Cogeneration

Cogeneration is a form of electrical generation used in the oil and gas and forestry industries in Alberta.

What is cogeneration?

All power plants generate a certain amount of heat when they produce electricity. Often this heat is released into the atmosphere through cooling towers, as flue gas or through some other method. With cogeneration, an industrial facility uses some or all of this energy to produce heat or electricity which it can then use to power its operations. In Alberta, industrial facilities can sell excess power back to the electricity grid, providing additional revenue to the owner of an industrial facility and supplying power to Albertans.

The advantages of cogeneration

Cogeneration is common in Alberta, especially in the growing oilsands industry where many new developments include cogeneration capacity in their plans. For generators, cogeneration offers features such as:

Increased energy efficiency - Energy that would have otherwise been wasted can be used to offset the producer's operating costs, generate revenue for the facility and supply the grid.

Lower-cost power - By producing two kinds of useful outputs (steam and electricity) in the same facility, the overall net energy yield from the primary fuel can increase from as low as 30-35 per cent up to 80-90 per cent.

Increased reliability - Oilsands developers value the reliability of their heat and electricity supply. A single disturbance in supply can have a significant impact on equipment and oil production. Facilities typically maintain contracts for back-up electricity supply from the grid to augment their base supply.

Cogeneration in Alberta

Alberta has over 3,000 megawatts (MW) of cogeneration. This is three times the amount of energy needed to meet the needs of the City of Calgary. The majority comes from industrial sites—many of which are located in northeastern Alberta. It is expected an additional 1,700 MW of cogeneration will be added over the next 10 years.

A recent survey by the Oil Sands Developer Group indicated a trend for companies to plan the use of both on-site cogeneration and power purchased from the grid to meet their back-up or standby power needs. It also indicated that the anticipated standby power requirements from oilsands projects would double over the next 10 years.

Plans to ensure the transmission system is reinforced to address these future requirements are addressed in the AESO's 20011 Long-term Transmission Plan.

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