
Article 4

Headline: Powering our lives: *long term plan for transmission*

This fourth article in the Powering our lives editorial series will answer some commonly-asked questions about how transmission lines are planned and the long-term plan for Alberta's system.

When we flick on a switch to light up our homes or power our TVs it's hard to imagine the millions of moving parts that are constantly spinning away in the background to make sure that power is there when we need it.

Timing is one of the big challenges when it comes to transmission planning. It can take between 18 months and three years to plan, acquire approvals and build some types of natural gas or wind power generators. For a coal plant, the time required can be between four and five years and it would typically be 10 years or more for a large hydroelectric or nuclear power plant.

Transmission lines have to be built to meet new power plants when they're ready to deliver electricity to supply Albertans and it can take between five and eight years to plan, acquire approvals and build a new transmission line.

New transmission lines also have to be built in time to meet the needs of new or expanding industrial plants, hospitals, communities and any other type of development that depends on reliable power.

Transmission planning is essential. The AESO's transmission system planners begin by analyzing the existing system which has been developed over the years to connect Albertans to existing power supplies. Planners examine population growth projections, gross domestic product and future plans of cities, towns and large industrial customers. This information is then translated into forecasts for energy consumption on the electric system. Planners examine the plans of generators and potential generation developments.

All this information is placed into models that allow transmission planners to test how the system will handle a variety of operating conditions under different load situations and different scenarios for when and where new generation may develop.

Through this analysis, planners identify areas of the system that require reinforcements and they develop options to solve the issues. Options include modifications to existing transmission lines and substations as well as new facilities. The efficiency of the transmission system is also examined for opportunities to reduce line losses. Line losses occur because some heat is always created when electrical current travels through a power line so this energy is used in transmission and doesn't make it all the way to the customer.

The next stage is consultation with industry and the public to test the proposals and gather input and feedback. The AESO's goal is to provide meaningful opportunities for

consultation during the planning stages of transmission reinforcements. This includes discussion on the following topics: land use and visual impacts (agricultural and residential) environmental impacts, economics and electrical considerations.

The entire process results in the development of a Need Identification Document (NID) that details the necessary changes including new transmission facilities. The NID indicates the preferred option to meet the need. We file this document with the Alberta Utilities Commission for approval.

Our most recent 10-year plan, published in early 2007, together with system reinforcements already underway, identifies the need for \$5 billion in transmission development throughout the province to ensure a reliable supply of electricity for Albertans.

If growth develops as forecast and all the transmission concepts in our most recent 10-year plan are required and built, this investment in critical infrastructure (including projects underway) would result in less than a \$7 charge to the portion of a residential power customer's monthly bill that covers transmission. It's important to note that these costs would be spread out over the 10-year period as projects are completed and brought on line.

The AESO is a not-for-profit organization that doesn't own or operate any power facilities and has no commercial interest in the industry. The AESO is driven by a public interest mandate to make sure that the system for keeping the lights on serves the needs of Albertans today and in the future.