Backgrounder
June 18, 2001

New Alberta standards for emissions from coal-fired power plant less stringent than other jurisdictions

Burning coal creates emissions of several harmful, toxic pollutants, including fine particulate matter, sulphur dioxide (S02), nitrogen oxides (NOX) and heavy metals such as mercury. The quantities emitted depend on the nature of the coal and how it is burned. Various technologies are used in coal-fired electric power plants, and emissions from plants that use the best commercially-available control technology can be considerably lower than emissions from older plants. The emissions standards set by government are a major factor in determining what technologies a company uses.

As the following table shows, the new emissions standards for coal-fired power plants in Alberta are not as stringent as those for new plants in other parts of the world, including some European countries such as The Netherlands, Germany and the United Kingdom. B.C. standards for particulate matter and sulphur dioxide are far better than the new Alberta ones. The United States allows only half the emissions of nitrogen oxides that Alberta's new standard allows and individual plants in the U.S. may have even stricter standards.

Emissions Standards for New Coal-fired Power Plants
(all units in nanograms/joule of heat input)

	Total Particulates	**Sulphur Dioxide**	**Nitrogen Oxides**
British Columbia	**10**	**90**	150
Germany[2]	18	**140 or 85% removal**	**70**
The Netherlands[3]	**7**	**70**	**70**
United Kingdom[4]	**9**	**70-105**	**21-95**
United States Environmental Protection Agency	13	260 or **90% removal**	65
Wyoming (recent US project)	**9**	**73**	**64**
Alberta (old)	*43*	*258*	*170*
Alberta (new)	*13*	*180*	*125*

It is instructive to look at the standards set in the approval of the new Two Elk coal-fired power plant in Wyoming. Emissions limits for the Two Elk plant are comparable to those in The Netherlands and are probably among the lowest in the world for coal-fired power plants using conventional technology. The sulphur dioxide limit is less than half the new Alberta standard. If such low sulphur emissions can be achieved in Wyoming, they can surely be achieved in Alberta where we already have the advantage of low-sulphur coal.

To reduce nitrogen oxide emissions, the Wyoming plant will use a process called Selective Catalytic Reduction (SCR). This is recognized, commercially available technology that could be used in Alberta to reduce NOX emissions to the Two Elk levels. The one key concern associated with SCR is the possibility of leakage of ammonia into the atmosphere, but this risk is being successfully managed in places where SCR technology is employed.

We now know that mercury is a serious health hazard for humans and animals, but regulations for emissions of mercury from coal-fired power plants are not expected until 2002 at the earliest. However, technologies that reduce emissions of particulate matter, sulphur dioxide

and nitrogen oxides do help to reduce the release of heavy metals such as mercury. The high concern about the risk associated with mercury is one more reason why the strictest standards should be imposed for emissions that are currently regulated.

Once built, a coal-fired power plant will operate for at least 40 years and it is often technically or economically impractical to upgrade a plant after construction. It is thus essential that current state-of-the art technologies be used when a new plant is built. This will only be done if governments require standards more stringent than those recently announced by Alberta.

If low emissions can be achieved in other locations, comparable standards should be adopted in Alberta to reduce the risks to human health and the environment. Given the very low cost of extracting and burning Alberta's coal, coal-fired generating companies (such as TransAlta, EPCOR and others) can certainly afford to use stringent emission control methods and still be competitive.

In addition to providing special treatment for coal-fired generation in the Alberta market, the recently announced emissions standards will encourage domestic and foreign companies to obtain approvals for plants to be built solely for the future export of power to the United States. Albertans should not offer a pollution haven for coal-fired power plants to supply clean electricity to the United States while Albertans suffer from increased air pollution and its impacts on human health and the environment.

Albertans should have the right to provide direct input to the setting of emission standards for coal-fired plants given that they will be directly affected by such emissions. We should ensure that the emissions standards in Alberta are the highest achievable.

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[1] Coal burning is also a very significant source of carbon dioxide emissions, the key greenhouse gas that is contributing to climate change.

[2] Some countries have pollution standards based on a mass per unit volume of exhaust gas. These numbers have been converted from that country's standard in mg/m3 using a standard dry flue gas volume of 350 m3/GJ at 0oC, 101.3 kPa and 6% oxygen.

[3] see footnote 3.

[4] see footnote 3.