

Clean Electricity and Climate Justice

UPDATE

This is a follow-up to *Clean Electricity, Conservation and Climate Justice: Meeting our Energy Needs in a Zero-Carbon Future*.

Download the report at policyalternatives.ca/electricity-justice

by John Calvert
and Marc Lee

JULY 2012



CCPA
CANADIAN CENTRE
for POLICY ALTERNATIVES
BC Office

THE CLIMATE JUSTICE PROJECT REPORT *Clean Electricity, Conservation and Climate Justice: Meeting our Energy Needs in a Zero-Carbon Future* was released June 20, 2012. The following day, the BC government announced that natural gas would be considered “clean energy” for the purposes of liquefied natural gas (LNG) production, thereby relieving BC Hydro of supplying the massive amount of electricity that would be required—a major concern raised in our paper. We return to the implications of the LNG decision below.

That same day, the *Vancouver Sun* published a letter from Minister of Energy and Mines Rich Coleman challenging the findings of our study¹:

BC families are not subsidizing industry's growing power needs, contrary to the factually incorrect report on BC Hydro rates released this week by the Canadian Centre for Policy Alternatives. In fact, our government has a no-subsidy power policy, be it aluminum smelters or liquefied natural gas facilities.

This response can only be a semantic argument about what a “subsidy” is. Our paper shows clearly, based on BC Hydro’s own projections, that new electricity demand is being driven almost entirely by new mines, shale gas fracking and liquid natural gas compression plants. These industrial users expect to use low-cost BC Hydro industrial rate power—about \$40 per MWh. However, new electricity supply is costing BC Hydro, according to the last call for power, \$124 per MWh. Economists call the former the marginal revenue, and the latter marginal cost. But you don’t need to be an economist to know that if your marginal revenue is below your marginal cost for prolonged periods of time, you will go out of business.

¹ R Coleman, “Keeping hydro rates affordable for BC families” in the *Vancouver Sun*, published online June 21, 2012 and in print edition, June 22, www.vancouver.sun.com/opinion/Keeping+hydro+rates+affordable+families/6821453/story.html

In the case of BC Hydro, as a Crown corporation, this supply-demand dynamic means other ratepayers must pay higher prices. That is precisely what we have been seeing due to BC government requirements that BC Hydro buy new supply through fixed long-term contracts with private providers. It is estimated that these contracts led to a loss to BC Hydro of \$180 million in spring 2012. And, as we noted in our paper, BC Hydro's ratepayers are already responsible for \$40 billion in future payments for private energy as a result of the energy purchase agreements the Crown utility has already signed.

In December 2010 BC Hydro asked the BC Utilities Commission for rate increases that would have meant an average 84% rate increase by 2017/18 compared to 2008/09.² The resulting political backlash led the BC government to launch an internal review of BC Hydro, which led to a weakening of the "self-sufficiency" requirement that BC Hydro buy additional and expensive electricity from the private sector. It also led to a political intervention by the BC government to reduce the proposed rate increases over the next three years (which will only mean higher rate increases later).

Further to this, in spring 2012 Premier Clark ordered that rates would rise only modestly (1.4%) as of April 2013—just before the next BC election. In doing so, the Premier overrode the role of the BC Utilities Commission to approve rates, further to the government's removal of the BCUC from approving BC Hydro's new infrastructure plans, which include building new transmission lines for industry. These decisions guarantee that ratepayers will face even higher increases in the years following 2013.

A key factor is that electricity demand from the other two major customer classes, residential and commercial (small business and office buildings), is projected to fall slightly over the next few years, and planned efficiency and conservation measures are sufficient to keep new demand from population growth in check. There is no reason why residential and commercial rates need go up at all given BC's historic supply of hydropower.

Instead, as BC Hydro documents make clear, new investments from the mining and oil and gas industries are driving up demand: a 17% increase by 2014, according to BC Hydro's most recent Revenue Rate Application; and 51% over the next two decades (excluding LNG), according to BC Hydro's Integrated Resource Plan documents. If three LNG plants were to go ahead, the system-wide load would be almost double the 2011 load profile within 20 years.

Bottom line: meeting surging industry demand with a buy-high, sell-low strategy is already putting pressure on rates for households and commercial customers, and this will only get much worse if BC Hydro attempts to accommodate all of the new demand from industry.

The BC government admitted as much when Premier Clark announced (the day after our release) to a BC Business Council conference on oil and gas that it would allow LNG plants to use natural gas to power their operations rather than BC Hydro electricity (natural gas will be classified as "clean energy" for the purposes of LNG export industries). In contrast to Minister Coleman's letter, no public media release was made at the time.

² M Lee, E Kung and J Owen, *Fighting Energy Poverty in the Transition to Zero-Emission Housing: A Framework for BC*, CCPA, September 2011, www.policyalternatives.ca/energy-poverty

Bottom line: meeting surging industry demand with a buy-high, sell-low strategy is already putting pressure on rates for households and commercial customers, and this will only get much worse if BC Hydro attempts to accommodate all of the new demand from industry.

This policy shift tacitly acknowledges the findings of our paper. It will indeed ease, but not eliminate, BC Hydro's future problems of getting new supply, but at an additional cost of increasing the carbon-intensity of LNG development project. Indeed, the Premier's announcement is tantamount to abandoning BC's legislated greenhouse gas reduction targets. Minister Coleman and Premier Clark are breaking their own law by allowing natural gas generation to power LNG plants.

LNG compression will lead to additional GHG emissions of at least 2-3 million tonnes of CO₂ per year to the atmosphere, based on BC Hydro's draft Integrated Resource Plan estimates of loads (4,935 GWh for the initial two plants, and 10,000 GWh for a third plant). These are mid-range estimates and total power demand could be much higher. However, a comparable state-of-the-art LNG facility in Queensland, Australia reports emissions of 2.8 Mt for LNG processing of similar scale to the first two plants.³ It is thus reasonable to assume that BC's LNG strategy could add as much as 6 Mt CO₂e to BC's GHG inventory, though much depends on how much LNG ultimately gets processed for export. This is equivalent to a 10% increase BC's GHG emissions, and 50% larger than all emissions from BC homes.

In addition, upstream emissions from shale gas fracking will be much larger, counting emissions from processing, leaks of methane and pipeline transportation. An analysis by the BC Sustainable Energy Association estimates annual emissions from shale gas fracking in the order of 54-360 Mt CO₂e per year.⁴ Moreover, the combustion of this fuel in Asia will add 80-112 million tonnes (Mt) of CO₂ to the atmosphere every year.⁵

All of this within a decade in which BC has legislated a GHG emission reduction target of a one-third decrease by 2020 relative to 2007 levels. BC's current emissions are 63 Mt, by comparison, and while some of those total new emissions will be put in the air by China (and will not count in BC's total), powering the industry with natural gas will count as substantial additional emissions in BC's GHG inventory. BC cannot be a climate action leader and a major natural gas exporter at the same time.

BC cannot be a climate action leader and a major natural gas exporter at the same time.

MEETING INDUSTRY DEMAND NET OF LNG

Notwithstanding the GHG implications of the recent LNG decision, this measure will ease the pressure on BC Hydro to find new sources of supply over the coming decade. However, new developments in mining and oil and gas still are driving new demand from BC Hydro and will put upwards pressure on rates for residential and commercial ratepayers if BC Hydro intends to sell new power at the current industrial rate.⁶

3 Queensland Curtis LNG Project, Environmental Impact Statement, Volume 7: Greenhouse Gas Management, www.qgc.com.au/01_cms/details.asp?ID=435

4 Wide range is due to a range of estimates and differing treatments of methane as converted to CO₂ equivalent. G Dauncey, "BC's Natural Gas Strategy: Bad for the Climate, Weak on Jobs," Feb 6, 2012, www.bcsea.org/blog/guy-dauncey/2012/02/06/bc%E2%80%99s-natural-gas-strategy-bad-for-climate-weak-on-jobs

5 M Lee, "Is BC about to Drop a New Carbon Bomb?" on Policy Note blog, July 11, 2011, www.policynote.ca/is-bc-about-to-drop-a-new-carbon-bomb/

6 Figures below from BC Hydro, Draft Integrated Resource Plan 2012, pp 2-34 to 2-39.

In the case of new mines in the Northwest, BC Hydro is committed to building the Northwest Transmission line at a cost of \$561 million. New demand of 2,000 GWh per year by 2020 is anticipated.

For oil and gas development in the Northeast, BC Hydro anticipates another 2,101 GWh per year by 2020 in the Montney basin. Demand could expand depending on decisions made in support of the Horn River basin development. This area near Fort Nelson is not currently connected to the main BC Hydro grid, although a new Northeast Transmission Line is proposed, at a cost of another \$1.5 to \$2 billion. Integration of Fort Nelson and supplying power for the Horn River basin is anticipated to require 1,800 GWh per year by 2020, rising to 4,200 GWh by 2030.

In each of these cases, total demand could be higher. BC Hydro estimates are for the mid-range scenario for planning purposes. New mines may become economically viable if commodity prices remain high or increase. New shale gas deposits continue to emerge as well, such as the recently announced exploration findings in the Liard basin west of the Horn River basin.⁷

New developments in mining and oil and gas still are driving new demand from BC Hydro and will put upwards pressure on rates for residential and commercial ratepayers if BC Hydro intends to sell new power at the current industrial rate.

These major public investments also entail significant risks for ratepayers. BC Hydro is building this expensive new transmission infrastructure almost exclusively to assist the export objectives of resource industries. However, international commodity markets are notoriously volatile. There is no guarantee that future demand and future prices on the export market will be adequate to ensure that the firms currently requiring new hydro infrastructure will continue to need it over the long term. Yet BC Hydro—and its ratepayers—will still have to repay the money borrowed to fund these investments even if future demand for commodities drops off significantly over the coming decades.

Thus, while the government's announcement permitting LNG producers to use gas for their operations reduces pressure on BC Hydro (and its ratepayers), the core problem identified in our Climate Justice paper will not go away: BC cannot sell cheap power to industry, buy expensive power from private companies, build expensive new transmission lines for isolated mined and fracking fields, and keep a lid on rates at the same time. The BC government has papered over the financial implications of this strategy in the lead-up to the 2013 election, but whoever wins the next election is going to have to deal with the mess arising from a decade of government mismanagement of BC Hydro (as documented in our report).

⁷ "Apache reveals 'outstanding' B.C. shale gas find," CBC News, Jun 15, 2012, www.cbc.ca/news/business/story/2012/06/15/bc-shale-gas.html