Thickwood Hills 240 kV Transmission Development and Reactive Power Reinforcement

At the Alberta Electric System Operator (AESO), we plan the province's electric transmission system. We study the transmission system to determine what future upgrades and expansions will be needed to continue to serve Alberta's growing power demands.

HOW DOES THE AESO DETERMINE THE NEED FOR TRANSMISSION DEVELOPMENT?

Alberta's growing population and expanding industry are driving an increasing demand for power. Power generation developers are planning and building new power plants to meet this demand. The transmission system must have enough capacity to transmit power from where it is generated to where it will be used.

As Alberta's transmission system planner, the AESO forecasts both demand from consumers and supply from generators. We study the location and amount of new generation and growing demand and develop plans to ensure Albertans continue receiving reliable power.

Why transmission development is needed?

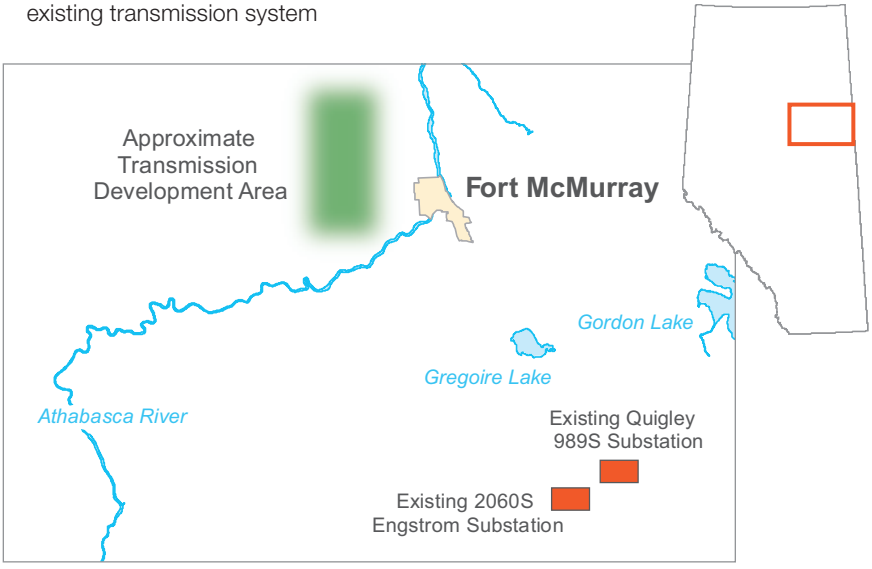
New transmission development is being planned in the Fort McMurray area. Transmission development is needed to connect the Fort McMurray West 500 kV Transmission Project to the existing transmission system in the Thickwood Hills area, west of Fort McMurray. New development is also needed to provide voltage stability in the Fort McMurray area.

The transmission developments proposed to meet these needs include:

- A new 240 kV substation (called Thickwood Hills 951S*)
- Two new 240 kV transmission lines connecting the new Thickwood Hills substation to existing transmission system
- Reactive power equipment installed in the new Thickwood Hills 951S substation and in the existing Quigley 989S and Engstrom 2060S substations.

We will be applying to the Alberta Utilities Commission (AUC) in late spring or summer of 2014 to have these proposed developments approved. Our application will be called the *Thickwood Hills 240 kV Transmission Development and Reactive Power Reinforcement.*

* *The Thickwood Hills 951S substation will later be expanded to include the 500 kV equipment associated with the Fort McMurray West transmission line.*



The shaded area on the map shows the approximate area where the proposed substation and transmission lines are needed, along with the approximate locations of the existing Quigley 989S and Engstrom 2030S substations. In a separate application, called a facilities application, ATCO Electric Ltd. (ATCO), the transmission facilities owner (TFO) in the area, will propose specific routes and siting details for the developments, and request AUC approval to construct and operate these transmission facilities. The specific transmission line routes applied for by ATCO may extend beyond the shaded area shown. For more information on AESO and TFO roles, see page 2.

Planning for Growth in the Fort McMurray Area

Fort McMurray West is a new 500 kV AC transmission line that will run from the Wabamun area west of Edmonton to the Thickwood Hills area west of Fort McMurray. We sent out information about this project earlier this year.

Fort McMurray West is one of two 500 kV transmission line developments comprising the Fort McMurray Transmission System Reinforcement. The second line is the Fort McMurray East 500 kV Transmission project, a new 500 kV AC line running from the Heartland 12S substation northeast of Edmonton to the new Thickwood Hills 951S substation. The Fort McMurray Transmission System Reinforcement is one of four reinforcements that were designated as Critical Transmission Infrastructure pursuant to the *Electric Utilities Act (2009)*. The AESO will use the Competitive Process to deliver Fort McMurray West and Fort McMurray East transmission projects.

For information about the Fort McMurray West 500 kV Transmission project and the Competitive Process, please visit **www.poweringalberta.com**

AESO AND TFO ROLES

The AESO operates the provincial transmission system so that all Albertans can count on safe and reliable electricity to power our homes and businesses each and every day. The AESO also carefully plans upgrades, reinforcements and expansions to the system to ensure the transmission system keeps pace with Alberta's growing demand for power.

ATCO Electric Ltd. (ATCO) is the TFO in the project area. While the AESO is responsible for identifying that transmission system development is needed, ATCO is responsible for detailed siting and routing, constructing, operating and maintaining the associated transmission facilities. The AESO will direct ATCO to file a facility application with the AUC, which will include a detailed description and location of the proposed transmission development.

TFOs IN ALBERTA

There are four major TFOs in Alberta:

ATCO Electric Ltd.

AltaLink

EPCOR Utilities
(owned by The City of Edmonton)

ENMAX Power Corporation
(owned by The City of Calgary)

WHO IS THE ALBERTA ELECTRIC SYSTEM OPERATOR?

The AESO is an independent, not-for-profit organization acting in the public interest of all Albertans. We plan Alberta's transmission system, which is made up of the transmission lines, substations and other related equipment that transmit electricity from where it is generated to where it will ultimately be used.

Transmission Development Approval in Alberta

A TWO-PART PROCESS

1 PART ONE: APPROVAL OF NEED

The AESO studies the transmission system to identify needed upgrades or expansions, and applies to the AUC for review and approval of our plans. The AUC is the regulator for transmission development in Alberta.

The AESO's application to the AUC is called a Needs Identification Document, or NID. The NID outlines our specific plans to upgrade or expand the transmission system, which the AUC must approve.

2 PART TWO: APPROVAL TO CONSTRUCT

TFOs build what is in the AESO's plans. They consult with stakeholders to find specific routes for transmission lines and sites for substations.

Before TFOs begin building, they submit details to the AUC in what are called Facility Applications (FAs). The AUC must review and approve the specific routes and facility locations in the TFOs' applications.

FAST FACT

> In Alberta's electricity industry, transmission lines, substations and other related equipment used to move power are called facilities.

AESO Process

- AESO identifies need for transmission development
- AESO stakeholder engagement (mailouts, open houses, meetings)
- AESO submits a NID to the AUC for approval of need and plan

TFO Process

- TFO consultation, detailed design, routing and siting
- TFO submits a FA to the AUC for approval of siting and routing, and to construct and operate

AUC Review and Approval

- Approval of need
- Approval of siting and routing, and to construct and operate

The AUC must review and provide a decision on both the AESO's application and the TFO's application before developments can proceed. While the AESO will be submitting its application for AUC review shortly, the TFO will submit its application for separate AUC review at a later date.

To learn more about the transmission approval process please contact the Alberta Utilities Commission (AUC):

Web: www.auc.ab.ca
Phone: 780-427-4903

Dial 310-0000 before the 10-digit number to be connected toll-free from anywhere in Alberta.

Other projects in the area

Other transmission system developments that have received AUC NID approval in the area include:

1180 – NW of Fort McMurray 240 kV Transmission System Development
NID approved June 18, 2012.
New 240 kV transmission lines between existing line 9L08, the new Ells River 2079S substation, and the new Birchwood Creek 960S substation, all northwest of Fort McMurray.

1267 – Algar Area System Development
NID approved April 18, 2013.
New 240/144 kV substation called Dawes 2011S to reinforce the existing 144 kV transmission system south of Fort McMurray.

1106 – Kettle River Substation and Bohn Substation
NID approved March 25, 2013.
New 240/144 kV substation to serve as a point of supply to industrial loads southeast of Fort McMurray.

1101 – Christina Lake Area 240 kV Transmission System Development
NID approved on April 24, 2012.
New 240 kV transmission lines between the existing Heart Lake 898S substation and new substations called Ipiatik 167S, Pike 170S and Black Spruce 154S, all located in the Christina Lake area.

Next Steps

Over the coming months we will respond to any of your questions or comments. Before the proposed transmission developments can be built, the AUC must approve the AESO's NID application. ATCO must also apply to the AUC for approval to build the transmission facilities.

We will apply to the AUC in the spring or summer of 2014. When we submit our NID application to the AUC, it will be available on our website at **www.aeso.ca/transmission/8969.html**

We want to hear from you

We appreciate your views, both on the need for transmission system development and our proposed transmission plans. Your comments are encouraged. If you have any questions or suggestions regarding our proposed transmission system development in the Fort McMurray area, or our application regarding this need, please contact:

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To learn more about the electricity industry and its importance to our quality of life and the province's economic well-being, please visit **www.poweringalberta.com**