

Ensuring an Uncongested Transmission System



The Government of Alberta's Electricity Policy Framework (June 2005), identified that in order for Alberta's electricity market to operate effectively, "transmission must be available to all supply and load customers in a non-discriminatory manner and with sufficient capacity to ensure that neither load nor generation is constrained. Transmission remains the agent of reliability and in Alberta's electric marketplace is also the facilitator of the competitive market."

What is an unconstrained transmission system?

A robust and unconstrained transmission system is one that provides non-discriminatory access and sufficient transmission capacity so all available energy can be transmitted without constraint under normal conditions.

Why is it important to have an unconstrained transmission system?

An unconstrained grid provides certainty to those who invest in new generation projects that they will have the ability to ship their electricity to Alberta industry, businesses, farms and households. It gives those in other industries the confidence to do business in the province, secure in the knowledge that power will be there when they need it. An unconstrained grid enables generation providers to fully compete to provide their energy to end users.

How the AESO plans for an uncongested transmission system

The Government of Alberta's *Transmission Regulation* states the transmission system must be planned to effectively operate congestion-free. To meet this mandate, studies are conducted to assess the ability of the transmission system to accommodate existing and future generation supply and consumer demand. As part of this planning, the AESO identifies constraints or limitations to system access for customers and recommends when expansion or reinforcement to the transmission system is needed. Following these studies, the AESO files Needs Identification Documents that recommend necessary transmission development for approval with the Alberta Utilities Commission.

The AESO has identified four major transmission infrastructure projects and over 200 regional projects—including customer connections—that will meet Alberta's current and future demand for power. The planned improvements will not only deliver the power Albertans rely on, but in many cases will control costs by reducing system inefficiencies.

Managing transmission system demand

AESO engineers, economists and planners analyze electricity consumption patterns in every area of the province and integrate data from multiple sources to determine where the demand for electricity will grow, where and how much generation is required to meet that demand, and what additional transmission infrastructure is required. That information is compiled in the AESO's *Draft 2011 Long-term Transmission Plan*.

Current forecasts show the system requires both expansion and reinforcement. There have been few major upgrades to the backbone of the transmission in over two decades. During that same time, our population has grown by 43 per cent and gross domestic product by 295 per cent.

The AESO operates a reliable system by introducing tools and practices to maximize the physical capabilities of the electrical system. System controllers constantly monitor the grid, maintaining the supply demand balance of electricity by matching offers to sell power with bids to buy power—directing them to

increase or decrease power output, coordinating planned outages, and ensuring extra supply reserve is in place in case of an emergency.

Danger of congestion

The more congested the system becomes, the more challenging it is to match the province's varying supply and demand needs. Congestion can manifest itself as stranded electricity supply that is effectively unavailable to the market, or as a lack of transmission capacity to serve local demand. Whatever the cause of the congestion, the result is the same; increased costs to the system and a higher price for electricity.

Role of interties in achieving an uncongested transmission system

Interties are power lines that connect the Alberta system to other jurisdictions, enabling imports and exports of power and providing an essential part of a reliable, competitive electricity industry. Interties are a source of emergency power when Alberta's generators are not able to produce enough power to meet demand and also allow the export of energy that is surplus to the needs of Albertans. Alberta has been a net importer of electricity since 2002.

The province has two interties; one connecting to B.C. and the other to Saskatchewan and a third intertie between Montana and Alberta (MATL) under construction with an anticipated in-service date of late 2012. Current constraints on Alberta's transmission system mean these interties are operating below their designed capability. The transmission system needs to be reinforced to restore the capacity of existing interties and lay the foundation to develop additional interties in the future.

In addition to supporting competition, interties encourage fair and efficient market development, enable construction of renewable energy such as wind power, and support increased reliability and supply adequacy.