved today. To the extent possible, customers should pay for the costs that they impose on the electric system. YECL considers its proposal will help facilitate a future transition to designing a rate structure that better reflects the change in production costs.

(2) Fairness among Customers

To the extent possible, an effective rate design that incents customers to shift or reduce consumption should not be at the expense of other customers. For example, a family of six will normally consume more energy than a family of two but may be more energy efficient on average. In addition, inclining block rates may reduce energy efficiency incentives for customers whose monthly consumption already falls within the lower energy block. The combination of YECL's proposed block structure and reflecting 50% of the incremental cost of diesel at the runoff rate provides a modest transition for customers at this time.

YECL has designed its 3rd block for residential customers that consume greater than 2500 kW.h that captures approximately 2% of the customers and total energy. The purpose of this 3rd block is to encourage customers who might have some discretionary loads to reduce consumption to become more energy efficient. This could also apply to customers that might be deciding to move from electric heating to oil, wood or propane heating. While YECL's proposal is intended to target this customer group, it is intended to provide a reasonable balance between incenting all customers to reduce consumption for the right reasons and not just encourage the customer to substitute another energy source reducing its electric bill without becoming more 'energy' efficient, at the expense of other customers.

Sample bill impacts for Options A and B are provided in YUB-YEC/YECL-1-24(a) Schedule 1. The purpose of this Schedule is to illustrate the percentage change for residential and general service customers between the two options. Note that in Option B, residential and general service customers see a lower rate swing than in Option A. This is also illustrated in YUB-YEC/YECL-1-24(a) Figure 1 - 4 attached.

(3) Simplicity and Transparency

Customers should be able to understand their electricity bill and how changing consumption would affect that bill. The benefit of having customers respond to price is lost if customers are not aware of these prices, how the pricing structure works (complexity), or the lack of ability to respond. YECL's proposal allows it time to investigate further rate design alternatives that would reflect the costing environment more appropriately and provide customers with a rate design alternative that is easier to understand and react to.

(4) Avoiding Unintended Consequences

One of the key rate design principles is that revenues collected must be adequate to recover all system costs. Inclining rate design with large step changes in rates that are not linked to changing costs of incremental production in the short term has the potential to vary utility sales and revenues. YECL is uncertain of the level of reduction that may occur under YEC's proposed rate design, notwithstanding any impact that weather may have in overall reduction of energy. This has the potential of increasing the risk of revenues falling below or increasing above approved revenue requirements.

Currently, customer bills are based on meter readings made by YECL on a monthly basis. Average billing periods range between 28 and 32 days. There are months in the year where stat holidays, such as Christmas and Easter, may result in a billing period that is unusually long. The additional billing days may result in a portion of the customer's consumption calculating in the 2nd or 3rd block energy rate. This poses certain practical issues associated with an inclining rate structure and manual meter reading.

For the same reasons identified in part (b) above, YECL's proposed commercial rate design takes into consideration the above challenges. It is based on taking a balanced approach between sending customers an effective price signal that tells them that costs increase as consumption increases and promotes rate stability.

REFERENCE: **Application, page 4 YECL-6**

ISSUE/SUB-ISSUE: **Block Levels**

QUOTE:

An optimum rate design should be a mechanism whereby the cost of the more expensive resources is recovered in higher rates charged for consumption above a certain level, so that customers that take actions to reduce energy consumption will realize savings in their electricity bills based more closely on the actual cost of energy saved.

QUESTION:

a) What criteria does YECL use and how does YECL determine the energy levels for each block?

ANSWER:

(a)

A key criteria is to reflect in some fashion how costs move with usage. Due to the challenges noted by YECL set out in YUB-YEC/YECL-1-22 and 24, a balanced approach was taken between setting the number of blocks in the rate design that will help get the message on rising costs through to customers as best as possible, setting the height (rate levels) of the blocks high enough to provide sufficient price signals to customers, and ensuring fairness across the rate levels.

Both Residential and General Service classes are subject to multiple energy blocks. The blocking structure between Option A and Option B is the same other than the runoff block for Residential customers which start at 1500 kW.h in Option A and 2500 kW.h for Option B. The first energy block for Residential and General Service rates remain the same as the existing structure and are consistent with directions from OIC 1995/090. Residential rates are 0-1000 kW.h and General Service rates are 0-2000 kW.h.

The second energy block in the existing rate structure is the runoff block for Residential and General Service rates. Under the proposed Options, the second block is not the runoff block. Under Option B, about 98% of residential non-government annual bills do not exceed the 1001-2500 kW.h level for residential customers and 96% of general service customers do not exceed the 2001-15,000 kW.h level (Option A is 90% Res. and 96% GS respectively). This leaves the third energy block as the runoff block. Under Option B, about 2% of residential non-government annual exceed 2500 kW.h and about 4% of general service customers exceeding 15,000 kW.h. Further investigation into the general service customers reveals that there are a few very large consuming general service customers. The creation of a fourth energy block as the runoff block for general service customers for consumption above 20,000 kW.h was designed to help mitigate rate impact for this group of customers. This is the reason a separate rate class may be required in the future for this group of customers.

REFERENCE: **Application, page 4 YECL-7**

ISSUE/SUB-ISSUE: **Normal Utility Principles of Rate Design**

PREAMBLE: **YECL lists 7 principles of rate design**

QUESTION:

a) Please rank the principles listed on page 4 YECL-7 in order of priority or weighting based on what YECL views as the most important principle to the principle with the least weighting.

b) Is YECL aiming to achieve a balance between each of the principles? If yes, explain how it has done so.

ANSWER:

(a)

On page 4YECL-7, YECL states “The overall objective is to achieve an appropriate balance between the differing rate design objectives”. The Companies stated this as well in the pre-Application Workshop (PAGE 7.1B-12 slide 25). YECL attempts to balance all of the objectives as best as possible under the circumstances. Recovery of the cost of service by rate class, which is considered very important, is limited by current OIC’s. Comparison with rate practices in other jurisdictions may be less important due to the uniqueness of the rate design approach in the Yukon.

(b)

Please refer to YUB-YEC/YECL-1-24.

REFERENCE: **Application, page 4 YECL-8**

ISSUE/SUB-ISSUE: **Incremental Cost of Diesel**

QUOTE:

In this Application, to meet the OIC requirement of "economy and efficiency" runoff rates have been set at levels that reflect a substantial short term cost of generating an extra kWh using diesel generation, fixed at 50% of the measured incremental cost.

QUESTION:

a) How does YECL view this proposal of "economy and efficiency"?

b) In terms of incremental cost of diesel and runoff rates, does YECL believe that it is limited in the application of this requirement by any previous OIC or Board direction? Please explain.

ANSWER:

(a)

Please refer to YUB-YEC/YECL-1-22.

(b)

In Section 4(2) of OIC 1995/090, it states: "The Board must fix a runoff rate block for each non-government retail customer class applicable to all consumption by each customer of the class in excess of a specified consumption level per billing period, and such specified consumption level per customer is not to be less than 1,000 kWh for residential non-government retail customers and 2,000 kWh for general service non-government retail customers." This section of the OIC limits to when a runoff block may begin. Combining this criteria and OIC 2008/149 also limits the charge of the runoff block. If the charge is set too high (100% incremental cost of diesel), the corresponding initial block may be set too low (e.g., a negative rate occurs).

REFERENCE: Application, Tab 3

QUESTION:

a) Please confirm that the terms, mid-year rate base and mid-year net rate base, as shown in Schedule 4-T-2, are equivalent terms.

b) Please confirm that the Classification of Depreciation, as shown in Schedule 4-T-4, is correct.

c) Please provide an updated “All Community COS Schedule – for filing.xls” workbook that contains a revised Schedule 4-T-4 with formulae in place.

d) Please provide a spreadsheet with formulae intact that shows the Board how the classification of the Operation and Maintenance (O&M) expense items, shown in 4-T-13, was determined.

e) With respect to part (c) of the question, if the classification for any expense item is different that what was determined in 1996/97:
   a. Please provide detail of the basis for the proposed change; and
   b. Submit a revised COSS that incorporate the 1996/97 O&M expense classifications.

f) With respect to Schedule 4-T-16, please confirm that “Excl Purch Power, A&G” means “excluding Purchase Power costs as well as Administrative & General costs.”

g) If part (e) of the question is confirmed, please confirm that the classified Administrative & General Expenses schedule excludes purchase power costs as shown in Schedule 4-T-13.

h) Please provide the references that show the Board the basis for the production, transmission, and distribution contribution totals that are classified in Schedule 4-T-17. Please provide references (Decision and page numbers).

i) Please resubmit the “All Community COS Schedule – for filing.xls” workbook, with formulae intact that shows the Board the allocation of Amortization of Distribution

Contributions total to the distribution rate classes as shown in Schedule 4-T-17 (lines 667 to 673).

j) With respect to Schedule 4-T-34, please provide the calculations underlying the determination of the rate class Demand and Energy Sales data that are shown.

ANSWER:

(a)

Confirmed.

(b)

Confirmed, the depreciation provision of $10,184,000 is functionalized and classified correctly to align with the Bulk Power and Distribution Classification Factors as filed in the Phase II Application. As detailed in part (c) below, a linked COS model will be provided with intact formulas. The depreciation is derived from the back up schedule COS_Calc_YECL1.xls in the BeginAssets and Depreciation worksheets.

(c)

YEC/YECL will provide a CD that contains the complete model with formulas and links intact. Please email scott.duncan@atcoelectric.com to request a copy. A CD copy will also be provided to the YUB as part of this submission.

(d)

YEC/YECL will provide a CD that contains the complete model with formulas and links intact. Please email scott.duncan@atcoelectric.com to request a copy. A CD copy will also be provided to the YUB as part of this submission.

(e)

a. The only change from 1996/97 was the classification of Customer Accounting; it has been revised from 98% Customer 2% Energy to 100% Customer. The 2%

amount is approximately $38,700 and when allocated on Customer and Energy would change the amounts by Rate Classes as shown in the following table:

b.

Rate Class	98% Customer	2% Energy	100% Customer
Residential Gov	28.0	.2	28.2
Residential Non Gov	1,586.9	17.9	1,604.8
General Service Gov	49.9	6.3	56.2
Gen Service Non Gov	262.1	14.3	276.4
Industrial	0.0	0.0	0.0
Street Lights	0.0	0.0	0.0
Sentinel Lights	0.0	0.0	0.0

The amounts in total for each Rate Class would not change and the amount is not material enough to change the rates in any Rate Class.

(f)

Confirmed.

(g)

Confirmed.

(h)

Schedule 4-T-17 classifies the amortization of contributions based on depreciation of PP&E. The amortization of contributions $2,389 (YECL $1.028 million and YEC $1.361 million) comes from:

- YECL Phase I Schedule 8.11 Line 8; $1.028 million
- YEC Phase I Tab 7 Schedule 6 Line 8; a sum of customer contribution ($1.091 million) and amortization of fire insurance gain ($0.270 million)

(i)

Please refer to the Model COS_Calc.xls spreadsheets; Contribution & Amortization worksheet.

(j)

Please refer to the Model COS_Calc.xls spreadsheets Load Forecast worksheet or the spreadsheet EDLA Yukon 2009.xls.

REFERENCE: **Application, Tab 3**

ISSUE/SUB-ISSUE: **Overview of Detailed COSS Schedules; Schedule 4-T-1**

QUESTION:

a) With respect to production plant (hydro energy only, other hydro, diesel, and wind), transmission line, distribution plant and general plant totals shown, please provide the Board with the pertinent references (page numbers and Decision numbers) where the Company contribution to the totals, as shown in Schedule 4-T-1, can be found.

b) The Companies submit that general plant assets were classified in the same proportion as gross production, transmission, and distribution assets.[7] Please provide the supporting calculations in respect of the general plant totals that are shown in Schedule 4-T-1.

c) Please provide the basis for the demand/energy split in respect of street and sentinel lights.

d) Please provide a spreadsheet with formulae intact that supports the classification and allocation of mid-year gross balance of gross plant, property and equipment to the distribution rate classes as shown in Schedule 4-T-1.

e) Please provide a spreadsheet complete with formulae intact, which shows the Board how the determination of the Coincidental Peak Demand Cost Allocators and Energy Cost Allocators shown in the “All Community COS Schedule – for filing.xls” workbook; Columns F and H respectively, (Rows 758 to 764) of Schedule 4-T-18 was done.

f) Please explain what is meant by “Energy Sent Out (MWh)” in Schedule 4-T-18.

g) With respect to customer allocations, how many street lights constitute a customer and what is the rationale for this reasoning, i.e. does one street equals one customer?

h) With respect to customer allocations, how many sentinel lights constitute a customer and what is the rationale for this reasoning?

i) With respect to Schedule 4-T-23, please provide a revised schedule with formula intact that shows how the numbers (“Avg No. of Customers”, and “Energy Sales”) in Rows 988 to 994, and Rows 1004 to 1010) of the “All Community COS Schedule – for filing.xls” workbook were determined.

j) Please confirm that the numbers shown in Schedule 4-T-34, i.e. Number of Customers, Distribution Level Demand Sales (kW), and Distribution Level Energy Sales (kW.h), are used to allocate expenses to the distribution rate classes?

k) If (j) part of the question is confirmed, please explain why is it, that other than calculating unit costs for the distribution rate classes, i.e. Schedules 4-T-27 to 4-T-33, the numbers are not part of allocation formulas that would inform the Board as to the veracity of the costs that are allocated to the rate classes.

ANSWER:

(a)

Schedule 4-T-1 is a total of YEC and YECL PP&E that is calculated from historic accounting records and forecast additions. The source information is found on the CD with the overall COS Model (requested in YUB-YEC/YECL-1-28(c)) in the following spreadsheets:

- COS_Sched_YECL1.xls worksheets:
    1. Ratebase
    2. BeginAssets
    3. Addition
    4. Disposal
    5. Retirements
    6. Transfers
    7. Work in Progress
    8. Depreciation
    9. Disallowed
    10. Accu Deprec of Disallowed

   xi. PHFFU
   xii. Working Capital
   xiii. Contribution & Amortization

- COS_Sched_YEC1.xls worksheets
   i. Ratebase
   ii. BeginAssets
   iii. Addition
   iv. Disposal
   v. Retirements
   vi. Transfers
   vii. Work in Progress
   viii. Depreciation
   ix. Disallowed
   x. Accu Deprec of Disallowed
   xi. PHFFU
   xii. Working Capital
   xiii. Contribution & Amortization

The amounts on the back up schedules noted above are sourced from YECL Phase I schedules 8.5, 8.6, 8.7, 8.9, 8.10, 8.11, 9 and YEC Phase I filing Section 7 1, 2, 2A, 3, 5, 8. The YECL Phase I was approved in Board Order 2009-5 and YEC in Board Order 2009-1

(b)

Please refer to the complete COS Model (YUB-YEC/YECL-1--28(c)), COS_Sched_YECL1.xls and COS_Sched_YEC1.xls cell line 82 to see the split of General Plant to the classifications.

(c)

The basis for the demand / energy split of Street and Sentinel Lights is Production costs are allocated on demand and energy and Transmission costs are allocated 100% on energy due to the Bulk Power Classification Factors that were update for this filing. Street and Sentinel Lights Distribution PP&E accounts (i.e. 47810 and 47820) are directly assigned 100% to the customer classification for the Street and Sentinel Light rate classes. The demand classification for the Street and Sentinel light rate class are derived from:

- Transformers (47910);
- Land Rights (47000 and 47100);
- Substation Equipment (47710 and 47720);
- Poles (47300); and
- Conductor (47400).

PP&E accounts that are allocated 100% demand to the light rate accounts. Public information costs are allocated 85% on energy.

(d)

Please refer to the complete COS Model (YUB-YEC/YECL-1-28(c)), COS_Sched_YECL1.xls and COS_Sched_YEC1.xls spreadsheets COS Schedules worksheet that are linked to source amounts in COS_Calc_YECL1.xls and COS_Calc_YEC1.xls Distribution Assets worksheet.

(e)

Please refer to the complete COS Model (YUB-YEC/YECL-1-28(c)), COS_Sched_YECL1.xls and COS_Sched_YEC1.xls spreadsheets COS Schedule worksheet that are linked to source amounts in COS_Calc_YECL1.xls and

COS_Calc_YEC1.xls Load Forecasts worksheet which is sourced from the spreadsheet EDLA Yukon 2009.xls.

(f)

Energy Sent Out (MWh) is equal to Energy Sales + Losses.

(g)

The Yukon COS Model does not use “customer counts” in relation to street lights like the ATCO Electric Model does, 100% of Street Light PP&E is assigned to the Customer component and is used as the Street Light Customer allocator. A part of related Distribution Plant (i.e. Transformers, Land, Poles and Conductor (please refer to the PP&E account numbers listed above in (c)) is allocated to Street Lights based on their share of the demand. This is used for the demand allocator on costs that are allocated to Street Lights.

(h)

The Yukon COS Model does not use “customer counts” in relation to sentinel lights like the ATCO Electric Model does, 100% of Sentinel Light PP&E is assigned to the Customer component and is used as the Sentinel Light Customer allocator. A part of related Distribution Plant (i.e. Transformers, Land, Poles and Conductor (PP&E accounts listed above in (c)) are allocated to Sentinel Lights based on their share of the demand. This is used for the demand allocator on costs that are allocated to Sentinel Lights.

(i)

Please refer to the complete COS Model (YUB-YEC/YECL-1-28(c)), COS_Sched_YECL1.xls and COS_Sched_YEC1.xls spreadsheets COS Schedule worksheets that are linked to source amounts in COS_Calc_YECL1.xls and COS_Calc_YEC1.xls Load Forecasts worksheet and stand alone spreadsheet EDLA Yukon 2009.xls.

(j)

Not confirmed. The amounts used to allocate expenses are sourced from:

- COS_Calc_YECL1.xls Load Forecasts worksheets; and
- COS_Calc_YEC1.xls Load Forecasts worksheets.

This information is derived from the EDLA Yukon 2009.xls spreadsheet. Schedule 4-T-34 is a summary that is used to calculate unit costs for each Rate Class on Schedule 4-T-27 through 33.

(k)

Please refer to part (j) above.

REFERENCE: **Application, page 5.2-15**

ISSUE/SUB-ISSUE: **Terms and Conditions of Service – Refunds of Security Deposit**

QUESTION:

a) Can the Companies define when a Customer has established a Satisfactory Credit Rating? Please provide that definition.

ANSWER:

(a)

Please refer to the proposed Terms and Conditions (Appendix 5.1), Article 2.1 which defines "Satisfactory Credit Rating" as:

> *"…determined subject to the discretion of the Company, and may include the Customer having paid all bills on an existing Company account in full on or before the due date of the said bill for 12 consecutive months or a similar payment record as established with another utility service provider within the past twelve months."*

REFERENCE: **Application, page 5.2-19**

ISSUE/SUB-ISSUE: **4.15, previous subpart (d)**

QUOTE:

Yukon Energy does not agree with the proposed edits to what was previously subpart (d) as discussed in Tab 5.

QUESTION:

a) Please provide an explanation of the YEC position in the above comment.

ANSWER:

(a)

Yukon Energy's position is set out in detail at section 5.2 (Tab 5) of the Application.

The current section 4.15 included in the Electric Service Regulations was specifically approved by the Board in Order 1998-1. That Order notes a request for the current wording made by Yukon Energy and Yukon Electrical (citing ongoing uncertainties and ratepayer risks related to Faro Mine), based on concerns related to gaming. Those concerns had earlier been noted in Order 1997-6. Order 1998-1 amended the Electric Service Regulations (then section 4.18) Reconnection and Restoration of Service to add the following provision (d) to ensure that before reconnecting or restoring service to any customer:

> "The minimum monthly bill for each month of disconnection, if service is reconnected within 12 months of disconnection for all rate schedules and service except for seasonal service".

Yukon Energy recommends this current wording remain, as it is still required to protect ratepayers. This is discussed at page 5-3 of the Application which notes Yukon Energy's view that the provision is critical for two reasons:

1. To ensure all other continuing ratepayers were protected from the actions of customer that effectively “game” the rate design, particularly costs arising from ratchets; and

2. To ensure customer are fully apprised that such gaming will not be permitted.

It is Yukon Energy’s view that for at least Major Industrial and large general service customers (such with peak demand greater than 1 MW), where minimum monthly bills include material minimum demand charges (based on the annual demand ratchet) this term is still required in order to ensure consistent and fair treatment for customers and to ensure that ratepayers are not unfairly burdened with costs incurred due to individual customers engaging in behavior that could be considered “gaming”. The provision leaves such determinations out of the discretion of the utilities to ensure all customers are treated fairly in this regard.

REFERENCE: **Application, page 5.2-28**

ISSUE/SUB-ISSUE: **Billing Error**

QUESTION:

a) Do the Companies intend to pay interest to customers for any amounts owing due to billing errors to customers from the date the customer provides notice of the error until the date the company refunds the amount owing to the customer as a result of the error?

ANSWER:

(a)

No, the Companies do not pay interest to customers for amounts owing due to billing errors. Investigations of billing disputes are given immediate attention with a goal of prompt resolution.

REFERENCE: **Application, page 5.2-30**

ISSUE/SUB-ISSUE: **Company Liability, Force Majeure and Customer Liability**

QUESTION:

a) Please provide the equivalent approved clauses on Company Liability, Force Majeure and Customer Liability for ATCO Electric Ltd., ENMAX, EPCOR Distribution and Transmission Inc., and FortisAlberta.

ANSWER:

(a)

The following clauses have been extracted from the current Terms and Conditions as posted on each company's website.

ATCO Electric:
"Force Majeure" means circumstances not reasonably within the control of the Company, including acts of God, strikes, lockouts or other industrial disturbances, acts of the public enemy, wars, blockades, insurrections, riots, pandemics, epidemics, landslides, lightning, earthquakes, fires, storms, floods, high water, washouts, inclement weather, orders or acts of civil or military authorities, civil disturbances, explosions, breakdown or accident to equipment, mechanical breakdowns, the intervention of federal, provincial, state or local government or from any of their agencies or boards excluding Decisions and/or Orders made by the AUC in the normal course of it exercising its authority to establish the revenue requirement of the parties to this agreement, the order or direction of any court, and any other cause, whether of the kind herein enumerated or otherwise;

ENMAX:
"Force Majeure" means circumstances not reasonably within the control of the Company, including acts of God, strikes, lockouts or other industrial disturbances, acts of the public enemy, wars, blockades, insurrections, riots, pandemics, epidemics, landslides, lightning, earthquakes, fires, storms, floods, high water, washouts, inclement weather, orders or acts of civil or military authorities, civil disturbances, explosions, breakdown or accident to equipment, mechanical breakdowns, the intervention of federal, provincial, state or local government or from any of their agencies or boards

excluding Decisions and/or Orders made by the AUC in the normal course of it exercising its authority to establish the revenue requirement of the parties to this agreement, the order or direction of any court, and any other cause, whether of the kind herein enumerated or otherwise;

EPCOR Distribution and Transmission Inc.:

"Force Majeure" means: acts of God; strikes; lockouts or other industrial disturbances; vandalism; wars; riots; epidemics; landslides; lightning; earthquakes; explosions; fires; storms; intervention of federal, provincial, or local government (or from any of their agencies or boards); the order or direction of any court; inability to obtain, interruption, suspension, curtailment or other diminution of, supply of materials, utilities, or services from any supplier (including, without limitation, transmission facility owners, System Support Service providers or the ISO) and any other causes, whether of the kind herein enumerated or otherwise, not within the control of EDTI and which by the exercise of due diligence EDTI is unable to prevent or overcome.

FortisAlberta:

"Force Majeure" means circumstances not reasonably within the control of FortisAlberta, including, but not limited to, acts of God, strikes, lockouts or other industrial disturbances, acts of the public enemy, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, high water, washouts, inclement weather, orders or acts of civil or military authorities, civil disturbances, explosions, breakdown or accident to equipment, mechanical breakdowns, interruptions of supply of goods or services, the intervention of federal, provincial, state or local government or from any of their agencies or boards (excluding decisions or orders made by the Commission in the normal course of exercising its authority over FortisAlberta), the order or direction of any court, and any other cause, whether of the kind herein enumerated or otherwise, except for lack of funds which shall not be considered an event of Force Majeure;

REFERENCE: **Application, page 5.2-37 and Appendix 5.4**

ISSUE/SUB-ISSUE: **Maximum Company Investment**

QUESTION:

a) Please provide all calculations used in the determinations of maximum company investment levels for Residential and General Service customers.

b) Why are the proposed amounts significantly greater than those for Northland Utilities (NUY) and Northland Utilities (NWT) customers?

c) What have been the approved escalation rates for Northland Utilities (NUY and NWT) and ATCO Electric for the each of the years 2008 and beyond?

d) Please provide the escalation factors approved for YEC and YECL for each of 2009 and 2010 in their recent GRA decisions (Phase I).

e) What Maximum Company Investment levels did YECL use it its forecast for capital expenditures in its 2009-2010 GRA?

f) Why does YECL require approval for maximum company investment levels beyond 2011?

g) Does Table 12 (Page 5.4-12) represent the proposed level (final amount) or the incremental change from existing maximum investment levels for each year?

ANSWER:

(a)

Please refer to YUB-YEC-YECL-1-34(a) Attachment_1 for derivation of the proposed Residential and General Service MILs.

(b)

YECL based its proposed MILs on the cost of providing new extensions and considered the ten guiding principles stated in the study (Appendix 5.4 of the application). The proposed derivation methodology has been proposed by both FortisAlberta and ATCO Electric in their recent DTAs, respectively. The cost data and the methodology used were different than those used at the time of the Northland Utilities MIL proposals thus differences will occur.

(c)

Inherent in the capital cost forecast for Northland Utilities (NUY) and Northland Utilities (NWT) 2008-2010 GRAs, a 5% inflation factor was used for each of 2008, 2009 and 2010. ATCO Electric received approval from the AUC to use a capital cost inflation factor of 10% for 2008, 4.7% for 2009 and 4.5% for 2010.

(d)

Inherent in the capital cost forecast for YECL's 2008-2009 GRA, a 5% escalation factor was used for 2009. An escalation rate for 2010 has not been filed nor approved.

Yukon Energy's 2008/09 GRA included a 2% escalation factor.

(e)

YECL used the maximum investment levels currently in place at the time of the 2008/2009 Phase I GRA.:

- Residential: $900 per site;

- General Service: $400 per kW; and

- Street Lighting: $700 per light.

(f)

YECL is proposing to increase the maximum investment level incrementally over a period of 5 years to balance the need to attain the target maximum investment levels over a reasonable timeframe, while ensuring there is not undue upward pressure on rates.

(g)

Table 12 (page 5.4-12) represents the proposed maximum investment level for each year.

REFERENCE: **Application, page 5.2-41**

ISSUE/SUB-ISSUE: **Schedule D**

QUESTION:

a) Please provide the derivations and cost calculations for all fees and service charges shown in Schedule D.

ANSWER:

(a)

The Connection and Reconnection fees and Meter Accuracy Test Handling Fee are based on the actual costs of performing: these functions (please refer to YUB-YEC/YECL-1-35 Attachment 1). The Reconnect fee is higher than the Connection fee as a minimum of two visits are required – first to disconnect and/or install a limiter, second to reconnect and/or remove the limiter. YECL has proposed lower values than calculated to reduce the rate impact to customers.

The Collection fee was set to half of the Reconnection Fee as the charge for the collection of arrears or other personal visits as necessary but where no disconnection was required.

Late Payment and Dishonoured Payment Fees were increased to be consistent with neighbouring utilities such as Northland Utilities and NTPC.