ATCO Electric YUKON

September 28, 2023 AEY-YUB-065

ATCO Electric Yukon (AEY)
2023-2024 General Rate Application (GRA)

Information Responses Round 1 to:
The Yukon Utilities Board (YUB)
Received: September 6, 2023

AEY-YUB-065

Reference: 2023-24 GRA, Section 9.6, Meters, PDF pages 177; Schedule 9.2

Issue: AMI meters

Preamble: The Board requires further information concerning the AMI project.

Request:

(a) Please provide the business case regarding the AMI project.

(b) Please provide the spend to date regarding AMI meters.

Response:

(a) AEY notes that this project is below the major projects business case threshold of $500,000; however, to be as help as possible to the Board please refer to AEY YUB-065(a) Attachment 1 for a copy of the AMI Business Case.

(b) The total project spend to August 31, 2023, is $5,700.

ATCO Electric
YUKON

2023-2024 General Rate Application (GRA)

Advanced Meter Infrastructure (AMI)

Business Case

Executive Summary

ATCO Electric Yukon (AEY) currently uses mechanical and digital meters which do not have any automatic meter reading functions associated with them. All meters used by AEY must be read manually by physically visiting the meter site and obtaining an accurate read. This presents certain challenges including:

- Customer growth has made manual meter reading more time consuming and costly with a forecast to add FTEs to compensate;
- Meters are unable to be read in extreme cold temperatures, forcing reliance on estimates;
- Higher risk for human error which require correction and reduce efficiencies; and
- Inability to adopt grid modernization initiatives.

In addition, the mechanical and digital meter technology is reaching obsolescence making them more costly and difficult to acquire for meter installations and replacements.

AEY is proposing a phased installation of an Advanced Metering Infrastructure (AMI) platform in Whitehorse. This first phase of the project will consist of three deliverables:

1) field deployment of hardware for AMI in Whitehorse (target Q3-2023);
2) implementation of vendor hosted Headend System (HES) (target Q3-2023); and
3) integration of HES with existing AEY systems (target Q3-2023).

AEY will leverage the Project Delivery Services from Landis+Gyr which will provide a comprehensive project delivery process for the field deployment of the hardware and will deliver the vendor managed cloud hosted HES. It will also provide a framework for the implementation of the integration activities that are required for deliverable 3.

The field deployment of the hardware for AMI will include the required meters and any supporting radio infrastructure. Usable meters that are replaced by the AMI deployment will be returned to stock for use at other locations.

Deliverable 3 is the integration between the HES and AEY's systems, such as Oracle Customer Cloud System (CCS). The integration will allow any meter readings ("reads") to be stored in AEY's systems and made available for use.

This Business Case seeks approval for $0.436 million to implement a fully operational AMI deployment in the Whitehorse area over 2023-2024.

Background

The Yukon has led the country in population growth over the past four-years, most of which has occurred in Whitehorse. AEY resources that are tasked for manually reading meters have reached their capacity now. In the absence of technology to enable automatic meter reads, AEY will need to add another 1-2 FTEs to support this work as the customer base continues to grow.

In addition, in recent years AEY has experienced more frequent instances of extreme weather, including extreme cold. When temperatures are -35 degrees Celsius or lower, it is challenging to gather accurate meter reads as the digital displays do not function in extreme cold. This requires the use of estimates in order to bill customers. AEY has experienced an increased volume of customer calls due to estimate reads as customer expectations are that their bills are based on actual reads. This also requires incremental workload for the teams that support customer services.

In addition, electric utilities are undergoing a transformation and many jurisdictions have undertaken grid modernization initiatives. AEY is unable to undertake initiatives that are becoming standard in the industry and AMI will:

- Enable investigation into time of use rates which could help reduce peak demands by incentivizing customers to defer electricity usage to off peak hours.

- Enable investigation into Demand Side Management of customers' equipment (water heaters, base board heat) to allow for utility control of devices to manage peak demand.
- Support increased adoption of Yukon Government's Micro Generation Program, which will require a robust load monitoring solution to allow AEY to react to changing grid conditions.
- Provide a platform for other initiatives like "Home of the Future".

The AMI solution will provide both a metering platform and a communication platform that will address these drivers. The communication platform will also provide other opportunities for monitoring other electric endpoints like streetlights, and it can even be leveraged as a platform for smart city applications.

Project Description

AEY will utilize the project implementation methodology from Landis+Gyr to deliver the three main deliverables from this project:

1. **Deployment of field equipment.**

   The Whistle Bend Subdivision in Whitehorse is targeted for the first 680 meters to be installed, as this is where concentrated population growth is the highest. Following successful implementation, AEY will install an additional 820 meters in 2024 also in Whistle Bend.

2. **Implementation of vendor hosted HES, with network traffic from field equipment aggregating at the HES.**

   To expedite the implementation solution, AEY has chosen to pursue a cloud hosted HES that is managed by Landis+Gyr. The implementation of this service is included in the project delivery services that Landis+Gyr will provide to AEY. AEY will develop the field network architecture to carry the field traffic back to the HES.

3. **Integration of the HES with internal ATCO tools/systems.**

   Along with the implementation of the HES there will be integration back to AEY's internal services. We require integrations with CCS. Part of the integration will be included in the project delivery services that Landis+Gyr will provide.

Project Cost

The forecast cost of this project is $0.436 million, as presented Table 2 below. The project team will initiate design and construction activities in 2023 with final construction forecast to be completed in 2024.

Table 2: Forecast Project Costs ($000)

Capital Expenditures	Cost
Whitehorse Metering (2023)	
Construction Labour & Equipment	$15
Materials	$82
Engineering + Project Management	$10
Whitehorse Telecom (2023)	
Construction Labour & Equipment	$10
Materials	$10
Engineering + Project Management	$5
Whitehorse Metering (2024)	
Construction Labour & Equipment	$30
Materials	$164
Engineering + Project Management	$10
Whitehorse Telecom (2024)	
Construction Labour & Equipment	$0
Materials	$0
Engineering + Project Management	$0
Integration	
HES to CCS	$100
Total	$436

Ongoing Maintenance Fee

At the end of the first year of deployment, AEY will incur annual maintenance fees as outlined in Table 3 below.

Table 3 – Forecast Yearly O&M Costs ($)

O&M Expenditures	Cost
License Fees	
Annual Security License Fee	$1,200
Software as a Service Fees	
Command Center Annual Fee	$16,800
Total	$18,000

Project Schedule

The project is scheduled to be completed in 2024. Engineering and Meter Shop activities will begin with material arriving in Q3 2023 and material procurement forecast to begin in March, 2024.

Business Driver and Benefits

There are multiple business and technology factors that are driving the upgrade to an AMI system, including:

Grid Modernization Initiative

AMI is a fundamental building block of a grid modernization initiative. In an outage event, the AMI platform allows all affected meters to communicate back to the HES to pinpoint the location of the outage before there is any need for customers to report any issues. In addition, the meters will also notify the HES upon a power restoration. ATCO is developing a Grid Modernization Strategy to move forward with that will include an OMS System.

Manual Meter Reading

The AMI solution will eliminate the need to send staff to physically read the meters for billing purposes. AEY's complement of three FTEs will be able to manage the current volume of meters in the Whitehorse/ Southern Lakes area but will be over capacity with the continuous development of Whistle Bend in the next year in the absence of automatic meter technology.

Customer Experience Energy Consumption/Production

AEY will be able to explore customer service solutions that enables customers to understand their usage. With the AMI solution, AEY will be able to gather meter reads in real time at any required interval which in turn could be utilized in accessible data forms for its customers.

Flexibility in Rate Design (Capacity Market and Variable Rate Design)

There has been discussion within the Yukon recently about rate restructuring and Time of Use rates. The AMI solution will be able to provide a high granularity of data that would be required for the flexibility to divide the rates down to whatever the required intervals would be.

Micro Generation Monitoring

AMI will allow for real-time monitoring and automated reaction to changing grid conditions. The global increase in the adoption of Micro Generation technologies like electric vehicles, battery storage, and solar generation will put pressure on distribution operations' ability to effectively meet AEY's customers' increasingly complex energy management requirements.

Platform for other initiatives

The AMI solution will provide AEY with flexibility that can be leveraged by other ongoing initiatives that require small amounts of data from many endpoints. Initiatives such as the

Home of the Future or the Smart City investigation can run on top of the platform provided by the AMI solution. Irrespective of the types of communications that are required to field-based endpoints (i.e., meters, inverters, streetlights, home load controllers, etc.), the AMI solution is a platform that will meet these needs.

Adherence to Leading Practices

Older metering technology is becoming more obsolete and more costly to acquire and maintain. To ensure AEY is positioned for the future, AMI will be ever more important. In addition, as the AMI solution is in the initial stages to grid modernization, the identified benefits become more evident, as the grid modernization program matures and the full features of AMI are utilized.

Risk of Proceeding

There is a risk that industry trends towards grid modernization and improved customer awareness will taper off. However, this risk is very low, considering the continuous growth in the ancillary Smart Grid/Smart City marketplace.

Risk of Not Proceeding

The risks of not proceeding with this project for AEY are as follows:

- AEY will not be able to explore any major Grid Modernization initiatives. AMI is a fundamental requirement for any future Grid Modernization initiatives.
- AEY will continue to incur $40,000 yearly, which will grow yearly, to meet billing requirements in Whistle Bend Subdivision through manual meter reading expenditures.
- AEY will continue to rely on customer call-ins for notification in the event of a loss of power at a customer location and there will be no opportunity to integrate an OMS system. AEY will not be able to meet customer expectations of near real-time display of energy consumption and production and AEY will not be able to reliably collect interval data that will meet expected billing requirements.

Evaluation of Viable Alternatives

ATCO Electric considered three vendor alternatives when selecting the AMI demonstration platforms in Alberta. The successful “Request for Proposal” proponent was Landis+Gyr. There were no other alternatives explored for AEY to adopt since the integration of Landis+Gyr technology into ATCO Electric’s existing billing system (which AEY currently utilizes) results in AEY being able to leverage lower integration and service fees from Landis & Gyr through ATCO Electric's license.

Recommendation

AEY's recommendation is to proceed with installation and implementation of AMI technology.

ATCO Electric YUKON

September 28, 2023 AEY-YUB-066

ATCO Electric Yukon (AEY)
2023-2024 General Rate Application (GRA)

Information Responses Round 1 to:
The Yukon Utilities Board (YUB)
Received: September 6, 2023

AEY-YUB-066

Reference: 2023-24 GRA, Sections 9.7 and 9.9, General Property Plant and Equipment, PDF pages 178 and 179-180; Schedule 9.2

Issue: Business Cases

Preamble: The Board requires further information.

Request:

(a) From Schedule 9.2, Line No. 370 (Old Crow bunkhouse replacement), please provide the business case for this project.

(b) From Schedule 9.2, Line No. 407 (Sales force), please provide the business case for this project.

(c) From Schedule 9.2, Line Nos. 353 and 408 (My Account - Technology Project and My Account Enhancements - AEY respectively), please demonstrate the efficiency gains and any cost savings since implementation.

(d) In reference to part (c) of this request, since ATCO has cancelled its contract with Wipro, how is this program being managed?

(e) Please explain the significant increase in forecast expenditures for Miscellaneous Tools and Instruments for 2023.

(f) For Satellite Radios (Line No. 384) in 2022, please provide the economic analysis relative to Alternative 1 (Business Case #14, PDF page 64).

(g) Please explain the forecast increase in AEY SCADA Upgrades (Line No. 383) for 2024.

Response:

(a) AEY included the Old Crow Bunkhouse costs in the 2024 costs in Business Case #41 as the need for the bunkhouse is directly linked to the new Old Crow Plant facility.

(b) AEY notes that this project is below the major projects Business Case threshold of $500,000; however, in an effort to be helpful, AEY has prepared a Business Case for this project which is included in AEY-YUB-066(b) Attachment 1.

(c) A cost/ benefit analysis was not completed as cost was not the main driver of the project. The main driver was allowing customers to access their account and pay bills online, a feature that is considered a necessity in a digital society. The project has the additional benefit of allowing AEY staff to spend less time processing manual payment transactions and focus on more value-added tasks.

(d) AEY's new IT service provider, Kyndryl, continues to manage this system.

(e) The increase is a result of AEY purchasing a replacement protective relay test set for approximately $125,000.

(f) As Alternative 1 involved Installing, maintaining, and licensing VHF base stations for the remote areas of AEY's service area for the level of intermittent use by AEY was determined to be a non-starter from a cost benefit and safety perspective.

(g) AEY foresees more automation and remote monitoring devices being incorporated in both distribution and generation equipment, and the potential for updates to communication infrastructure to address emerging security, reliability, and data control risks. AEY intends to conduct an expert gap assessment of the overall SCADA system and operational interface, to identify potential improvements and modernizations necessary to the system. This will help define current vs future state functionality, industry best practices, challenges and opportunities and risks,

and any specific operational deficiencies with existing equipment. This information will feed into the capital planning process, for prioritization of work scope and decisions on funding, schedule, and resource allocation.

ATCO Electric
YUKON

2023-2024 General Rate Application (GRA)

Salesforce Business Analysis

Business Case

Executive Summary

ATCO Electric Yukon's (AEY) system for managing projects is inefficient and difficult to use. There is a need for an integrated project management tool to better manage our capital and customer portfolio. This project will define requirements, create a business case, and propose a solution for a new tool to be implemented in 2024.

Background

AEY's current process for managing capital projects consists primarily of:

- Manual processing in numerous Excel spreadsheets; and
- Relying on emails and verbal communications.

The current process results in inefficiencies. Staff across multiple departments including Engineering, Construction, Warehouse, Operations, Customer Service/Billing, and Finance/Accounting are disjointed. Customer and project data/efforts are replicated since departments are not working from a common operational tool. It takes a significant amount of resources and effort to provide excellent customer service to new extensions customers. The fragility of these processes and data poses a multi-faceted risk to AEY's operations and ability to satisfy its obligations to its customers.

AEY has outgrown its current means of tracking projects. To scale growth and execute a growing volume of projects, promote collaboration between departments, and ensure business continuity, AEY needs to move towards an operating environment where:

- The capital project management core processes will be streamlined and automated.
- Data will be centralized, and version controlled.
- Management can monitor KPIs and measure successes.

Project Description

1. Phase 1: Define
    a. Complete a business analysis and document:
        i. Existing and future state project process flow;
        ii. User requirements and acceptance criteria for any potential systems; and
        iii. Requirements for a future project management system.
    b. Estimate for a technical solution using Salesforce or alternatives.
2. Phase 2: Evaluate
    a. Create a business case for a project management system.
    b. Recommend a project management system to implement in 2024.
    c. Provide a roadmap for implementing any provided solutions.
3. Phase 3: Implementation
    a. Based on needs and business case implement proposed solution in 2024

Project Schedule & Cost Estimate

Phase 1	Phase 2	Phase 3[1]
Q3 2023	Q4 2023	Q2 2024
$48,000	$124,000	$155,000

Future enhancements to the new system may happen in later years based on need and costs.

Business Drivers and Benefits

The decision to transition from the current process to a unified solution for managing capital projects stems from a strategic objective to enhance operational efficiency, collaboration, and project outcomes. This transition has a number of key drivers, each contributing to a more streamlined, effective, and proficient project management process.

[1] Preliminary estimate, to be updated following completion of Phase 1 and Phase 2.

1. Increase efficiency and productivity.

   Current tools such as spreadsheets, although versatile, often require manual data entry and can be susceptible to human error. The adoption of a fit for purpose tool aims to eliminate these inefficiencies by providing an integrated platform that automates routine tasks. By reducing administrative workload, the Capital Project team gains the capacity to allocate more resources to value-driven activities, ultimately resulting in expedited project timelines and amplified project throughput.

2. Real-time visibility and insights.

   Current tools' static nature hampers the ability to access up-to-the-minute project metrics, potentially hindering prompt decision-making and timely interventions. Salesforce's reporting capabilities provide instant access to current project information, enabling data-informed decisions and proactive responses to potential issues. This enhancement serves to diminish the risks of project delays and budget overruns.

3. Effective collaboration.

   Current tools' decentralized structure occasionally leads to information fragmentation, impeding smooth communication and knowledge exchange between teams. A centralized database will bridge these gaps, facilitating seamless collaboration among team members and fostering the exchange of essential project insights.

4. Flexibility and scalability.

   The limited scalability with current tools could restrict AEY's ability to manage an expanding project portfolio and changing business requirements. An adaptable framework, coupled with customizable workflows, will address this challenge, and ensure that the project management system evolves congruently with scale.

5. Risks associated with continued reliance on current tools and processes.

   The risks of incorrect or hard to find data, manual data entry errors, version control discrepancies, and the potential for inaccuracies could undermine project integrity. The absence of integrated project management features in the current tools might impede AEY's ability to proactively identify and manage risks, possibly resulting in unforeseen project obstacles.

Evaluation of Viable Alternatives

All possible tools require a detailed understanding of project processes and a list of requirements. Alternatives to be evaluated in the business case for implementation could include:

- ATCO Project Server (In house tool developed by ATCO Electric);
- Salesforce;
- Status quo (spreadsheets);
- MS Project; and
- Other off the shelf project management tools.

Recommendation

Proceed with Phase 1 and Phase 2 of the project. Once firm scope and cost estimates are determined initiate phase 3 with an updated Business Case.