

# Does Alberta have Alternatives to New 500 kV Lines?

## Summary

The Alberta Electric System Operator is proposing to construct at least one, and perhaps two, 500 kilovolt transmission lines from Edmonton to Calgary over the next few years. While there is no doubt the province needs additional infrastructure to meet its growing demand for electricity, large transmission lines may not be the best choice. Alberta consumers deserve a comprehensive public evaluation of *all* viable options to meet their need for reliable power, including new transmission lines, generation located next to major loads, and voluntary load curtailment (also known as “demand response”). The benefits of evolving technologies such as microgeneration and advanced metering must also be considered. If it turns out, based on a comprehensive evaluation, that large transmission lines are the best option, they should be built. On the other hand, if other technically, environmentally, and socially acceptable alternatives can be developed at a lower cost, Alberta’s *Transmission Regulation* should support those alternatives over transmission.

## Introduction

Alberta’s robust economy brings with it the need to significantly increase the amount of electricity available to the province’s industrial, commercial, and residential consumers. The Alberta Electric System Operator (“AESO”), the agency responsible for Alberta’s high-voltage transmission grid, is proposing to meet the need in part by building a new 500 kilovolt (“kV”) line from Edmonton to Calgary at a cost last estimated to exceed half a billion dollars. The AESO expects that a second 500 kV line will be needed in a few years.

Alberta, and particularly southern Alberta, needs additional infrastructure to ensure that consumers continue to have a safe and reliable supply of electricity. However, a 500 kV transmission line may not be the best choice for meeting that need. Other possible solutions include generation located next to major loads and voluntary load curtailment (also called “demand response”). The North American Electric Reliability Corporation (“NERC”), the agency responsible for reliability standards throughout North America, agrees that the choice between transmission, generation, and demand response should be made based on relative cost and functionality.

## Transmission Lines and Alternatives

Making the best choice for consumers requires a comprehensive evaluation of potential solutions to reliability concerns. Alberta’s transmission regulation *precludes* such an evaluation. It requires the AESO to construct an unconstrained transmission system to serve the generators it assumes will be the lowest cost from among all the possible generation projects in the province.

In the past, Alberta built long transmission lines from coal-fired generators located in the Edmonton area to serve consumers in southern Alberta, because this was the cheapest method of meeting consumers’ electricity needs. However, advancements in gas-fired generation technology, the added cost of ensuring that coal-fired generation meets modern environmental standards, and the social and economic cost of large transmission lines suggests that this model needs to be re-examined. New tools such as microgeneration and advanced metering are also available to ensure consumer needs are met. Why does Alberta’s transmission regulation allow only wires options?

## Reliability Standards

The AESO has suggested that Alberta will be operating below NERC reliability standards within the next few years if the 500 kV line is not built. Two points should be noted. The first is that any concern may relate to only a small amount of load over a very small number of hours in a year. Consequently, there are often solutions that are dramatically less expensive than a transmission line, at least for several years, because non-wires solutions can be called upon in a few critical hours, whereas a line operates (and must be paid for) 24 hours a day, 365 days a year. Voluntary load reduction, for example, can be a highly effective and cost-efficient mechanism for balancing electricity supply and demand during the few critical hours; it can also provide economic benefits to the sellers of the load-reduction service, and it has the added benefit of lowering the price of electricity by reducing demand. Generation located near large loads, and which can be called upon in the critical hours, may also provide more economic solutions. Even if non-transmission options defer the need for a line by only a few years, consumers may save millions of dollars and we can take the additional time to fully evaluate *all* options.

The second point to be made is that a determination that Alberta will not meet reliability standards at some future date depends critically on a number of key assumptions. Just as the AESO must be given a reasonable opportunity to present the case for its proposed 500 kV line, consumers—who must pay the entire cost—must be given the opportunity to challenge those assumptions in a regulatory proceeding *before* it is concluded that the line is the best option.

## Exports

When the proposed Edmonton-to-Calgary line was being considered in earlier regulatory applications, there was much debate about whether the line was needed for reliability or for exports of electricity to the United States. Preliminary analysis of the AESO's own data strongly suggests that the line may not be needed strictly for reliability reasons, but also to enhance Alberta's ability to export electricity. The AESO will (and should) have the opportunity to satisfy the Alberta Utilities Commission, industry stakeholders, and the citizens of Alberta of the necessity and desirability of the 500 kV line when it files its need application. Similarly, consumers should have the ability to make their case, including whether they should pay for transmission to allow for more exports.

## Conclusions

The AESO's ten-year transmission plan anticipates that Alberta will have to spend some \$4 billion dollars on new transmission lines. Some of those lines are almost certainly needed. However, Albertans deserve assurances that, when transmission expenditures are made, they are in the public interest and are directed at the best options for meeting the need for electricity. A failure to conduct a comprehensive public evaluation of all viable options for meeting the growing demand for electricity in Alberta would be irresponsible.

Alberta electricity consumers deserve a transmission policy and a regulatory process that allows a comprehensive public evaluation of *all* options for meeting their electricity needs. If it turns out that one or more large transmission lines provide the best alternative, ENMAX will be a strong supporter. If other viable solutions are more economic than large transmission lines, they should be pursued.

ENMAX has prepared a document that more fully explores transmission and non-transmission options to meet Alberta's growing demand for electricity. To access the paper, entitled "Fostering the Efficient Development of Alberta's Electricity Infrastructure through Changes to the Transmission Regulation," click [here](#).