

Environmental implications of potential sale of NB Power to Hydro-Québec

Department of Environment

November 2009

On Oct. 29, 2009, the governments of New Brunswick and Québec signed a memorandum of understanding (MOU) for the potential sale of NB Power to Hydro-Québec.

The MOU proposes the sale of all NB Power assets to Hydro-Québec except the fossil-fuelled power plants at Grand Lake, Dalhousie, Coleson Cove, Courtney Bay and Belledune.

The major environmental implications of this MOU are that the fossil-fuelled power plants could close sooner than their planned economic life. Grand Lake and Dalhousie will close in 2010. Courtney Bay hasn't run since 2002 and is considered closed.

There is no scheduled closure of either Coleson Cove or Belledune. However, federal GHG regulatory measures apply to their operation and will include GHG emission targets when set by Canada.

Decommissioning of NB Power's carbon-based generating facilities will have a direct and positive effect on a suite of air emissions including greenhouse gasses (GHG), particulate matter (PM), nitrogen oxides (NO_x), volatile organic compounds (VOC), sulphur dioxide (SO₂) and mercury (Hg).

AIR EMISSIONS

The potential closure of all of NB Power's carbon-based facilities would result in annual reductions of:

- more than six MT of GHG emissions;
- more than 33,000 t of SO₂;
- more than 13,000 t of NO_x;
- 6.5 t of VOCs; and
- 96 kg of Hg.

Air pollutants emitted by NB Power generating stations, 2007

	GHGs	SO ₂	NO _x	PM	VOC	Hg
	Megatonnes (MT)	tonnes (t)	t	t	t	Kilograms kg
Grand Lake	0.4	24,250	1,350	66	-	88
Dalhousie	1.7	3,110	3,030	135	1.3	0.5
*Coleson Cove	1.4	910	1,880	78	1.0	0.5
Belledune	2.9	5,120	7,200	75	4.2	7
Total	6.4	33,390	13,460	354	6.5	96

Source: NPRI, EC Large Final Emitter Program

*2007 was a low-use year for Coleson Cove

GHG emissions

The *New Brunswick Climate Change Action Plan (NBCCAP)*, launched in 2007, has set a goal of reducing the province's total GHG emissions to 1990 levels by 2012. This is the same year that the global agreement on climate change (Kyoto Protocol) comes to an end. Canada is legally bound to reduce its emissions to six per cent below 1990 levels. At the same time, the New England Governors and Eastern Canadian Premiers (NEG/ECP) have adopted a regional GHG plan with a regional 2020 target of 10 per cent below 1990 emissions.

GHG emission reduction targets

Commitment	Date	Target
NBCCAP	2012	1990 level: 16.1 MT
Kyoto (National)	2012	six per cent below 1990: 15.1 MT (NB)
NEG/ECP	2020	10 per cent below 1990: 14.5 MT

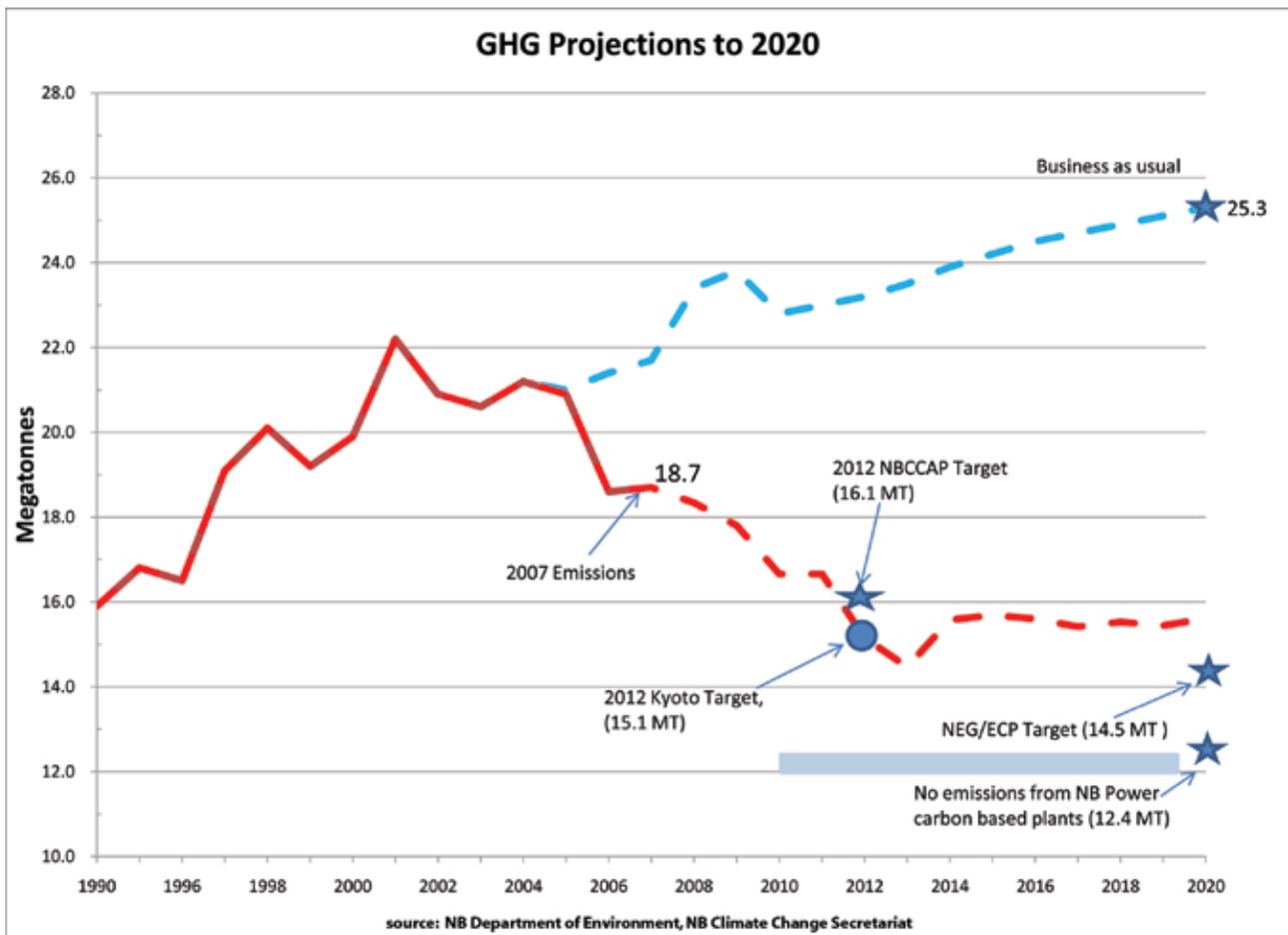
GHG emission reductions from decommissioning NB Power's carbon-generation stations

The closure of Grand Lake (422,000 t) and Dalhousie (1.7 MT) in 2010 will result in a reduction of GHG emissions of 2.1 MT

No schedule is yet contemplated for the closure of Coleson Cove and Belledune. But, when these closures do take place, the reductions in GHG emissions would be 1.4 MT and 2.9 million MT respectively.

Eliminating NB Power's GHG emissions from the Grand Lake and Dalhousie facilities will have the following effects:

- the province's annual GHG emissions would be reduced by 11 per cent;
- by 2012, GHG emissions would be six per cent below 1990 levels;
- this would be one MT below New Brunswick's 2012 emission target and would be equivalent to Canada's Kyoto Protocol target;
- by 2020, emissions are estimated to be only three per cent below 1990 levels, and not the 10 per cent below 1990 levels identified as the NEG/ECP target. This would be partially due to increasing energy use in sectors other than electricity, such as transportation; and
- if Coleson Cove and Belledune were run at less than capacity or closed, GHG emissions would be even lower and potentially exceed the 2020 NEG/ECP target.



OTHER AIR EMISSIONS

The closure of Grand Lake and Dalhousie will result in reductions in other air emissions, notably: NO_x; VOCs, PM, SO₂ and Hg. SO₂ and Hg are of particular note because of targets that have been set to meet Canada-Wide Standards (CWS) and NEG/ECP commitments.

SO₂ and Hg reduction targets

Commitment	Date	Target
NEG/ECP Hg-emission reductions from coal-fired boilers	2010	60-to-90 per cent reduction from 1998 levels
CWS Hg reduction commitments for coal-fired power plants.	2010	Hg emissions from existing coal-fired power plants are capped at 25 kg per year
NEG/ECP and Canada-wide Acid Rain Strategy for Post-2000	2010	Reduce the provincial SO ₂ emissions cap by 50 per cent to 87,500 t

Hg emissions

The Grand Lake station is a significant source of Hg emissions due to the relatively high concentration of mercury in Minto coal burned as fuel. Under normal operation, the Grand Lake station would emit about 100 kg of Hg each year.

With the closure of Grand Lake in 2010, Hg emissions from coal-fired power plants will be reduced by approximately 85 per cent from 1998 levels. New Brunswick will achieve the 2010 Canada Wide Standard (CWS) for coal-fired power plants because the Belledune station typically emits less than 20 kg of Hg each year.

The Dalhousie station is not a coal-fired plant and emits less than 0.5 kg of Hg each year.

Eliminating NB Power's Hg emissions from the Grand Lake station will have the following effects:

- Hg emissions will be below the 2010 CWS standard set for New Brunswick; and
- Hg emission reductions will reach the high end of 2010 reduction targets set by NEG/ECP.

SO₂ emissions

The Grand Lake station is a significant source of SO₂ emissions due to the relatively high concentration of sulphur in Minto coal burned as fuel. Under normal operation, the Grand Lake station would emit about 24,000 t of SO₂ each year.

The Dalhousie station is equipped with flue gas desulphurization equipment (a wet scrubber) to remove SO₂. The station emits about 5,000 t of SO₂ each year.

Based on 2007 data, SO₂ emissions for all New Brunswick sources totalled about 68,000 t. With the closure of the Grand Lake and Dalhousie stations, this figure will be reduced to about 40,000 t, well below the 87,500 t-emission cap for SO₂. If the Belledune and Coleson Cove stations were to close, they would account for an extra 6,000 t of reductions.

Eliminating NB Power's SO₂ emissions from the Grand Lake and Dalhousie stations will have the following effects:

- SO₂ emissions will be more than two times lower than 2010 targets set by CWS and the NEG/ECP;
- If Coleson Cove and Belledune were run at less than capacity or were closed, SO₂ emissions would be even lower.

OTHER ENVIRONMENTAL CONSIDERATIONS



Provincial legislation that safeguards land, air and water would apply to the activities of Hydro-Québec just as they have applied to NB Power, and all other New Brunswick industries.

The Department of Environment has a number of ongoing agreements, licences, permits and approvals in place involving NB Power and its constituent entities such as NB Power Generation Corporation, which will continue in the future.

Many of these have been issued in accordance with provincial environmental legislation including:

- environmental impact assessment (EIA) approvals and certificates of determination (issued under the Environmental Impact Assessment Regulation, *Clean Environment Act*);
- approvals to operate power generation and related facilities (issued under regulations of the *Clean Environment Act* and the *Clean Air Act*);
- watercourse and wetland alteration permits for on-going power line maintenance activities (issued under regulations of the *Clean Water Act*); and
- licences to use pesticides (issued in accordance with regulations under the *Pesticides Control Act*) and other environmental approvals.

Typically, each of these instruments contains a set of conditions, which may require NB Power to perform ongoing activities such as monitoring and reporting. Many of the instruments have expiry dates and require periodic renewal. The Department of Environment and NB Power have several other agreements in place, primarily addressing cost-sharing and related issues associated with the operation and maintenance of air quality and flow monitoring networks within the province.

New energy projects, as well as facility decommissioning, will continue to be reviewed under the EIA process. Existing stations will continue to be regulated under the *Clean Air Act* and water resources will continue to be managed under the *Clean Environment Act* and the *Clean Water Act*. Conditions attached to existing approvals and agreements will continue to apply to any new entity being created by the purchase of NB Power by Hydro-Québec.

IN SUMMARY



- New Brunswick remains committed to the provincial Climate Change Action Plan (2007-2012) and its target to reduce greenhouse gas emissions by 2012.
- The potential sale of NB Power to Hydro-Québec does not create new environmental risks or concerns for the Province of New Brunswick.
- Decommissioning of NB Power's facilities at Grand Lake and Dalhousie will allow the province to exceed its 2012 greenhouse gas (GHG) emission reduction target by one million tonnes (1 MT) or 6 per cent below 1990 levels.
- Mercury emissions will be below the 2010 Canada Wide Standard (CWS) for coalfired power plants set for New Brunswick and will reach the high end of 2010 reduction targets set by New England Governors and Eastern Canadian Premiers. Sulphur Dioxide emissions will be more than two times lower than 2010 targets set by Canada Wide Standards and New England Governors and Eastern Canadian Premiers
- New Brunswick will be better positioned to sell manufactured products into a lower carbon green economy, with products manufactured using less carbon-intensive processes.
- New energy projects, as well as facility decommissioning, will continue to be reviewed through the Department of Environment's Environmental Impact Assessment Process. Existing generating plants will continue to be regulated under the Province's *Clean Air Act* and water resources will continue to be managed under the *Clean Environment and Clean Water Acts*.
- Provincial legislation that safeguards land, air and water would apply to the activities of Hydro-Québec just as they have applied to NB Power, and all other New Brunswick industries.