

### ***Electricity Facts:***

#### **Whitecourt**

A power generating station in the Whitecourt area uses bark and other waste wood (also known as biomass) from forestry production to make electricity.

#### **Jasper/Banff**

The Miette and Radium hot springs use the heat from the earth's core to heat water pools. This form of renewable energy is called geothermal power.

#### **Bighorn Area**

The Bighorn Dam, at 91 metres high, provides hydroelectricity to central Alberta and created Alberta's largest constructed reservoir, Abraham Lake.

#### **Bruce Area**

A biogas (another type of biomass energy source) plant at a Hutterite colony near Bruce takes the waste from an intensive livestock operation and through the process of anaerobic digestion creates electrical and thermal energy, reusable water and a dry nutrient-rich organic material.

#### **Calgary**

Calgary is retrofitting 49 000 streetlights on residential roads. The existing sodium bulbs are being replaced with lower wattage bulbs in different fixtures, greatly reducing wasted light. The program will save \$2 million per year in electrical costs and will reduce carbon dioxide emissions from gas and coal-burning power plants by up to 16 000 tonnes per year. The streetlight system is Calgary's largest single consumer of electricity.

#### **Okotoks**

Conservation programs have reduced energy consumption by 650 000 kilowatt hours per year within the water distribution system in this southern Alberta town. Heat-reflective ceilings, low-energy light bulbs and efficient furnaces have also been installed at the town's recreation centre resulting in electricity savings and a 4000 gigajoules (gJ) reduction in natural gas consumption.

#### **Pincher Creek**

Pincher Creek is one of the windiest areas in Alberta. Using large turbines, especially on Cowley Ridge, renewable energy from the wind is harnessed and used to make electricity. Wind power is the fastest-growing energy source technology worldwide.

### Wabamun Lake

The largest coal-fired generating plant in western Canada (nearly 2000 megawatts output) is near Wabamun Lake. It consumes 9.3 million tonnes of coal a year, all mined from the adjacent Highvale coal mine (the largest in Canada covering 12 239 hectares or 30 221 acres). This generating plant, Sundance, has the capacity to supply almost half of Alberta's electrical requirements. The plant produces enough energy each year to supply the equivalent of two million households.

Alberta is both the largest coal-producing and coal-consuming province in Canada. As in the other producing provinces, coal is the main energy source for electricity generation.

### Edmonton

- a) On top of a 75 metre (21 storey) office tower roof, a 13.4 kilowatt photovoltaic (PV) solar array generates its own electricity and, at times, even contributes excess power to the electric grid\*.
- b) Decomposing garbage produces methane gas. Edmonton's Clover Bar Landfill collects the methane and supplies an electricity generating station.

### Chipewyan Lake

Many small communities in northern Alberta are not on the electric grid\*. Chipewyan Lake is an example of a community where homes are powered using a remote or separate generating station. Remote generating stations are usually powered by easily transported fuels, such as diesel.

### Athabasca Basin Area

Located over the border of northern Alberta and Saskatchewan, this region comprises approximately 100 000 km<sup>2</sup>. It holds the largest and highest-grade uranium ore deposits in the world. Uranium ore is an essential component of the fuel pellets used in nuclear power plants. Uranium mines have operated 15 km from the Alberta border in this area.

### Grande Prairie

A new, 25 megawatt biomass electricity plant will generate electricity and steam for use in the Grande Prairie area, utilizing sawmill wood waste as a fuel. This is enough electricity to provide power to approximately 21 000 households.

### Fort McMurray

Natural gas is used both to generate steam and electricity to extract the bitumen (heavy crude oil) from the oil sands and to convert the bitumen into usable crude oil. Currently, oil sands operations consume approximately 9.3 billion cubic metres per year of natural gas.

\*An *electric grid* is a network of wires that connect sources of power and deliver electricity to homes and businesses throughout populated areas.

## ELECTRICITY TOUR OF ALBERTA – Facts and Map

