



# 85 MW Cogeneration

## CAPACITY

- 430 tonnes/hr. of steam

## EQUIPMENT

- GE 7EA gas turbine
- TIWW heat recovery steam generator (owned by Canadian Natural Resources Ltd.)

## HIGHLIGHTS

- Thermal efficiency 78%
- Low CO<sub>2</sub> and NO<sub>x</sub> emissions

## COMMERCIAL OPERATION

- 1998

## OWNERSHIP

- ATCO Power – 50%
- Canadian Natural Resources – 50%

## COGENERATION PLANTS

*Cogeneration is a highly efficient and environmentally attractive means of generating heat and electric power at the same time. Cogeneration is achieved when a generating plant is constructed in conjunction with an industrial facility that has needs for both the power and heat energy that is produced.*

## BENEFITS

- Low pressure steam is provided to the facility after it is used for power generation
- Some facilities consume high pressure steam from the cogen, while other supply surplus high pressure steam where it's used to generate power instead of being vented
- Facility waste gases generate power rather than being burnt in flare stacks
- Power is provided to the facility to avoid transmission losses
- Sharing process products such as cooling water, compressed air, water treatment and feed water improve efficiency and costs

## PRIMROSE

Bonnyville, Alberta, Canada



The Primrose Cogeneration Plant is an 85 megawatt natural gas-fired plant that was Alberta's first independent power project in the newly deregulated market of 1998. It is jointly owned by ATCO Power Ltd. and Canadian Natural Resources Ltd. (CNRL) and was constructed to meet the needs of CNRL's heavy oil operations at Wolf Lake and Primrose in northeastern Alberta. CNRL leads the operation of the facility with guidance from an ATCO Power plant manager. Surplus power is sold into the Power Pool of Alberta.

### Environmental Highlights

The cogeneration plant has increased thermal efficiency - 61% efficient using conventional steam generators alone and up to 78% with the cogeneration plant producing both steam and electricity. As a result, carbon dioxide (CO<sub>2</sub>) and nitrous oxide (NO<sub>x</sub>) emissions are significantly reduced.

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