

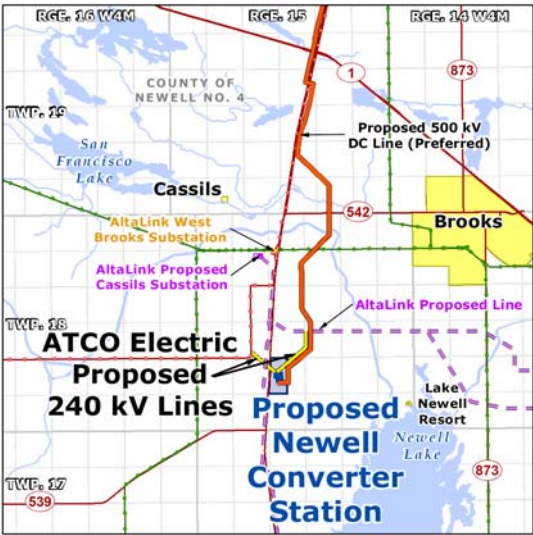


Project Information

ATCO Electric | works for you

March 2, 2011

Eastern Alberta DC Transmission Line: Newell Converter Station and AC Transmission Lines



Why are you receiving this project information package?

As part of the ATCO Electric's Eastern Alberta DC Transmission Line project, a converter station is required in the Brooks area to convert power from alternating current (AC) to direct current (DC), and two short 240 kilovolt (kV) AC transmission lines are required to connect the converter station to the regional AC electrical grid.

We have prepared this information package for landowners, occupants, agencies and interested parties located near the proposed converter station and AC transmission line. We invite any comments, questions or concerns you may have.

Project Overview

ATCO Electric is planning to build a 500 kV, DC transmission line between the Gibbons-Redwater area northeast of Edmonton and the West Brooks area southeast of Calgary. The project includes a converter station at each end to convert power from AC to DC, and AC transmission lines to connect the project to the rest of the transmission system.

The facilities at the south end of the project include:

- The **Newell converter station** (previously called the **Southeast converter station**).
- Two **240 kV AC double circuit transmission lines** from the Newell converter station to existing and proposed 240 kV transmission lines southwest of Brooks.

Your comments and concerns are important to us. Please contact us:

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Regulatory Process

ATCO Electric has been directed by the Alberta Electric System Operator to prepare an application to the Alberta Utilities Commission (AUC) for a 500 kV DC transmission line between the Edmonton and Calgary areas on the eastern side of the province. The proposed Newell converter station and AC transmission lines described here will be included in the application.

For more information on how you can participate in the application process please refer to the enclosed AUC brochure *Public Involvement in Needs or Facilities Applications*.

A separate approval process is required by Industry Canada for the telecommunications tower which will be located within the converter station site. General information relating to antenna systems is provided on Industry Canada's Spectrum Management and Telecommunications website at: <http://strategis.ic.gc.ca/antennae>.



Typical 500 kV DC Converter Station

Newell Converter Station 2075S

The proposed Newell (previously "Southeast") converter station is needed to convert power from AC to DC, and is to be located near existing and proposed 240 kV transmission lines southwest of Brooks.

The proposed converter station site is located within the County of Newell at Section 9, Township 18, Range 15-W4M, on the east side of Highway 36 (see photo detail map PD2-65_{R1}) within one to two kilometres of existing and proposed 240 kV transmission lines south of AltaLink's existing West Brooks substation.

The converter station site requires sufficient area to accommodate the 500 kV DC terminal and 240 kV AC substation equipment, the incoming Eastern Alberta 500 kV DC line 13L50, and the 240 kV AC lines (923L/1087L and 1035L/1088L) that will connect the converter station to the regional AC electric system.

The converter station will consist of a fenced area of about 500 by 500 metres containing transformers, breakers, a converter valve hall, reactors, filters, a telecommunications tower, an emergency/back-up generator, control buildings, and related support equipment and structures.

The converter will have an initial capacity of 1000 megawatts (MW) but the station will be designed to accommodate additional capacity in the future with minimal expansion of the initial fenced area.

Site Selection

The site was selected to meet a number of criteria:

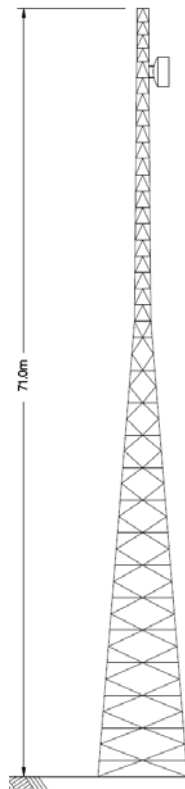
- As close as possible to transmission lines in the West Brooks area to minimize the length of AC connections.
- Sufficient area for converter station development.
- Suitable site conditions (level, well-drained).
- Adequate setback from residences and adjacent development.
- Avoidance of environmentally sensitive areas.



Telecommunications Tower Details

A telecommunications tower is needed at the Newell converter station to communicate with ATCO Electric's radio and data communication network and with AltaLink's network at the proposed Cassils substation. The tower, located within the fenced area of the converter station, will be a self-supported structure about 71 metres tall and about 7 metres wide at the base. The tower will support two microwave antenna dishes and related communications equipment. Examples of towers with one dish are shown to the right.

The new tower will have lighting to meet Transport Canada aeronautical safety requirements and will be operated in compliance with Health Canada's *Safety Code 6* for the protection of the general public and local radio signals. Design and construction will meet applicable standards and will follow good engineering practices including structural integrity.



Typical Telecommunications Tower

Back-up Generator

The converter station will include a back-up diesel generator to supply emergency power for lighting, heating and communications in the event of a regional power blackout. As unlikely as such an event may be, certain components in the converter system cannot be allowed to freeze, and lighting and communications are critical to restoring operation. Except during such an emergency, the generator would operate for about 30 minutes once a month to confirm that it will operate when needed.

The generator planned for this site would have capacity of about 1250 kilowatts, and would include associated cabling, controls, and fuel storage tanks with appropriate spill prevention features.



Typical Back-up Generator



240 kV Transmission Lines

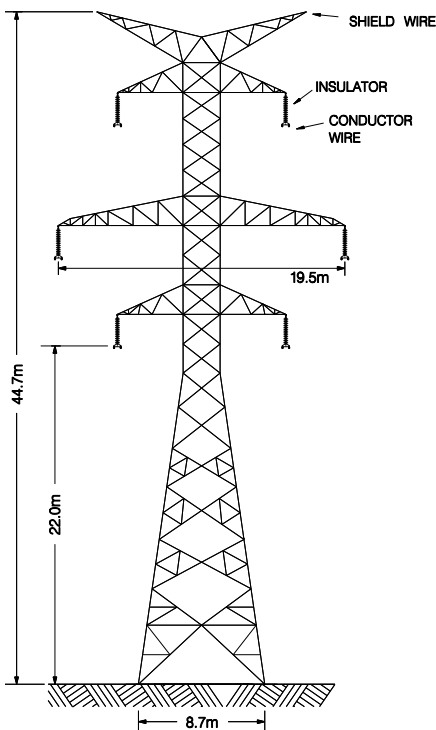
The Newell converter station will be connected to the electric system by two short 240 kV AC double circuit transmission lines between the converter station and AltaLink's existing and proposed transmission lines as shown on photo detail map PD2-65R1.

One new line, 923L/1087L, will extend approximately 1.4 kilometres to the northwest to connect with an existing Milo-West Brooks 240 kV line 923L in SE 17-18-15-W4M. The other new line, 1035L/1088L, will extend about 2.4 kilometres to the northeast to connect with AltaLink's proposed Cassils-Bowmanton 240 kV line 1035L in NW 15-18-15-W4M.

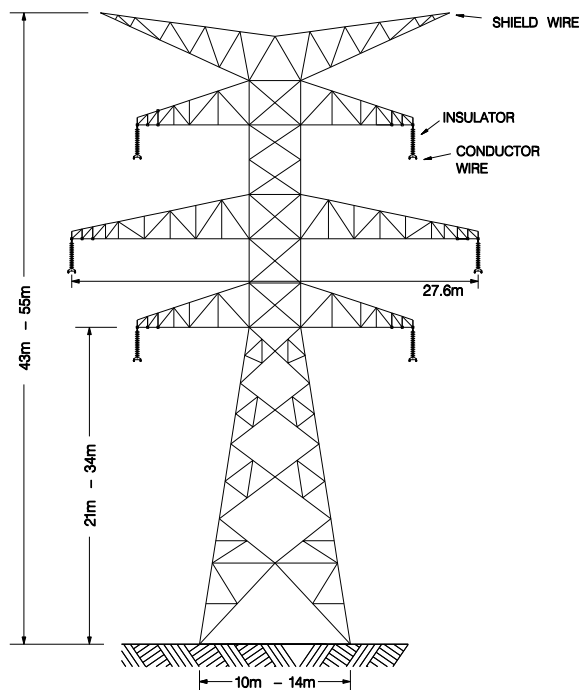
Both new lines will be constructed using steel lattice towers as shown below. Depending on final survey and design, each of the new lines would require about four to six tangent structures and two or three dead-end structures.

The structures will carry two 240 kV AC circuits. Each circuit will be comprised of three bundles of two conductor wires. Conductors will match the size and capacity of the existing/proposed lines to which they will connect (2 x 477 MCM Hawk for 9L23, 2 x 1033 MCM Curlew for 1035L). Each line will have two overhead shield wires for lightning protection. One of the shield wires will incorporate fibre optic cable to facilitate communications between substations.

**Typical 240 kV Double Circuit
Tangent Tower
(straight alignments)**



**Typical 240 kV Double Circuit
Deadend Tower
(corners and termination points)**



Typical Span
Between Towers:
365 metres

Minimum Above-ground
Conductor Height:
18 to 22 metres at tower
7.7 to 9 metres between
towers (higher where
required per safety codes).

Details may vary
with final designs.



Routing and Right-of-Way

The standard minimum right-of-way for the 240 kV lines is 60 metres wide (30 metres each side of centre line), as shown on the drawing to the right. Additional area may be required for construction work space at tower and corner locations, or for access to or around the standard right-of-way.

The routing of the proposed 240 kV transmission lines will be as direct as possible across the converter station property and the adjacent grazing lands where the lines will connect with AltaLink's lines.

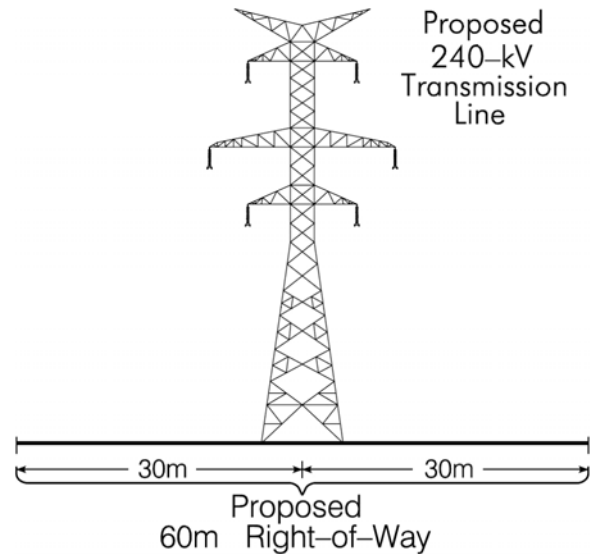
Proposed 240 kV line 1035L/1088L will parallel the proposed 500 kV DC line 13L50 and connect with AltaLink's preferred route for the proposed Cassils-Bowmanton line northeast of the converter station. If AltaLink's alternative route were approved in place of the preferred route, then ATCO Electric's line would connect to the AltaLink line in NE 8-18-15-W4M west of the converter station.

The connection of ATCO Electric's proposed 240 kV lines will require minor alterations to AltaLink's existing and proposed lines. AltaLink will handle the alterations to their facilities as a separate project for filing with the AUC.

Environmental Considerations

Construction, reclamation and subsequent activities will all be carried out in accordance with Alberta Environment's *Environmental Protection Guidelines for Electric Transmission Facilities*.

We will ensure that the converter station and transmission lines are designed to meet the noise limits set by the Alberta Utilities Commission.



Additional Information

Selected Information Sheets (*Transmission Lines On Or Near Your Property*) will provide more information about typical transmission construction, environmental considerations, electrical effects and AC electric and magnetic fields (EMF).

Consultation

We are committed to responsible development, and to conducting an open and transparent consultation process. The first step in this process is to provide you this project information package and invite your feedback.

In addition, if your property is on or immediately adjacent to the converter station site or transmission line, one of our representatives will contact you to arrange a personal meeting to discuss your concerns.

Following a review of the feedback received ATCO Electric expects to file a Facility Application to the AUC in the spring of 2011 to obtain approval for the construction and operation of these transmission facilities.



Proposed Timeline*

February 2011

Consultation with landowners and agencies within 800 metres of the converter station site or transmission line.

Spring 2011

Submission of the facility application to the Alberta Utilities Commission (AUC).

Early 2012

Start construction, provided AUC approval is granted and right-of-way has been obtained.

Mid to Late 2014

Facilities completed and operating.

*Timing may be adjusted to reflect final plans.

ATCO Electric

Albertans have counted on us for the safe, reliable and cost-effective delivery of electricity to their homes, farms and businesses for more than 80 years.

Headquartered in Edmonton, ATCO Electric has 38 service offices serving almost two-thirds of the province in northern and east-central Alberta.

We help keep the lights on across the province by building, operating and maintaining more than 69,000 kilometres of transmission and distribution power lines. We also operate 12,000 kilometres of distribution power lines on behalf of Rural Electrification Associations.

We are committed to responsible development and environmental practices. We conduct an open and transparent consultation process, carefully considering the impacts to landowners, communities and the environment.

Included in this package:

- Project Information
- Information Sheets: *Transmission Lines On Or Near Your Property*, Sheets 5, 7, 8 and 9
- Photo Detail Map PD2-65_{R1}
- AUC Brochure: *Public Involvement in Needs or Facilities Applications*
- Reply Form and Envelope