



WEST EDMONTON TRANSMISSION UPGRADE PROJECT UPDATE

December 2018

You are receiving this information because you are a landowner, resident, occupant or interested party near the West Edmonton Transmission Upgrade Project, and we would like to update you on the next phase of this project.

WHAT'S NEW?

Over the last two years, we have discussed the West Edmonton Transmission Upgrade Project with over 1,100 homeowners, residents, businesses and other interested stakeholders located near the proposed transmission development asking for feedback on route options and potential impacts. Thank you to everyone who took the time to share your comments with us.

Based on the research we have done and the feedback received, we have determined a preferred route for the transmission line that we believe has the lowest overall impact. An alternate route has also been selected for consideration. We have also submitted a Facility Application with the Alberta Utilities Commission (AUC) for approval of either the preferred or alternate route. The AUC is an independent quasi-judicial agency responsible for approving power transmission facilities in Alberta. If the West Edmonton Transmission Upgrade Project is approved, the AUC will also decide which route will be approved for construction.

A map showing the preferred and alternate routes and information about how the feedback we received was used in our decision-making is included in this package. More information about the next steps of the regulatory process and how you can continue to be involved is also included.

Our Commitment

We understand this development will impact people and recognize that some stakeholders still have concerns. We take those concerns seriously and are committed to continuing to work with those affected on an individual basis to address their concerns. Stakeholders can still provide feedback about this project to both us and the AUC while our Facility Application is being considered.

EPCOR:
780-412-4040
consultation@epcor.com
www.epcor.com/consultation

AUC:
www.auc.ab.ca

PROJECT BACKGROUND

The West Edmonton Transmission Upgrade Project involves upgrading the transmission system in Edmonton to improve reliability and reduce the risk of power outages.

The proposed project includes:

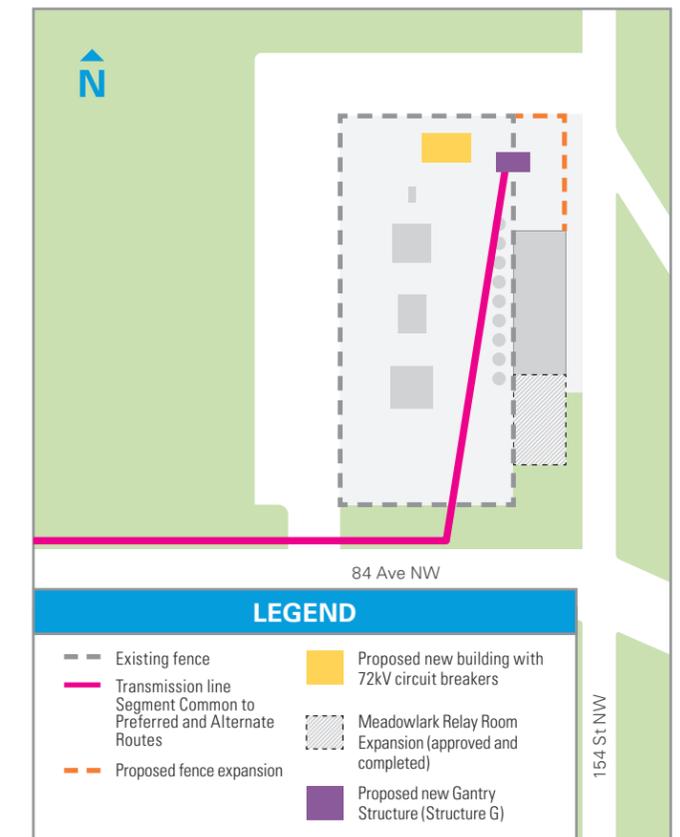
- Constructing approximately 9.5 km of above-ground 72 kilovolt (kV) transmission line from the Poundmaker substation (18944 105 Avenue) to the Meadowlark substation (15404 84 Avenue).
- Adding two 72 kV circuit breakers, and associated switches and equipment to the Meadowlark substation.
- Adding one 240 kV/72 kV transformer, one 240 kV circuit breaker, one 72 kV circuit breaker and associated switches and equipment to the Poundmaker substation.
- Expanding the existing fences at both the Poundmaker and Meadowlark substations.

Please note the layout of the new equipment in the substations has changed slightly since the last project update.

Poundmaker Substation



Meadowlark Substation



The Preferred and Alternate Transmission Line Route Options

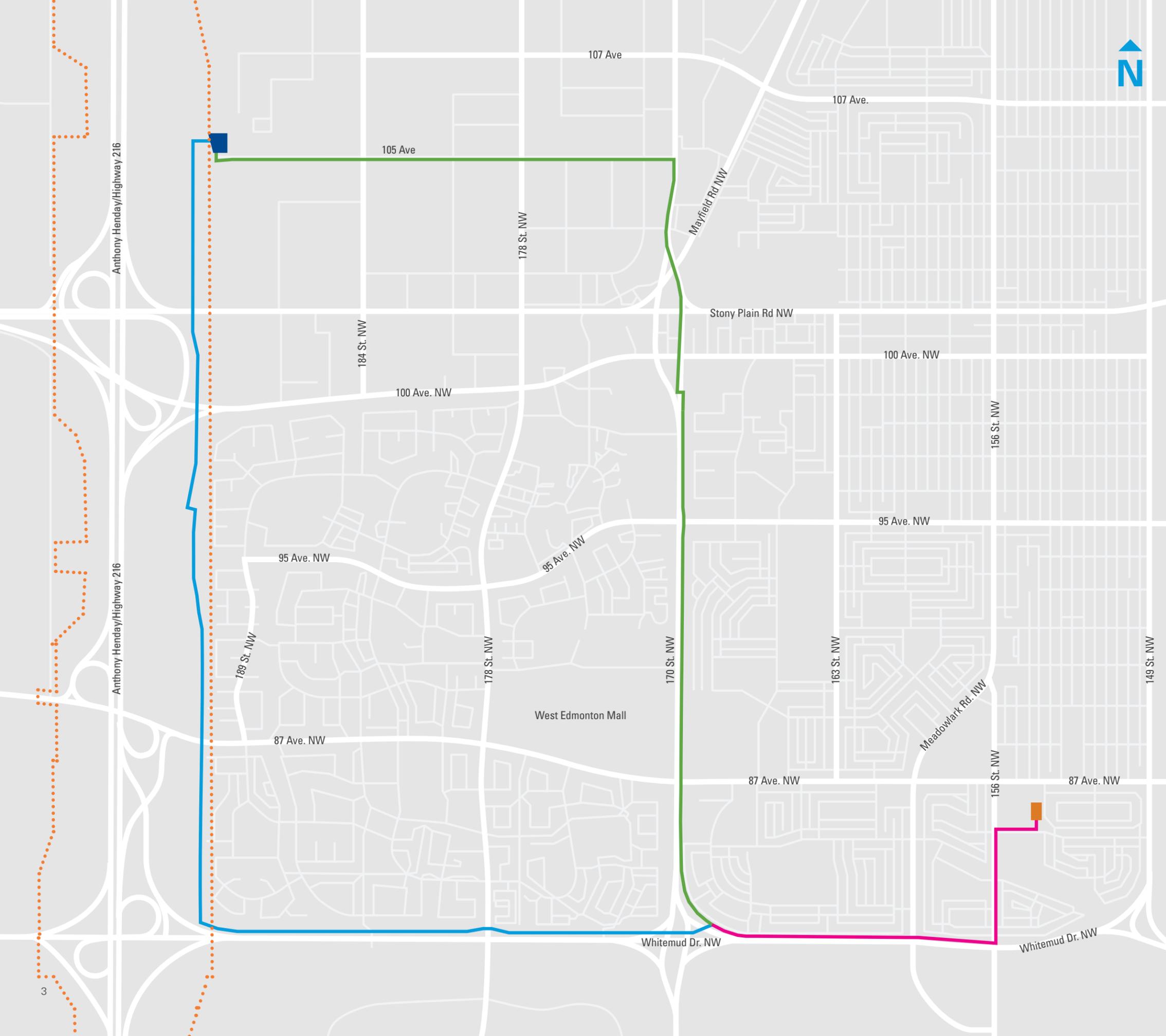
Determining the route of a new power line is a complex process. We considered a number of important factors when evaluating possible routes, including:

- Input from local stakeholders
- Public and employee health and safety
- The environment
- Existing infrastructure available to be used or paralleled
- Proximity to existing Transportation Utility Corridors (TUC)
- Electrical requirements
- Cost
- Visual and social impacts
- Construction impacts and access to facilities during maintenance
- Special constraints and considerations

Based on the research we have done and the feedback we received, we have determined a preferred route for the transmission line that we believe has the lowest overall impact. An alternate route has also been selected for consideration.

Our preferred route option sites the transmission line in an area specifically designed for powerline development – a Transportation Utility Corridor (TUC) – and utilizes existing distribution power line alignments, where possible.

The alternate route option sites the transmission line near existing linear developments (roads and alley ways) along 170 Street and utilizes existing transmission structures and rights-of-way along 105 Avenue.



LEGEND

- Poundmaker Substation
- Meadowlark Substation
- Preferred Route
- Alternate Route
- Segment Common to the Preferred and Alternate Routes
- TUC boundaries

Only one route will be built. The map shows the preferred and alternate routes under consideration.

What is a Transportation Utility Corridor (TUC)?

The Government of Alberta established Restricted Development Areas (RDAs) in the mid-1970s. The lands in these areas were designated for TUC uses. The intended primary uses within TUCs are linear transportation and utility facilities, which includes power transmission lines.

HOW STAKEHOLDER FEEDBACK INFLUENCED THE ROUTE OPTIONS

Stakeholder feedback is important to us and influenced the routes we put forward to the AUC for approval. The following section provides an overview of how the feedback was used in determining the preferred and alternate route options.

Removal of Route Options along Stony Plain Road, 175 Street and 99A Avenue

Stony Plain Road is a highly congested road with limited room to build or install new electrical facilities. Building a new transmission line here would not only impact stakeholders in the area, but also increase traffic congestion during construction and when the transmission line had to be accessed in the future for maintenance or during outages.

When compared to the alternative – installing the transmission line along 105 Avenue where other transmission infrastructure already exists – the Stony Plain Road option was assessed as having a greater impact, and was therefore removed from the routes being considered.

Route Alignment along Whitemud Drive, North of the Sound Wall

When we met with area residents about the proposed route, several people asked us to place the new transmission line on the south side of the sound wall along Whitemud Drive to limit potential visual impacts. After exploring this option with the City of Edmonton, the option to move the transmission line south of the sound wall was ruled out because of concerns about the proposed line's impact on:

- The integrity of the retaining wall along Whitemud Drive;
- Lane closures and traffic congestion along Whitemud Drive during construction, maintenance and outages; and
- The City's current and future landscaping and beautification plans in the area.

Should the project be approved, we are proposing that the new transmission line along Whitemud Drive be installed in one of two fashions:

- **Between 156 Street and 170 Street:** Utilizing the existing road right-of-way and distribution line. Every second or third existing distribution pole would be replaced with a taller transmission structure to allow the new transmission line to be installed above one of the distribution circuits (see Structure C). The second distribution circuit would be removed and relocated underground. Burying a distribution power line is significantly less expensive than burying a transmission line because less equipment and infrastructure is required, and the cost of materials is cheaper.
- **Between 170 Street and the Anthony Henday:** Along new transmission poles installed in the road right-of-way (Structures A and B).

Route Alignment in the Transportation Utility Corridor (TUC) along the Anthony Henday

The preferred route option maximizes our ability to build the new transmission line in a TUC, an area specifically designed for transportation and utility development, including power lines. When we spoke with residents in the area about the project, many asked if the proposed location of the transmission line could be moved further west to limit its visual impact.

Alberta Infrastructure has confirmed that the currently proposed location of the line in the TUC is the optimal design solution based on existing and planned utility and road infrastructure within the TUC. The pre-planned locations of the utility and road infrastructure inhibit the opportunity to modify or relocate the route further west within the TUC.

Environment

Stakeholders told us it is important to minimize potential impacts to the environment. We have modified routing to reduce the amount of vegetation removal required within the TUC, and focused on placing other routes near existing development. Any vegetation removed during the construction process will be done outside of bird migration and nesting periods. Environmental impacts will be assessed as part of our Facility Application to the AUC.

Underground Cost Estimates

We heard from a number of stakeholders that they would prefer the new transmission line be built underground. Based on that feedback, we have completed preliminary cost estimates for burying the preferred and alternative routes. See the tables at right.

Cost Estimates for Proposed 72 kV Transmission Line Only

Preferred Route

Constructed Overhead*	\$14.09M
Buried Underground**	\$65.78M

Alternate Route

Constructed Overhead*	\$13.95M
Buried Underground**	\$63.92M

*Cost estimates are + 20% / - 10% and have been rounded to two decimal places. Estimates include cost of burying one distribution line in proposed overbuild areas.

** Preliminary cost estimates are + / - 30% and have been rounded to two decimal places.

Burying a power line is more expensive to build and maintain compared to an above-ground power line. Because we are obligated to propose a route with the lowest overall impact to customers - including cost - we are proposing an overhead power line.

Cost Estimate: Total Project

Total project costs include construction of an overhead 72 kV transmission line, upgrades to the Poundmaker and Meadowlark substations, project management, land management and contingency.

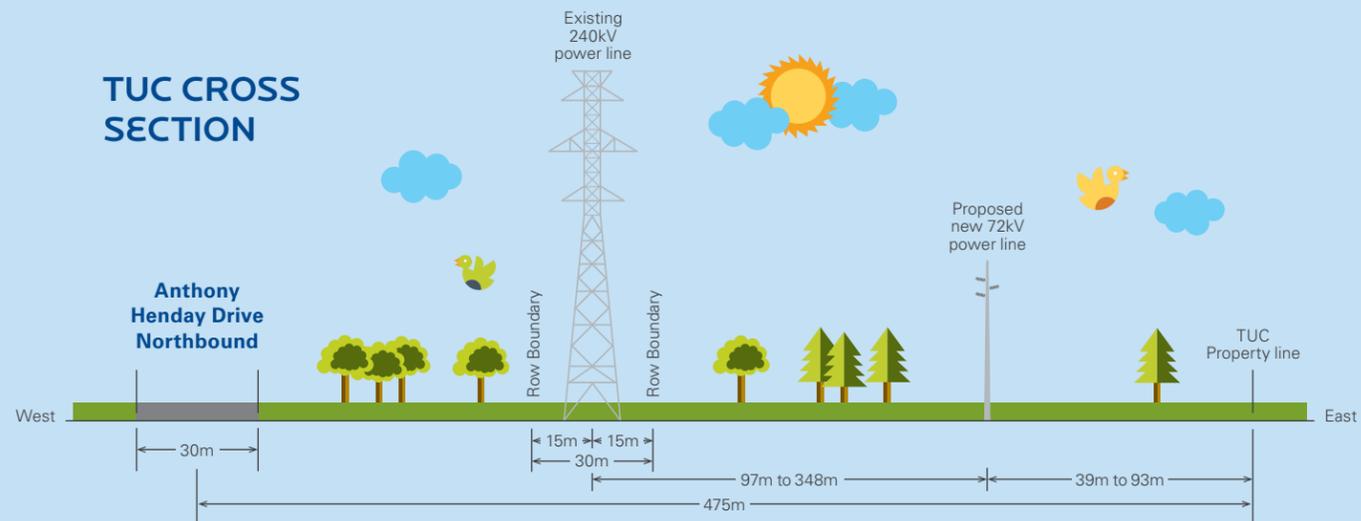
Total Cost

Preferred Route	\$34.24M
Alternate Route	\$33.98M

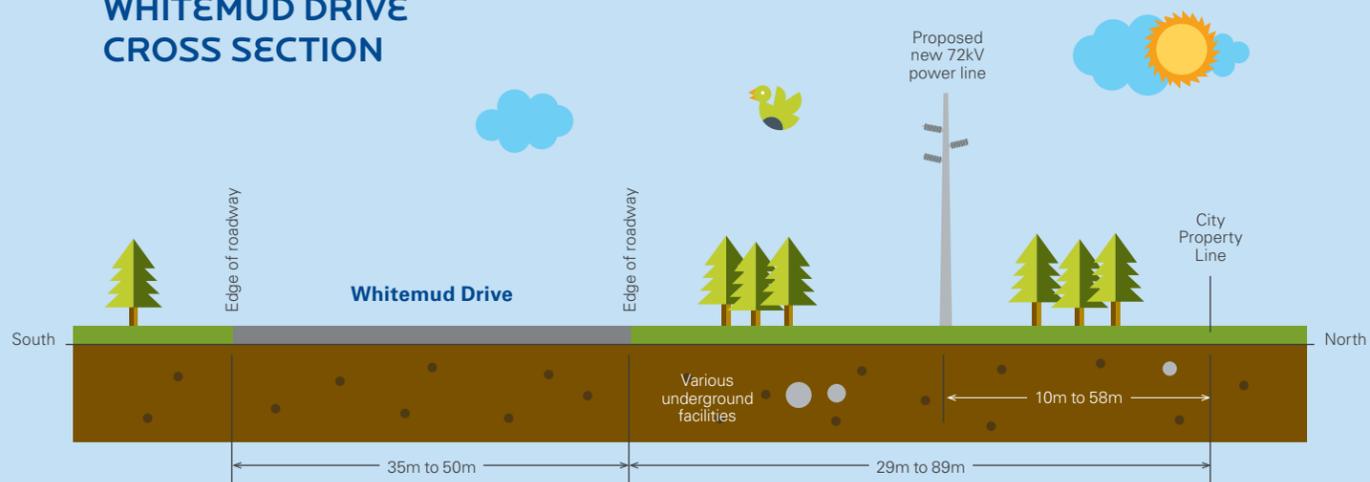
Cost estimates are + 20% / - 10% and have been rounded to two decimal places.



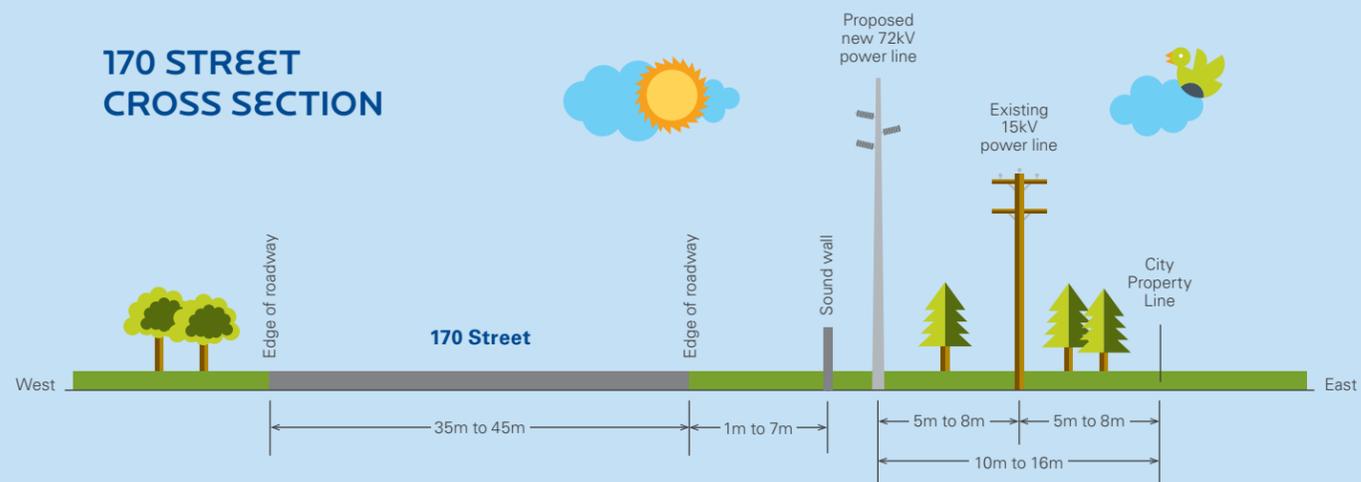
TUC CROSS SECTION



WHITEMUD DRIVE CROSS SECTION



170 STREET CROSS SECTION



*Drawings are not to scale (NTS) and dimensions are approximate

What Will the New Transmission Line Look Like?

The cross section images on the left show what the proposed transmission line will look like along different sections of the preferred and alternate routes in relation to existing roadways and other utility infrastructure.

Proposed Structure Type

The typical structures we plan to use will either be wood or composite poles, ranging in height from approximately 18 to 26 metres. The diameter of the typical structures at the ground surface will range between approximately 0.65 to 1.0 metres.

In areas where no distribution or transmission facilities exist and new transmission structures need to be installed, new single circuit transmission poles will be installed (see Structures A and B).

Where possible, we propose to install the new 72 kV transmission line using existing utility rights-of-way and follow the alignment of an existing double-circuit distribution line (see Structure C).

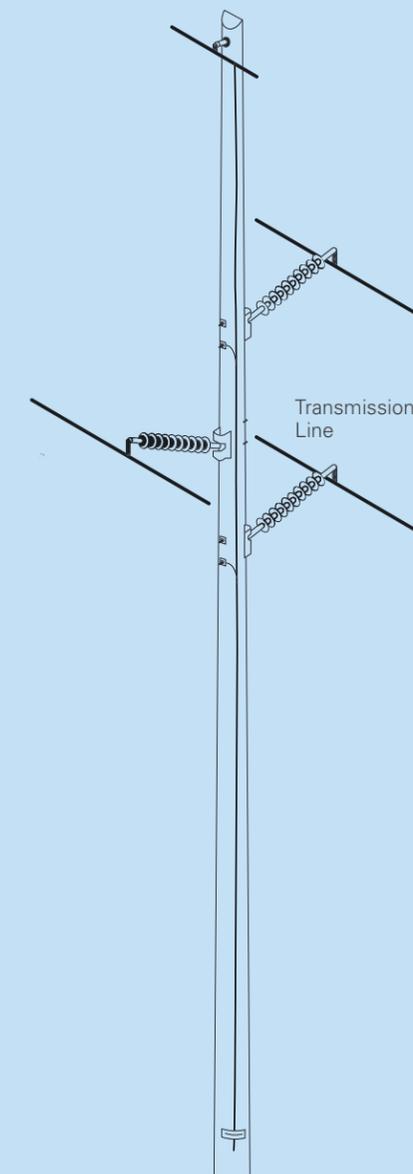
A section of the alternate route, from the Poundmaker Substation to approximately 172 Street, follows an existing 240 kV transmission line that is only strung on one side of the structure. For this section, we propose to string new wires on the unstrung side of the existing transmission structure (see Structure D). New dead end structures will also be required in this section (see Structure E).

Non-Typical Structures

Structures E, F and G represent examples of the non-typical structures that we may need to use at certain locations along the transmission line, including where the line turns corners, has to span larger distances, or crosses existing transmission lines. Non-typical structures may be wood, composite or steel, ranging in height from approximately 18 to 34 metres.

The diameter of the non-typical structures at the ground surface will range between approximately 1.0 to 1.5 metres.

STRUCTURE A TRANSMISSION ONLY

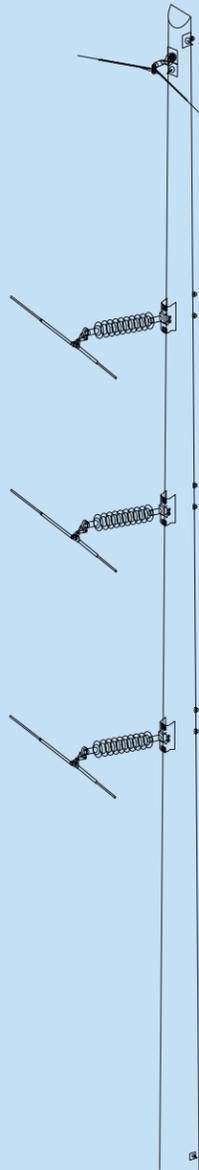


Structure A Transmission Only

Portions of the route will be primarily single-circuit, meaning they will have three wires strung across them and one overhead shield wire, which includes fibre optic cables inside, on top. This is the most common pole type.

*Images not to scale

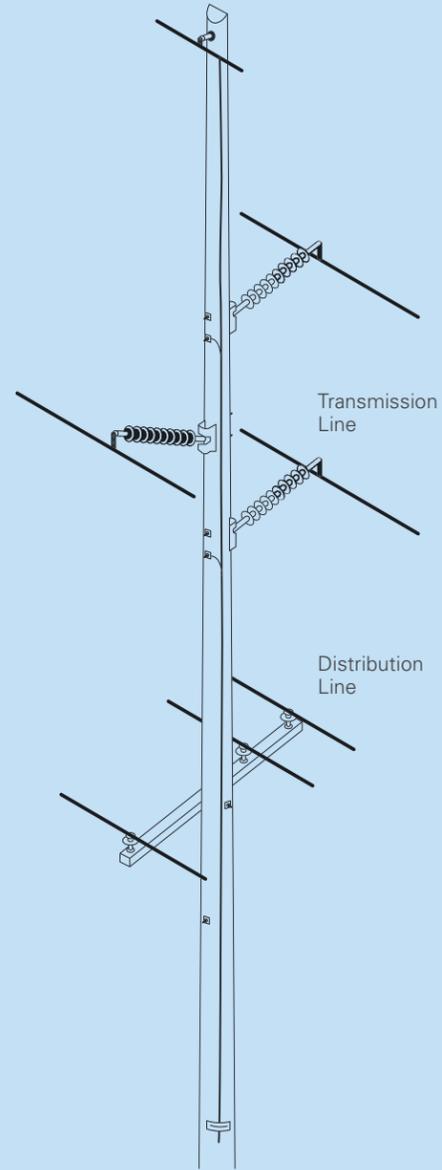
STRUCTURE B
TRANSMISSION
ONLY



Structure B Transmission Only

Where aerial clearance is limited, a structure that has three wires strung to one side may be used.

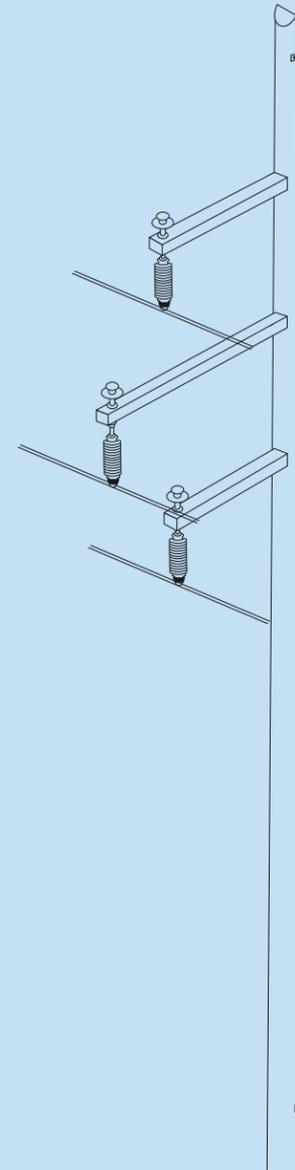
STRUCTURE C
TRANSMISSION AND
DISTRIBUTION



Structure C Transmission and Distribution

Portions of the routes under consideration follow existing distribution lines. For these sections, we propose to remove some of the current poles (approximately 14 metres tall) and install new poles (ranging from 18 to 26 metres in height) that will have the new transmission line on top and the existing distribution line(s) underneath. One of the existing distribution circuits will be removed and relocated below ground.

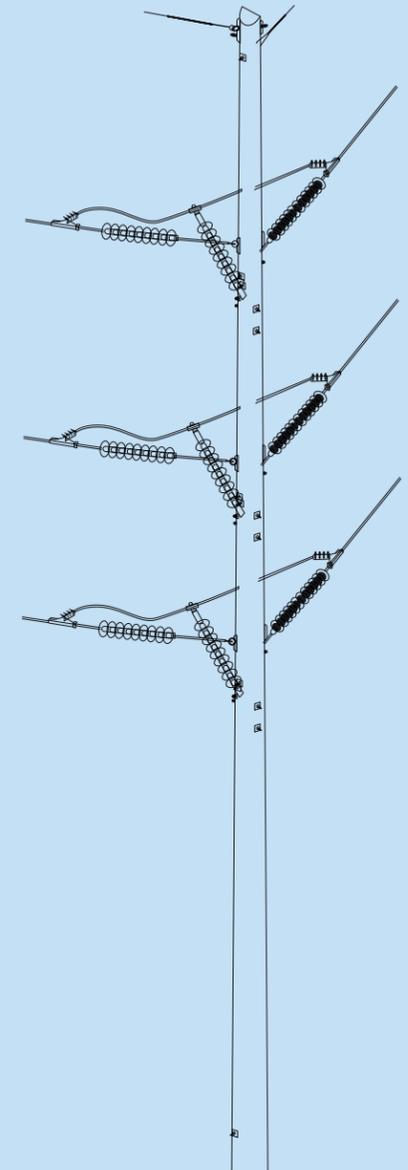
STRUCTURE D
EXISTING STRUCTURE,
SINGLE SIDE STRUNG



Structure D Existing Structure, Single Side Strung

New wires will be installed on the side of the existing 240 kV pole line that is unstrung.

STRUCTURE E
SINGLE POLE VERTICAL
DEAD END



Structure E Single Pole Vertical Dead End

This pole may be used where the proposed transmission line turns corners.

*Images not to scale

DEFINITIONS

Transmission Lines and Substations

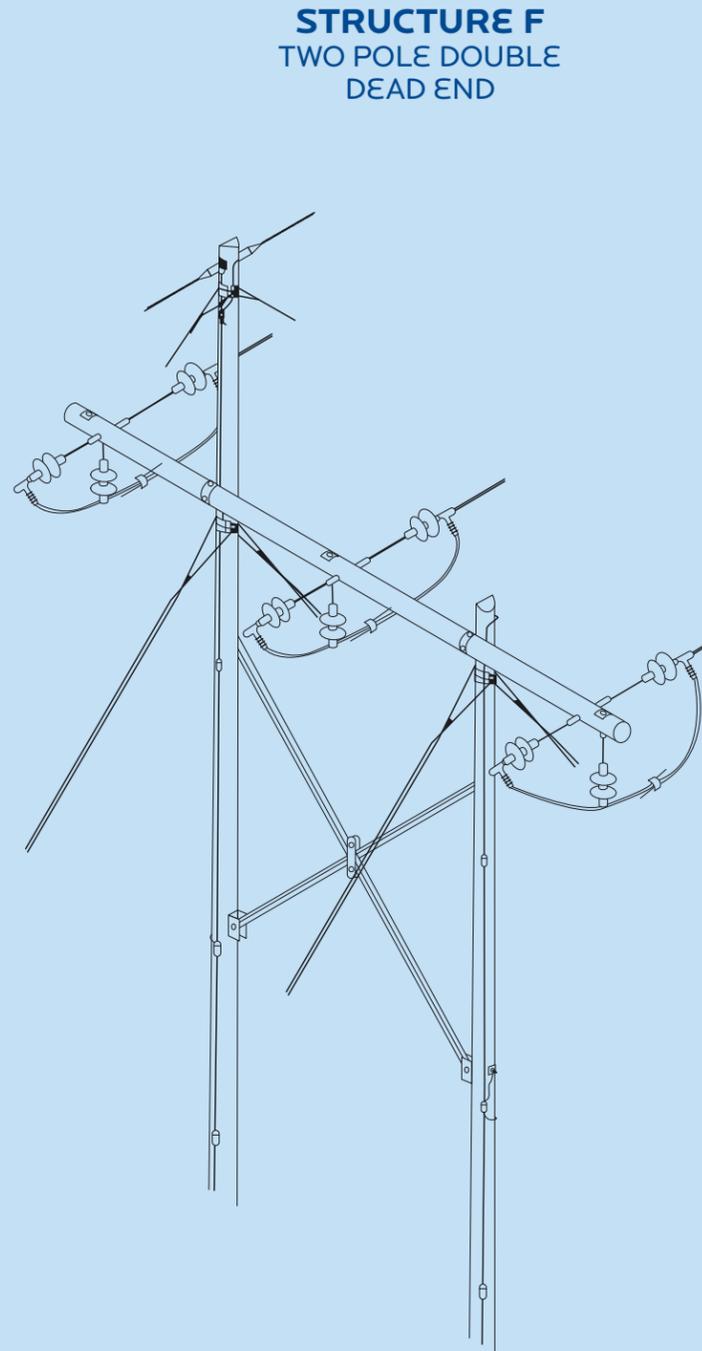
Transmission lines are like highways, moving high-voltage electricity from generating stations to distribution points (called substations) where the high-voltage electricity gets stepped down to lower voltages.

Distribution Lines

Once voltages are stepped down at a substation, the electricity travels along distribution wires. These lines are the ones that leave a substation and make their way to our homes or businesses.

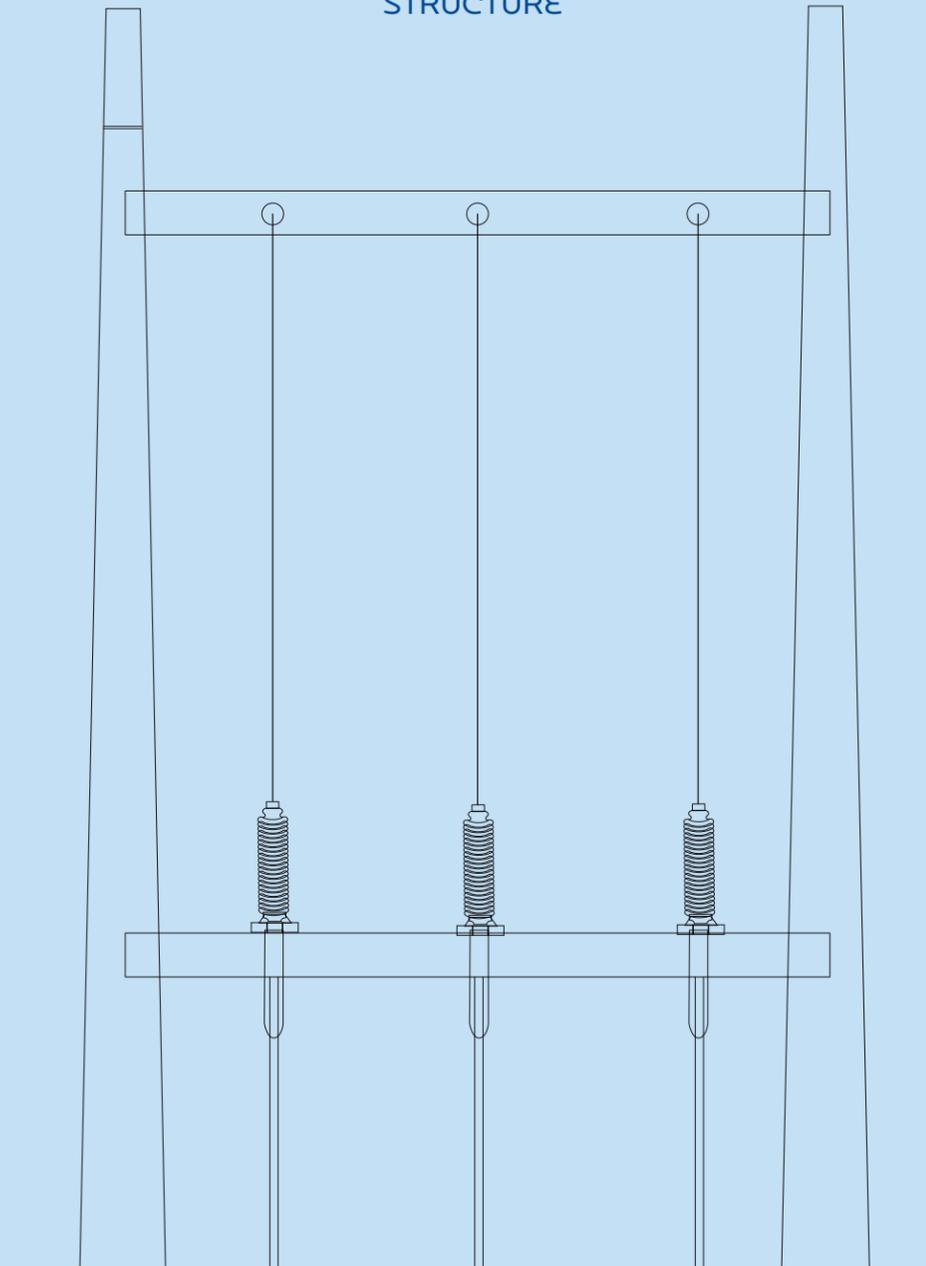
Fibre Optic Cables

Fibre optic cables provide a communications link between neighbouring substations and EPCOR's control centre. This enables EPCOR to monitor and remotely control its transmission equipment, communicate with other transmission operators, and ensure the safety and reliability of EPCOR's transmission system.



Structure F Two Pole Double Dead End
This structure may be used to allow the new 72 kV line to cross underneath existing 240 kV lines without burying it.

STRUCTURE G SUBSTATION GANTRY STRUCTURE



Structure G Substation Gantry Structure
Proposed at the Meadowlark Substation. A similar structure is also proposed at the Poundmaker Substation. This structure may change slightly during detailed design.

*Images not to scale

CONSULTATION UPDATE

Throughout our discussions with stakeholders, various concerns and questions were brought forward. The feedback gathered during personal consultations was documented and included in the Facility Application filed with the AUC. This section outlines the feedback received from stakeholders – broken into key themes – and our responses.

Visual Impacts

The new transmission line will be visible from some residences in the area. In order to reduce potential visual impacts where possible, existing linear corridors (roads, and existing transmission and distribution lines) were followed or overbuilt.

Health and Safety

- Electric and Magnetic Fields (EMF):**
 We recognize that people have concerns about EMF as it exists everywhere there is electricity. We treat these concerns very seriously and are guided by EMF research that is compiled and reviewed by national and international health agencies. After more than 40 years of research that includes thousands of studies and numerous reviews by health agencies, Health Canada and the World Health Organization have not concluded that typical exposures to EMF from overhead power lines have any known health consequences. If you would like more information about EMF, please contact us.
- Stray voltage:** Although unlikely, transmission lines have the potential to cause induction in metal objects that can result in shocks. These shocks are typically harmless and similar to the shocks you may receive after walking across a carpet. To eliminate these mild shocks, metal objects and fences can be grounded. As a part of this project, we will contract an independent company to complete an induction study prior

to construction. The purpose of the study is to identify potential areas where induction may occur. During construction we will assist landowners with investigating the need to ground metallic objects under or near the line.

- Contact with an overhead or downed power line:**
 We are committed to the safety of our customers and employees. We ensure that our existing and proposed electrical facilities adhere to all applicable electrical and safety legislation, guidelines, standards, codes and regulations.

Underground Routing Alternatives

Burying a power line is more expensive to build and maintain than an above-ground power line. Because we are obligated to propose a route with the lowest overall impact to customers – including cost – we are proposing an overhead power line.

Based on the feedback we received from several residents who specifically asked for the transmission line to be buried, we have included preliminary cost estimates for burying various segments of the proposed routes underground in our facility application.

Construction Impacts

If this project is approved, construction is planned to begin in Summer 2019 and finish in Summer 2020. We anticipate work will generally happen Monday to Friday between 7:30 a.m. and 5 p.m.; however, occasional evening and weekend work may also be required. We will provide customers affected by construction with more detailed information regarding potential impacts, including possible power outages, prior to any work starting.

All proposed work spaces for the project will be safe and secure, and construction activities will comply with City of Edmonton bylaws, Occupational Health and Safety requirements, and our strict health, safety and environment program.

We understand that construction impacts can be challenging; however, they are generally short in nature. Our construction team will work as quickly and safely as possible to minimize potential impacts.

Property Value

We sought to minimize potential impacts by proposing to build the new transmission line in areas specifically designed for powerline development like the Transportation Utility Corridor along the Anthony Henday, and utilizing existing corridors, where possible.

Noise

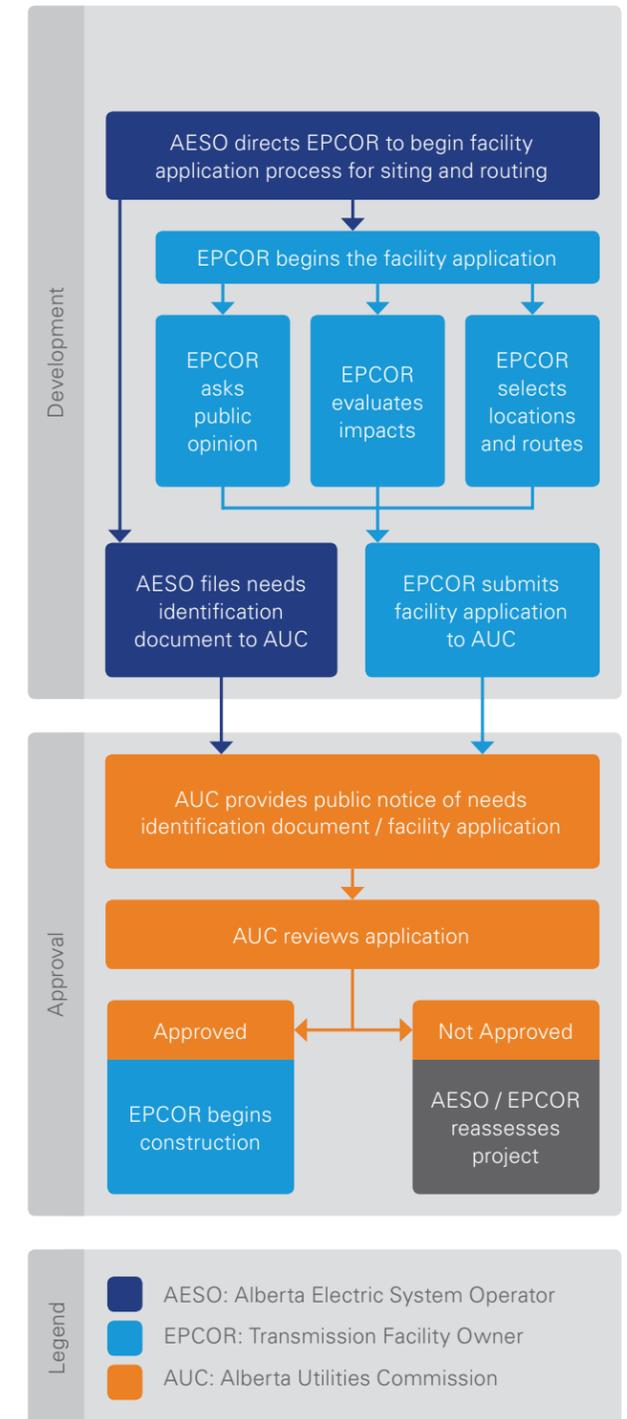
The addition of a transformer at the Poundmaker substation will increase noise levels at the substation, but will not exceed permissible sound levels (PSL). No increase in noise is expected as a result of the upgrades to the Meadowlark substation. As part of the AUC's requirements, a Noise Impact Assessment has been completed for the project and submitted with the Facility Application to ensure that the proposed project will not exceed permissible sound levels. No noise is anticipated from the operation of the proposed 72 kV transmission line.

The Regulatory Process

The Alberta Electric System Operator (AESO) is responsible for determining the proposed transmission development, which involves adding the transmission line and equipment at the Poundmaker and Meadowlark substations. The AESO submitted a Needs Identification Document (NID) with the AUC in October, 2018 in support of this project.

In October, EPCOR's project team also filed a Facility Application with the AUC outlining our proposed upgrades to the Poundmaker and Meadowlark substations, and our preferred and alternate route for the new 72 kV transmission line.

The AUC must approve the Needs Identification Document and the Facility Application before upgrades to the system can begin. The final decision on routing will be made by the AUC and although two routes were proposed, only one route will be built if approvals are granted.



REVISED PROJECT TIMELINE



For more information on the regulatory process, including links to the AESO and AUC websites, please visit our website at epcor.com/consultation. We have also enclosed the AUC's brochure entitled, Public involvement in a proposed utility development for more information about how customers can participate in the AUC process.

About EPCOR

EPCOR, through its subsidiaries, builds, owns and operates electrical, natural gas and water transmission and distribution networks, water and wastewater treatment facilities, sanitary and storm water systems, and infrastructure in Canada and the United States. The company also provides electricity, natural gas and water products and services to residential and commercial customers. EPCOR, headquartered in Edmonton, is an Alberta Top 70 employer. EPCOR's website address is www.epcor.com.

About the Alberta Electric System Operator (AESO)

The AESO is an independent, not-for-profit organization responsible for the safe, reliable, and economic planning and operation of the provincial transmission grid. If you have any questions or concerns about the need for this project, you may contact the AESO directly or visit www.aeso.ca.

You can make your questions or concerns known to an EPCOR representative who will collect your personal information for the purpose of addressing your questions and/or concerns to the AESO. This process may include disclosure of your personal information to the AESO.

About the Alberta Utilities Commission (AUC)

The AUC is an independent, quasi-judicial agency of the province of Alberta. The AUC is responsible to ensure that the delivery of Alberta's utility service takes place in the public interest. The AUC must approve this project before upgrades to the system can begin. For more information about how you can participate in the process, please visit the AUC website, www.auc.ab.ca.

Participate in the Process

As we move forward, we remain committed to keeping you informed of updates about this project. We will continue to involve you in the process, address your concerns, and respond to your questions.

Questions about the project?

If you have any questions or concerns about the project, please contact us:

780-412-4040

consultation@epcor.com

www.epcor.com/consultation

Questions about the need?

For more information about the need for this project, please contact the AESO:

1-888-866-2959

stakeholder.relations@aeso.ca

www.aeso.ca

Questions about the regulatory process?

For more information about the regulatory process, read the brochure titled *Public involvement in a proposed utility development* or contact the AUC:

780-427-4903 (for toll-free access, dial 310-0000 before the 10 digit number)

www.auc.ab.ca

The AUC proceeding number for this project is 23943.



EPCOR respects your right to privacy. Any personal information we collect about you — including your name, address, phone number and email address — will be used only in regards to this project.

In accordance with AUC Rule 007, this information will be filed with the AUC and may be available to the public through their website during the regulatory proceeding for this project. Please visit www.auc.ab.ca/AUCPublicInvolvement for more information about the AUC's public involvement process for proposed utility developments.

For information about EPCOR's Privacy Policy, visit epcor.com/privacy.