# ASSESSING BC ELECTRICITY POLICY SINCE 2002 AND THE GOVERNMENT'S 2011 REVIEW OF BC HYDRO

MARJORIE GRIFFIN COHEN AND JOHN CALVERT

British Columbia's electricity system was restructured through a series of changes that began in minor ways during the last decade of the twentieth century and carried on in much more significant ways in the first decade of the twenty-first century. Major changes increasing the role of the private sector in the generation of electricity in British Columbia paralleled changes in electricity systems introduced in many developed nations, beginning with Britain's dramatic privatization of its state-owned system under the Margaret Thatcher government.[1] Restructuring took different forms in different countries, but it usually involved some aspect of electricity privatization. This occurred through selling off public utilities, through encouraging private market-based activities in order to increase competition in the sector, or through deregulating private, regulated monopolies and restructuring the fundamental characteristics of the entire system (as occurred in the United States).[2]

Canada's electricity restructuring happened partially because electricity-exporting provinces were interested in expanding their markets in the United States. The US energy regulator, the Federal Energy Regulatory Commission (FERC), made rules to encourage competition in electricity generation and indicated that these rules would also apply to Canadian utilities exporting to the United States. It was this initiative, coupled with the demands of the private sector to reduce the monopoly aspects of the country's public utilities, that led Canada's electricity-

1 David M. Newbery, *Privatization, Restructuring, and Regulation of Network Utilities* (Cambridge, MA: MIT Press, 2001); Sharon Beder, *Power Play: The Fight for Control of the World's Electricity* (Victoria, Aust.: Scribe Publications, 2003).

2 Phillip J. Ardoin and Dennis Grady, "The Politics of Electricity Restructuring across the American States: Power Failure and Policy Failure," *State and Local Government Review* 38, 3 (2006): 165-75.

exporting provinces to change their systems.[3] In British Columbia the restructuring of the electricity sector has been incremental, beginning with relatively small roles for the private sector during the Social Credit government of the late 1980s. This process was further developed, albeit modestly, under the NDP government of the 1990s, then greatly accelerated by the Liberal government in the twenty-first century.

In North America, electricity restructuring has been characterized by rapidly rising electricity prices. There is substantial debate about whether these rapid price spikes can be attributed primarily to the economic liberalization of the sector, but it is clear that price spikes have occurred with regularity wherever deregulation has occurred.[4] In Canada price spikes have been most evident in Alberta and Ontario, where restructuring has been more rapid and complete than in the rest of the country.[5] In British Columbia the biggest changes in the electricity sector occurred after 2001 through the initiatives of the Liberal government of Gordon Campbell. Because these changes were incremental, unlike the experiences in Alberta and Ontario, the price effects of the restructuring initiatives were not immediately felt. However, over time, and as more new private power initiatives were brought to fruition under expensive contracts binding BC Hydro to purchase power generated by the private sector, the utility clearly needed to raise the prices consumers paid for electricity. The magnitude of the increases and how they would escalate over time became apparent to ratepayers when BC Hydro submitted a request for major rate increases to the BC Utilities Commission (BCUC) in November 2010. The Crown utility needed additional revenue to meet the costs of the government's Clean Energy Act. Its BCUC filing was for

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3 Marjorie Griffin Cohen, "International Forces Driving Electricity Deregulation in the Semi-Periphery: The Case of Canada," in *Governing under Stress: Middle Powers and the Challenge of Globalization*, ed. Marjorie Griffin Cohen and Stephen Clarkson (London: ZED Books, 2004).

4 John Kwoka, *Restructuring the US Electric Power Sector: A Review of Recent Studies*, report prepared for the American Public Power Association, 2006, available at http://www.economics.neu.edu/papers/documents/06-005.pdf; Thomas M. Lenard and Stephen McGonegal, *Evaluating the Effects of Wholesale Electricity Restructuring* (Washington, DC: Technology Policy Institute, 2008); Seth Blumsack, Lester B. Lave, and Jay Apt, "Electricity Prices and Costs under Regulation and Restructuring," Carnegie Mellon Electricity Industry Centre Working Paper CEIC-08-03, 2008, available at http://web.mit.edu/is08/pdf/Blumsack_Lave_Apt%20Sloan%20paper.pdf.

5 Donald N. Dewees, "Electricity Restructuring in the Provinces: Pricing, Politics, Starting Points, and Neighbours," in *Governing the Energy Challenge*, ed. Burkard Eberlein and G. Bruce Doern (Toronto: University of Toronto Press, 2009). Price increases are frequently associated with restructuring in the popular media. See, for example, Darcy Henton, "A Decade after Deregulation, Alberta's Electricity Prices Are Soaring," *Calgary Herald*, 9 January 2012; and Roger Holmes, "The Alberta Disadvantage: Sky High Electricity Rates," *Star News* (Wainwright, Alberta), 27 January 2012.

the largest electricity rate increases in British Columbia in living memory, amounting to 55 percent between 2011 and 2015.[6]

In response to negative public reaction to proposed electricity rate increases, the BC Liberal government initiated the *Review of BC Hydro* (hereafter *Review*) in 2011.[7] Christy Clark, the new premier, was not as strongly identified with the government's earlier electricity policies as was her predecessor, and she had campaigned for the leadership promising to rectify some of the problems that had led to Gordon Campbell's resignation. Consequently, she had some political space to revisit earlier policies without the embarrassment of having to justify why she might need to reverse them.

The intent of the *Review* was to examine the costs related to the "significant concerns [that] were expressed regarding the impact the rate increase would have on BC families and other power consumers."[8] By restricting the parameters of the cost review to BC Hydro's internal operations, the government deflected an assessment of its own electricity policies. This placed the most significant factors responsible for cost increases beyond the *Review* committee's purview. The *Review* looked primarily at two areas: the effectiveness of BC Hydro's governance framework and BC Hydro's financial performance. Its findings were limited, noting that the electricity utility industry worldwide faced increasing cost pressures due to population growth and consumer demand and that BC Hydro was not exempt from such pressures. It determined that BC Hydro had "done a relatively good job of providing electrical service to residents of BC at low rates [but noted that its] operating costs ha[d] been increasing over recent years."[9] It then detailed various ways that BC Hydro could reduce cost pressures within its organization. Except for brief references to the problems created by the government's requirement that BC Hydro purchase large volumes of new energy

[6] BCUC Order G-180-10, 2 December 2010, http://www.bcuc.com/ApplicationView.aspx?ApplicationId=268; J F11RRA Settlement Agreement, 18 November 2010, 9, available at http://www.bcuc.com/Documents/Proceedings/2010/DOC_26472-11-19_BCH-F2011-RRA-Settlement-Agreement-Public-Release.pdf. This rate increase was first revised in March 2011 to a three-year cumulative increase of 32 percent. Later in that same year it was revised downward for a cumulative increase over three years of 15.8 percent.

[7] Three deputy ministers headed the twenty-person team to examine BC Hydro: John Dyble (deputy minister to the premier, cabinet secretary, and head of British Columbia's public service), Peter Milburn (deputy minister of finance), and Cheryl Wenezenki-Yolland (deputy minister of advanced education). The report was completed in June 2011 and was released publicly in August 2011.

[8] John Dyble et al. *Review of BC Hydro*, June 2011, available at http://www.newsroom.gov.bc.ca/downloads/bchydroreview.pdf, 1.

[9] Ibid., 19.

to meet government "self-sufficiency" targets, it did not examine the Liberal government's electricity policies or assess the extent to which these policies contributed to dramatic cost increases. Consequently, key factors contributing to BC Hydro's need for rate increases were not subject to public scrutiny.

The intention of this article is to analyze the findings of the *Review* and to extend the analysis to include the various ways that the government's electricity policies since 2001 have affected the price of electricity in British Columbia. The following discussion focuses on the three main government policy directives that have radically changed the mandate of BC Hydro and the provision of electricity in British Columbia. It analyzes the directives that have already had a major impact on the cost of electricity for residents and those that foreshadow the need for future substantial rate increases. The discussion then examines the impact of the government's new economic policy directions and, particularly, its promotion of liquefied natural gas (LNG) exports, the development of new mines, and the expansion of natural gas production. If implemented, these energy-intensive resource projects will profoundly affect British Columbia's future electricity demand and further raise electricity rates for residential customers.

## PART 1: THE BC GOVERNMENT'S NEW FRAMEWORK FOR ELECTRICITY

Developments in energy policy in British Columbia since 2001 have brought about the biggest changes to the province's electricity system since BC Electric was nationalized and BC Hydro created as a Crown corporation in 1962. The following outlines the three major government initiatives that have most affected the industry. A discussion of these changes is essential to understanding the reasons for large electricity price increases. The major point of this section is to show that, while adding any new electricity generation to a system will add to the price of power, the way this was undertaken in British Columbia, through the private sector, ensured that the impact on prices for consumers would be even greater than was necessary.

### *Energy for Our Future: A Plan for BC, 2002*

Early in its administration, the Liberal government outlined its plans for reshaping British Columbia's electricity sector in its 2002 document *Energy for Our Future: A Plan for BC*. This was not a legislated document, although its purpose was to dramatically change the electricity system by substantially restricting BC Hydro's activities and involving the private sector in areas traditionally dealt with by BC Hydro.

Up to this point, BC Hydro had primary responsibility for the generation, transmission, and distribution of electricity as well as for related provincial electricity services.[10] The redesign abandoned BC Hydro's integrated utility model by splitting off major components of its operations. The government directed BC Hydro to contract out a significant part of its administration and financial functions to Accenture, a private company. This included most of its service delivery activities, including customer services, billings, and other finance activities. In another major change, it separated the transmission system from generation and distribution operations to comply with the government's understanding of demands from the US FERC to allow private power access to transmission lines.[11] In 2003, it established the BC Transmission Corporation (BCTC) as a separate company. The privatization of major administrative functions and the creation of a separate transmission company resulted in the removal of about one-third of BC Hydro's labour force. These changes were costly, disruptive, and ultimately proved to be inefficient.

The government also initiated a new policy to encourage private power companies to generate electricity for domestic use and for export. To accomplish this, it limited BC Hydro's ability to generate electricity to improving the efficiency of its existing facilities – with the single exception of the possible development of Site C on the Peace River, whose construction required explicit cabinet approval and seemed a remote prospect during the early part of the Liberal government's tenure.[12] The government barred BC Hydro from investing in new green energy generation, which it claimed was more environmentally friendly than large hydro projects, and directed the corporation to meet its new energy requirements through purchases from independent power producers (IPPs). The government increased the volume of private energy that

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10 There is a relatively small service area privately covered by Fortis in the West Kootenay area of the province.

11 The plan specifically states that "BC will need to adapt to evolving market rules in the United States, if we want to continue earning the export revenues that contribute to our low power rates." British Columbia, *Energy for Our Future: A Plan for BC* (Victoria, 2002), 6, available at http://www.bchydro.com/etc/medialib/internet/documents/extranet/tsr/TSR_2002_BC_EPlan_ExecSummary.Par.0001.File.TSR-2002-BC-EPlan-ExecSummary.pdf.

12 For a discussion of the issues related to building Site C, see Matthew Evenden, "Site C: Considering the Prospect of Another Dam on the Peace River," *BC Studies* 161 (2009): 93-114, with articles by Michael Church, Nichole Dusyk, Matthew Evenden, Ken Forest, Marjorie Griffin Cohen, Alexander Netherton, and Adrienne Peaco.

BC Hydro was required to purchase by establishing ambitious projections of future power requirements, by limiting the utility's ability to rely on the energy market, and by excluding the Columbia River Treaty's downstream benefits entitlement from the calculations of British Columbia's energy supplies.[13]

*Energy for Our Future* also endorses the private development of coal-fired power plants, noting that British Columbia's abundant coal could produce electricity for well over a century.[14] Since coal had not been used as an electricity source by BC Hydro, this is a decided departure from the previous practice of generating electricity from clean energy sources.[15]

"New electricity" costs more than that generated from older power plants whose investments have been largely written off. With public ownership, provincial ratepayers benefit, over time, from their investment in power generation assets. This is why electricity prices in British Columbia were among the lowest in North America. But, under the new policy, the public would no longer acquire power generation assets. Hence, electricity prices could, and likely would, escalate so long as BC Hydro relied upon the purchase of private power. The costs of private power were very high and greatly increased BC Hydro's future revenue requirements. Because the cost impact of these policy changes would affect both business and household sectors in British Columbia, the government sought to allay criticism by legislating the "Heritage Rate" through a "Heritage Contract" intended to reassure people that the low rates associated with BC Hydro's existing publicly owned power projects would continue for at least ten years. Ultimately, however, the costs of purchasing new energy were incorporated into most customers' rates. Only two policies associated with *Energy for Our Future* were enacted through legislation and, therefore, subject to public debate: the Heritage Contract and the establishment of the BCTC. As a result, the major initiatives that increased the privatization of electricity in British

13 Under the terms of the Columbia River Treaty, British Columbia was entitled to approximately forty-three hundred gigawatt hours of energy, or about 8 percent of provincial supply. The energy was owned by the province, not BC Hydro, so was sold independently of BC Hydro's requirements.

14 British Columbia, *Energy for Our Future*, 14.

15 BC Hydro awarded two thirty-year contracts to private coal-generating companies in 2006, a fifty-six-megawatt-hour coal- and wood-residue-burning plant near Princeton to Compliance Energy Corporation, and a 185 megawatt plant to AESWapiti Energy Corporation northwest of Tumbler Ridge. They were to be operational by 2010, and public opposition was considerable. See "Power Struggle over BC's First Coal-Fired Plant," *The Tyee*, 17 November 2006. Available at http://thetyee.ca/News/2006/11/17/Coal/.

Columbia were not debated in public, and the costs of these initiatives did not come under scrutiny.

### *BC Energy Plan: A Vision for Clean Energy Leadership, 2007*

The second major government directive relating to BC Hydro restructuring was the 2007 *BC Energy Plan: A Vision for Clean Energy Leadership* (hereafter 2007 Plan). This plan both accelerated the privatization of electricity and introduced significant requirements for reducing existing and anticipated greenhouse gas (GHG) emissions. It accelerated the privatization of electricity by regularizing small power projects, introducing requirements for self-sufficiency in electricity for the province,[16] and discontinuing the major gas-fired power plant, Burrard Thermal. All of these requirements would significantly increase costs for BC Hydro.

The most dramatic requirement of the 2007 Plan was that BC Hydro achieves "self-sufficiency" by 2016 by contracting to purchase more private green energy. This requirement would rapidly increase BC Hydro's acquisition of privately generated electricity and was an important promotion of private-sector power development. The government's definition of self-sufficiency was exceedingly strict, mandating that, by 2016, British Columbia would never have to buy power on the open market, and demanding an additional "insurance" of three thousand gigawatt hours above what would be needed for self-sufficiency by 2026, even in rare, extreme drought years. This meant that private power developers would have to generate massive amounts of new power because the province's long-term firm supply would need to increase substantially. Clearly, excess supply would exist in most years, and the hope was that this power could be exported to the United States.

Other initiatives that encouraged private power production were the introduction of the Standing Offer Program at set purchase prices for small power projects of up to ten megawatts, the requirement that BCTC build transmission lines to service additional power from the private sector, and the decision to discontinue the use of BC Hydro's Burrard Thermal for generating energy by 2014. These requirements were widely criticized at the time, mainly because they would incur significant and unnecessary expenses for BC Hydro customers.[17] They forced BC Hydro

[16] This was through the Standing Offer Program at a set purchase price for projects of up to ten megawatts.

[17] Marvin Shaffer and Associates, *Lost in Transmission: A Comprehensive Critique of the BC Energy Plan* (Vancouver: Canadian Office and Professional Employees Union Local 378, 2007).

to buy high-cost, low-value run-of-river and wind energy – energy that is not reliable and is not without considerable environmental impacts.[18] The 2007 Plan emphasized the green aspects of the policy. The government's support, in the 2002 Energy Plan, for using coal to generate electricity also implied adverse environmental impacts. After considerable negative public reaction, the government modified the 2007 Plan to require zero emissions from coal-fired electricity. Since it is not possible to achieve zero GHG emissions from coal with existing technology, the 2007 Plan effectively banned coal-fired electricity plants. This and the intention to discontinue Burrard Thermal and to find 50 percent of BC Hydro's new energy needs through conservation by 2020 were clearly designed to show "clean energy leadership," but this was somewhat tempered by both the announcement of new consultations on Site C, a move long opposed by many environmentalists, and the large expansion of new private power generation.

The government's push to expand private electricity generation capacity in the 2007 Plan was based on two major premises. One was that British Columbia could obtain substantial revenue from exporting electricity to the United States. This objective was rooted in what the government saw as California's desperate need for electricity after the collapse of Enron and the state's shift to a deregulated market-based system as well as the understanding that California would offer a premium for "green energy." Both of these surmises, as well as the assumption that exports would generate enough money to pay for British Columbia's very expensive private power, were serious miscalculations. The second premise was that people would accept the privatization of electricity and the huge rate increases this would entail if these changes were packaged as green energy. With the exception of Burrard Thermal, BC Hydro's electricity generation did not produce significant GHG emissions. Given that the coal-fired plants proposed in the 2002 Energy Plan were effectively proscribed by the zero-emissions provision of 2007, the only significant source of GHG among BC Hydro electricity sources were the private gas plants that accounted for 25 percent of the total private energy bought by the utility.[19]

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[18] John Calvert, *Liquid Gold: Energy Privatization in British Columbia* (Blackpoint, NS: Fernwood, 2007); Marvin Shaffer and Associates, *Is the Energy Plan Really Green? The Supply Side: Targeting Low Value/High Cost Resources* (Vancouver: Canadian Office and Professional Employees Union Local 378, 2007).

[19] Dyble et al., *Review of BC Hydro*, fig. 3.4.5, p. 107. British Columbia also produces a small amount of GHG emissions from off-grid diesel power plants in remote areas.

### *Clean Energy Act, 2010*

The third major government policy directive was the Clean Energy Act, 2010. This act was even more proactive in supporting private sector power generation in British Columbia than was the 2007 Plan. It managed to be so by increasing the amount of private energy BC Hydro would need to acquire by mandating power exports and by restricting BCUC oversight on major cost drivers.

The biggest boost to new private power was the shortened time frame for British Columbia to achieve a three thousand gigawatt hour "insurance" surplus from 2026 to 2020. This meant that BC Hydro would need to buy more private power even sooner, and thus it supported the government's clean energy export goal. Since the "insurance" would rarely be needed, a great deal more electricity would then be surplus and available for export. The act exempted some of BC Hydro's most expensive projects from BCUC oversight. These exemptions included electricity exports and major transmission projects (most notably the expensive Northwest Transmission Line). The act also legislated the Smart Meter Program, whose projected $930 million cost was exempted from BCUC examination. Other exemptions included the Standing Offer Program and the Feed-In Tariff Program, clean power requests for proposals, Site C, and new generating units on the Mica and Revelstoke dams.[20] This meant that the BCUC would not review several very expensive projects in order to determine their cost effectiveness.

The Clean Energy Act, 2010, also reintegrated the BCTC into BC Hydro. The separation of transmission from generation and distribution resulting from the 2003 legislation had proven to be both unworkable and expensive. It duplicated overheads, created barriers to coordination in the field, and eliminated synergies resulting from integrated operations. Reintegration also confirmed that the initial separation was unnecessary and that the government had seriously misinterpreted the US requirements.

[20] Both the Standing Offer Program and the Feed-In Tariff Program are designed to encourage development of small-scale private power. The revised Standing Offer Program mandates that BC Hydro has to purchase power from any clean energy private project of between .05 and 15 megawatts (BC Hydro, Standing Offer Program Rules, January 2011). The Feed-In Tariff Program guarantees access to the BC Hydro grid for producers of electricity, including households, using any kind of green technology. Both programs are extremely expensive because of the cost of connecting the small projects to the grid and the high costs per unit of electricity generated. See http://www.bc.com/planning_regulatory/acquiring_power/feed_in_tariff.html.

### *The 2011 Review of BC Hydro*

All of these changes in British Columbia's approach to electricity generation had cost increases for BC Hydro. However, these are not addressed in any substantial way in the 2011 *Review*, which attributes escalating electricity prices to BC Hydro's inability to contain costs and makes substantial recommendations for cost reductions in both the utility's operating and capital budgets. These recommendations are problematic primarily because they do not deal with the major cost drivers and, at best, will only delay future rate increases, which will be inevitable.

Most of the *Review*'s recommendations focus on BC Hydro's operational processes, capital spending, procurement policies, and project management.[21] While noting that the rising expense of maintaining aging infrastructure and higher staffing levels to cope with increased workloads are major drivers of rising costs, the *Review* misleadingly compares 2010 levels of employment with those for 2006, when the BC Hydro payroll was at its lowest in more than a decade – primarily because about eighteen hundred workers had been transferred to Accenture and the BCTC. It also fails to note that many of the functions of these separate corporations could not be easily disentangled from those of BC Hydro. The 2010 act tacitly admits this by reintegrating BCTC into BC Hydro. But the *Review* recommends that the 2010 payroll of 5,968 be reduced to forty-eight hundred – a 20 percent reduction.[22] Such a reduction would almost certainly result in adverse consequences due to the loss of expertise and organizational memory. The *Review* urges that BC Hydro contract out work to deal with staffing reductions, but it does not make clear how this would result in any savings. In its sweeping critique of BC Hydro employment practices, the *Review* faults the organization for paying various post-retirement-related benefits, such as extended health care, and for what it considers excessive overtime. It also criticizes the utility's emphasis on very high performance standards, arguing that its "gold-plated" culture of "excellence is unwarranted and too costly."

Another recommendation is to delay planned investment in capital projects in order to reduce costs. An aging infrastructure, upon which little has been spent since completion of the Revelstoke Dam in 1984, has forced BC Hydro to plan an aggressive increase in its capital spending

21 Dyble et al., *Review of BC Hydro*, provides fifty-six recommendations. Of these recommendations only two are directed at "the province," six are directed at both BC Hydro and the province, and all of the rest are directed at BC Hydro.

22 Dyble et al., *Review of BC Hydro*, 40-43.

program. The *Review*'s recommendation to defer the upgrades simply pushes the cost onto future years and ignores impacts on system reliability and customer service. The *Review* also argues that BC Hydro should stop micro-managing projects and extensively monitoring its contracts with the private sector because these activities raise its in-house labour costs and limit the ability of vendors to introduce efficiencies. The *Review* team would afford contractors more control and flexibility, but it fails to acknowledge that, without adequate oversight, BC Hydro might not receive full value on its contracts.

Finally, the *Review* encourages BC Hydro to implement public-private partnerships in new capital projects, with the intent of sharing cost burdens and risks.[23] This recommendation would allow private firms to become "partners" with BC Hydro in the work they do on the utility's assets and could give them a stake in BC Hydro itself. This is clearly a form of privatization. The more it is used, the more it will weaken BC Hydro's ability to manage its resources in the public interest and the less the utility's assets will be owned by the public.

Some of the *Review*'s recommendations for cost cutting are reasonable. Most companies, at every stage of their existence, can make improvements. But, overall, the expenses that appear higher than warranted (e.g., performance bonuses for senior management and the high ratio of managers) are minor compared with the enormous costs resulting from government power privatization policies. The *Review* nods slightly in this direction in acknowledging that the government's "policies governing electricity, which focus on clean energy and self-sufficiency, were developed in an environment different from today's economic context. Greater flexibility may be required."[24] To this end, the *Review* recommends that the government and BC Hydro reassess both the definition and the timelines for "self-sufficiency."[25]

It is not clear whether the growing cost of power purchases mandated by the Clean Energy Act, the limited benefits of run-of-river electricity, or the concerns raised by the *Review* influenced the government's decision to change its policy on acquiring new electricity. What is clear is that in February 2012 it announced that it would abandon the three-thousand-gigawatt-hour insurance requirement and allow BC Hydro to plan for its

23 Ibid., Recommendation 30, p. 68.

24 Dyble et al., *Review of BC Hydro*, 21.

25 Ibid., Recommendation 46, p. 93. The government followed this recommendation and, in February 2012, abandoned the requirement of three thousand gigawatt hours for insurance.

future needs based on average, rather than low, rainfall assumptions.[26] This decision significantly reduces the volume of energy BC Hydro will have to acquire to meet its projected future needs.[27] It also constitutes a major retreat from the government's earlier decision to force BC Hydro to acquire extraordinarily large volumes of new private electricity, much of which it would be forced to sell on the US energy market at prices far lower than what it would pay private power producers for it.

However, the government retained the requirement that BC Hydro be "self-sufficient" by 2016. And it left in place the large number of inflation-indexed contracts BC Hydro has already signed. Many of these are only just beginning to supply electricity. Consequently, ratepayers have not felt their full cost impact. BC Hydro is still required to acquire new power from the private sector, with the exception of Site C.[28] Hence, the recent policy change did not restore to BC Hydro the ability to decide whether it would again build and own new power plants to supply customer demand. Nor did it restore the ability of the BCUC to review major projects excluded by the Clean Energy Act.

## PART 2: MAJOR COST DRIVERS FOR BC HYDRO

The major cost drivers for BC Hydro relate mainly to its requirements to buy expensive privately generated electricity and the demand to acquire new power to meet the needs of anticipated energy intensive resource projects. Added to this are the normal cost increases related to population and economic growth. But also significant are the expenditures for introducing the Smart Meter Program, meeting the urgent need to upgrade existing infrastructure, and developing additional infrastructure to accommodate new private projects. As noted above, only the upgrading of existing capital projects received attention through the *Review*.

[26] Jonathan Fowlie, "Clark Drops Self-Sufficiency Power Plans," *Vancouver Sun*, 3 February 2012. The government incorporated these changes into Bill 30-2012, the Energy and Mines Statutes Amendments Act, which modified the self-sufficiency requirements of the Clean Energy Act, 2010.

[27] It also triggered considerable criticism from private power developers who saw their prospects of selling more energy to BC Hydro significantly reduced.

[28] The government had earlier indicated that BC Hydro would build Site C, so the new policy did not alter this decision.

### *Restructuring and Privatization Costs*

The government's restructuring of the electricity sector had costly implications for BC Hydro. Rather than having BC Hydro generate new power, the various policy initiatives required that BC Hydro buy increasing volumes of power from private producers. There are two main problems with this. The first is that it is more expensive to produce power in British Columbia privately than it is in the public sector, and the second is that the terms of the contracts were exceedingly generous and indexed to maintain the value of the contract over time for the private supplier.

#### *Ongoing Private Power Purchases*

The purchases the government has directed BC Hydro to make are now significantly affecting rates and will continue to do so in coming years. According to its F2012–F2014 Revenue Requirements Application, BC Hydro now has 110 active energy purchase agreements (EPAs) involving the purchase of 19,164 gigawatt hours of energy annually.[29] As the total volume of private energy has increased, so has the total bill. In 2003, BC Hydro spent $290 million on private power contracts.[30] Projected costs for fiscal 2014 are $1,130 million. The line graph below illustrates this growth (Figure 1).

Many recently signed contracts are not yet delivering power. Most will run for between twenty and thirty years; one, the Forrest Kerr 195 megawatt run-of-river project, is for sixty years. Even if BC Hydro stopped making any new private power purchases, the costs to ratepayers over the coming decades will remain very significant because they will have to pay for power already contracted.

Another way of assessing the future financial impact of BC Hydro's existing private power purchases is to calculate the total liability associated with these contracts. In other words, how much is BC Hydro committed to pay over the lifetime of the contracts already signed? This issue has been a major concern of British Columbia's auditor general John

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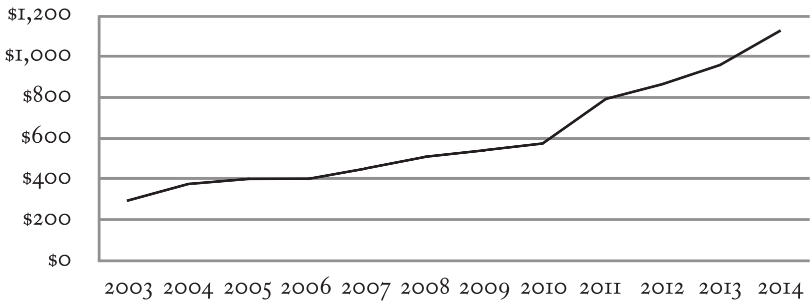
29 BC Hydro, *Amended F2012 to F2014 Revenue Requirements Application*. chap. 4, Table 4.7, pp. 4–30. (Submitted by BC Hydro to the BC Utilities Commission, Vancouver: November 24, 2011.) It should be noted that amended versions of BC Hydro submissions to the BCUC are made regularly, and normally include much information earlier submitted. This can cause confusion as the titles are often almost identical. See http://www.bchydro.com/planning_regulatory/regulatory_documents/revenue_requirements.html

30 BC Hydro, *Revenue Requirements Application F2004/5-F2005/6*, 15 November 2004, Compliance Filing, Schedule A-9, 15, available at http://www.bcuc.com/ApplicationView.aspx?ApplicationId=40.

**FIGURE 1**
*Increasing Costs of Private Power Purchases ($ Millions)*




*Source*: BC Hydro Revenue Requirement Applications 2004/5 to 2012/14.
Note: F2012-F2014 cost numbers are BCH estimates.

Doyle. In a September 2011 report, he criticized both the government and BC Hydro for failing to present a clear account of the utility's long-term contractual commitments and for the increasing use of deferral and regulatory accounts that obscure the extent of the utility's financial obligations.[31] Doyle had raised this problem in an earlier audit. He was concerned that neither the government nor BC Hydro had followed his recommendations to revise their accounting policies. Although the lack of transparency in BC Hydro's accounting was part of a broader, government-wide reporting problem, he specifically cited BC Hydro's private power contracts as the most important example of future liabilities that were not being reported in a clear and understandable way.[32]

Doyle also noted that few details of BC Hydro's contracts were public. Consequently, it was difficult for citizens to assess the long-term impact on electricity rates and service provision. He recommended that "government provide more complete disclosure of the anticipated payments to be made after five years so that stakeholders can fully appreciate the duration and timing of these obligations."[33]

BC Hydro's 2011 *Annual Report* provides further evidence of the scale of the problem Doyle identified. Under the heading "Commitments

[31] Office of the Auditor General, *Report 6: Observations on Financial Reporting: Summary Financial Statements 2010–11* (Victoria: Government of British Columbia, September 2011).

[32] Ibid., 28. By 2011, the government had over $80 billion in long-term contractual commitments, with BC Hydro having just over half that total.

[33] Office of the Auditor General, *Report* 6, 28.

and Contingencies," the utility indicates that it has almost $43 billion in long-term contractual commitments, of which approximately $40 billion are attributable to EPAs with private power producers.[34] While these financial obligations are spread over a number of years into the future, the total financial commitment is very large and will continue to have a major and ongoing impact on rates, regardless of any other policy changes future governments may make.

The government argues that it is a mistake to attribute much of the rising cost of new energy to the fact that BC Hydro is purchasing it from private power developers. The cost of electricity from newly built generating facilities, whether public or private, is far higher than that from those built thirty or forty years ago. No one could suggest that BC Hydro could build new power plants that could deliver energy at the approximately seven-dollar-per-megawatt-hour cost of its older hydro dams. But the key question is the long-term price impact of owning generation facilities.

The best illustration of the price differences between public and private power is the comparable generating circumstances of BC Hydro and Alcan. BC Hydro currently purchases a significant block of electricity from Alcan's hydroelectric power plant in Kitimat. The company built this facility in the 1950s, and its cost of production is even lower than that of BC Hydro's main dams, which were built between 1962 and 1984. The electricity BC Hydro purchases from Alcan costs approximately seventy dollars per megawatt hour, or roughly ten times BC Hydro's own costs. The evidence indicates that, over the long term, ownership of major hydro generation facilities has provided – and, arguably, can continue to provide – a major benefit for ratepayers.

Critics of the government's policy of directing BC Hydro to purchase privately developed run-of-river electricity have also argued that run-of-river power is not well suited to British Columbia's electricity requirements. Run-of-river generation is not backed up by reservoir storage, so much of its power is only available during the spring freshet.[35] But this is when both the Peace and Columbia rivers are also at their peak flows, and the Pacific Northwest is flush with hydro-based electricity from the numerous dams operated by Bonneville Power downstream on the Columbia River. However, during the late fall and early winter, when British Columbia uses more electricity, run-of-the-river projects deliver very little. Moreover, to the extent that it now has to accommodate

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34 BC Hydro, 2011 *Annual Report* (Vancouver: BC Hydro, 2011), 80n26.

35 Shaffer and Associates, *Lost in Transmission*, op. cit.

significant volumes of expensively priced run-of-river energy delivered in the spring, BC Hydro loses some of its ability to use its massive storage reservoirs to benefit from energy trading by purchasing when the market price is low and selling when it is high.[36]

### *Trade Challenges*

The path of electricity development through privatization has also made British Columbia vulnerable to trade challenges on the part of foreign companies that do not receive purchase agreements for power. One illustration of this is the recent North American Free Trade Agreement challenge filed by Mercer International. To meet the government's energy purchase targets, BC Hydro has contracted to buy significant volumes of biomass-generated energy from pulp mills. The average price paid in the most recent purchase was $115 per megawatt hour.[37] A major contradiction arises because a number of pulp mills are also major BC Hydro customers who qualify for electricity at the industrial rate of approximately forty dollars per megawatt hour. Several pulp mills have taken advantage of this price spread by continuing to use low-cost BC Hydro electricity to power their operations, while selling electricity they generate from their own facilities to BC Hydro at the higher rate rather than using it themselves.[38] While this arrangement is clearly beneficial to the industrial customers involved, it results in a significant loss for BC Hydro.[39]

Pulp producer Mercer International has filed a $250 million lawsuit against BC Hydro, alleging that it suffered discrimination because the Crown utility did not offer it the same opportunity to sell biomass energy that it did to other pulp producers in the province.[40] Mercer's

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36 The inefficiency of this was evident in spring 2012, when BC Hydro was forced to buy expensive private power while the turbines at its own large dams were shut down. The inability to export to the United States meant that BC Hydro was accumulating more water behind the dams than it could use. See Scott Simpson, "Hydro Awash in Private Power," *Vancouver Sun*, 11 May 2012.

37 BC Hydro, "Bio-Energy Phase 2 Call: Request for Proposals – Report on the RFP Process," 10 February 2012, available at http://www.bchydro.com/etc/medialib/internet/documents/planning_regulatory/acquiring_power/2012q1/bioenph2callrfp_rfp.Par.0001.File.BioEnPh2CallRFP_RFP_Process_Report_Final_2012-02-10.pdf.

38 Gordon Hamilton, "Mercer International Seeks NAFTA Ruling on Hydro's Electricity Pricing Policies," *Vancouver Sun*, 1 May 2012. Another pulp company, Abitibi Bowater, successfully used NAFTA to extract a generous $130 million settlement from the Newfoundland and Labrador government using Chapter 11, although the issue dealt with water rights.

39 Arthur Caldicott, "BC's Bio Boondoggle," *Watershed Sentinel*, September-October 2011.

40 The government has defined biomass energy, generated from wood waste, as renewable, "clean" electricity for purposes of meeting its environmental objective of no new net GHG emissions.

facility is located within the service area of Fortis rather than that of BC Hydro, and this appears to be the grounds for BC Hydro's declining to offer it a contract. While it may be some time before the outcome of this challenge is known, it illustrates the vulnerabilities that BC Hydro faces by virtue of the policy of sourcing new energy from private-sector firms and the implications this could have for future costs.

*Costs of Power-Intensive Resource Development*

All economic development will increase the need for new electricity sources, but some types of development use much more power than others. The major demand for electricity, based on the government's economic development strategy, will come from new initiatives in the gas, oil, and mining sectors. Under the current pricing system through private power development, the energy used will be extremely expensive and a major cost driver for BC Hydro. BC Hydro clearly anticipates this in its planning. Because none of this was part of the examination of the *Review*, the ability of the government to use BC Hydro to subsidize private corporations (both those providing and those using electricity) was not open to public debate and discussion. The important issue here is that the cost of new energy is shared among all ratepayers rather than being allocated to any individual class of electricity customers. So the resource sector's requirements for new electricity will have a major impact on all ratepayers.

Currently, large industrial customers pay just over forty dollars per megawatt hour for their electricity, most of which is sourced from BC Hydro's low-cost Heritage power facilities.[41] However, as the *Review* notes, BC Hydro has been paying as much as $124 per megawatt hour under the current policy framework for new energy, or approximately three times what it charges under the industrial rate. While British Columbia is currently able to meet its electricity requirements from existing supplies, it does not have a surplus to meet the additional demand from major new resource projects. So it will have to acquire growing volumes of new energy. Government promises of low-cost electricity for new resource projects make investment in such projects comparatively

[41] The rationale for the industrial rate is that customers should pay BC Hydro the actual cost of its power, including delivery. As it is much cheaper to supply a major mine or pulp mill with a large block of electricity delivered through high voltage transmission lines than it is to supply the other 1.9 million commercial or residential customers, the rate reflects this cost difference. When BC Hydro purchases new energy, the price is blended with the existing low-cost Heritage electricity, and all customer classes see their rates adjusted correspondingly.

more attractive in British Columbia than in many other jurisdictions, further driving up the demand for power. Because most of these projects are being located in areas not well serviced by BC Hydro's existing transmission system, large investments in new transmission lines, substations, and other infrastructure will be required to service them. Three specific types of resource projects are of particular concern: the rapidly growing natural gas sector, new LNG facilities, and the development of new mines.

### *Dawson Creek/Chetwynd Natural Gas Projects*

The government is promoting the rapid expansion of shale gas production in the Dawson Creek/Groundbirch/Chetwynd area of northeastern British Columbia. The Montney shale gas basin has one of the largest pools of accessible natural gas in North America. New horizontal drilling and multi-stage hydraulic fracturing technologies make extraction of this gas relatively cheap. By 2020 the Montney basin could be producing 3 million cubic metres (or more) of natural gas annually. Once extracted, the natural gas is compressed for shipment, and this requires a great deal of energy. The government wants to avoid increased GHG emissions by supplying electricity for this function as well as for other energy-intensive components of gas extraction.

BC Hydro's mid-range estimates of electricity load growth indicate that it will need to supply an amount of power to gas fracking companies in the Montney area equivalent to one-third of the projected output of BC Hydro's proposed Site C Dam, the largest electricity project planned in the province.[42] At current purchase and resale prices of $124 per megawatt hour and $40 per megawatt hour, respectively, this would entail a loss of about $175 million every year.[43]

The current transmission infrastructure supplying electricity to the gas producers in the Montney area cannot handle the volume of electricity the

[42] BC Hydro, *Dawson Creek/Chetwynd Area Transmission Project (Project No.* 3698640*)*, application for a certificate of public convenience and necessity (CPCN), British Columbia Utilities Commission, 3 August 2011, appendix B, 19, available at http://www.bcuc.com/ApplicationView.aspx?ApplicationId=315. BC Hydro's high range estimate assumes demand will exceed five hundred megawatts within a decade. See http://www.bcBCH.com/planning_regulatory/regulatory.html.

[43] Ibid., app. B, table 1 ("Expected Annual Gas Production and Electricity Demand"), 82. BC Hydro estimates the gas industry will require an average of eighteen hundred gigawatt hours of electricity every year from 2016 to 2030. But even if BC Hydro will have to raise its rates to ensure it collects sufficient funds to cover the costs of new energy, under the current pricing structure it will still incur a very substantial loss on its sales to the gas industry – a loss covered in large part by residential and commercial customers.

gas fields will require. Consequently, BC Hydro applied to the BCUC for a $255 million upgrade to accommodate projected gas industry expansion.[44] However, this investment is dedicated to this specific industry, and when that industry closes, it may no longer be needed.

### *Liquefied Natural Gas (LNG) Projects*

The proposed $3.5 billion first phase of the Kitimat LNG (KLNG) terminal will also significantly increase demand for BC Hydro's energy. This is because, unlike most LNG facilities, the Kitimat one will not use gas to provide the power it needs for production. It will be cheaper for it to buy from BC Hydro at the industrial rate than to self-supply. This new project will use more electricity than Catalyst Paper, the largest industrial customer currently supplied by BC Hydro.[45] Using the same cost and price estimates as for the Montney gas field calculations, ratepayers could end up paying an extra $125 million for every year the LNG terminal is in operation.[46] If the second phase of the company's project proceeds, the total could double. The National Energy Board has recently approved another application for a smaller processing facility by BC LNG Export Co-operative near Kitimat. Shell Canada has indicated it is also planning to build a new LNG plant in the area.[47] Yet, in a media interview, Premier Christy Clark assured BC residents that BC Hydro would be able to supply the power to the first phase of the KLNG project and, most likely, to the second as well. In her words: "We are confident, absolutely confident that phase one will be powered up – no question – with existing resources."[48]

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44 BC Hydro, *Dawson Creek/Chetwynd*.

45 David Ebner, "EOG Buys Rest of Kitimat LNG Project," *Globe and Mail*, 24 August 2010, http://www.theglobeandmail.com/. For a project description see the proponent's website at http://www.kitimatlngfacility.com/. See also National Energy Board, *Hearing Order GH-1-2011 regarding KM LNG Operating General Partnership Kitimat LNG Export Licence Application*, December 9, 2010, available at publications.gc.ca/collections/collection_2011/one-neb/NE22-1-2011-4-eng.pdf. Once in operation in 2015, it will process five million metric tons of liquefied natural gas, roughly 20 percent of British Columbia's output, for export across the Pacific. The facility's first phase will need 250 megawatts of power and an estimated fifteen hundred gigawatt hours of electricity annually.

46 Marvin Shaffer, "A Jobs for Jobs Strategy," *CCPA Policy Note*, 23 September 2011, available at http://www.policynote.ca/a-jobs-for-jobs-strategy/.

47 *Pipeline News*, "NEB Gets Another Application Proposing to Export LNG Off BC Coast," 16 March 2011, available at http://www.pipelinenewsnorth.ca/article/20110316/PIPELINE0119/303169976/-1/pipeline/neb-gets-another-application-proposing-to-export-lng-off-bc-coast; Robert Rowland, "NEB Approves BC LNG, Second Kitimat LNG Project," *Northwest Coast Energy News*, 2 February 2012.

48 Malcolm Baxter, "Premier Vows There Will Be Enough Power For LNGs" *Kitimat Northern Sentinel*, 30 September 2011.

*Mining Expansion*

The BC government's recently released *Canada Starts Here: The BC Jobs Plan* asserts that, by 2015, eight new mines will be operational and nine existing mines will have completed major upgrades.[49] The government also intends to reduce, significantly, the regulatory requirements that, it argues, are unnecessarily delaying project approvals.[50] A study of the financial impact of the proposed Prosperity Gold-Copper Mine Project, conducted by Marvin Shaffer several years ago (when the price of new private power was considerably lower), found that BC Hydro would lose about $38 million a year in supplying the 750 gigawatt hours of electricity it would need annually.[51]

To meet the electricity demand of new mines, BC Hydro is investing in major new transmission lines. The largest is the 344-kilometre Northwest Transmission Line running from Terrace north to Bob Quinn. Initially, it estimated the line would cost $404 million. It has since revised this estimate upwards to $562 million. This figure could be even higher if it extends the line 105 kilometres further north to comply with the federal government's conditions for its $130 million subsidy.[52] The new mines will provide some funding, but BC Hydro will pay the largest share.[53]

The cumulative impact of all of these resource projects will force BC Hydro to acquire a great deal more energy. Under the current tariff structure, the additional costs are shared among all BC Hydro customers, along with the costs of new transmission infrastructure. In effect, other ratepayers will be cross-subsidizing the resource sector for both new

[49] Government of BC, *Canada Starts Here: The BC Jobs Plan*, 22 September 2011, 15, available at http://www.newsroom.gov.bc.ca/2011/09/premier-releases-canada-starts-here-the-bc-jobs-plan.html.

[50] In its spring 2012 omnibus budget bill, the federal government also announced significant changes to speed up the environmental assessment process.

[51] Marvin Shaffer and Associates, *Benefits and Costs of the Prosperity Gold-Copper Mine Project*, report prepared for the Friends of the Nemaiah Valley, 11 March 2009, 19, available at http://www.fonv.ca/media/report-shaffer-prosperity.pdf.

[52] Christopher Pollon, "Northwest Power Line Grows, So Does Controversy: Gov't Says Extending Grid beyond 2009 Plan Will Lower Greenhouse Emissions: Critics See a Boost to Mining – and Emissions," *The Tyee*, 18 July 2011. Avaialbe at http://thetyee.ca/News/2011/07/18/NorthwestTransmissionLine/. BC Hydro identifies eleven potential new mines along the path of this new transmission line alone. See http://www.bchydro.com/energy_in_bc/projects/ntl.html.

[53] The formula for determining the cost allocation for upgrades to BC Hydro's transmission system from connecting new industrial customers is found in Tariff Supplement No. 6. BC Hydro initially charges new customers the extra costs it incurs, but if they purchase the agreed amount of electricity over the following eight years, the full amount is refunded to them. New customers are responsible for funding connections from their facility to the main BC Hydro grid.

BC Hydro infrastructure and the cost of their new energy. While there is nothing inherently wrong with cross-subsidization to achieve good public policy objectives, the problem with this approach is that it lacks transparency. If the government believes that it makes sense to use low priced electricity to attract new resource projects, it should acknowledge that this will affect other ratepayers and should provide them with the details of how much it will cost.

### *Infrastructure Costs*

Although the *Review* holds BC Hydro's management responsible for much of the proposed increase in electricity rates, it also identifies BC Hydro's large capital investment program as a critical cause of rising costs.[54] BC Hydro's Fiscal 2012–F2014 Revenue Requirement Application, submitted to the BUCU, indicates a need for approximately $6 billion to upgrade its facilities, including installing new turbines, modernizing its high-voltage transmission lines and related infrastructure, introducing smart meters, and beginning the Site C project, should it proceed.[55] However, 59 percent of this capital expenditure is for system growth, while 36 percent is for replacement of aging facilities.[56]

New turbines in existing dams and the refurbishment of existing transmission lines nearing the end of their service life are important investments that preserve the value of public assets and ensure reliable service in the future. But a significant part of BC Hydro's capital spending is the result of government directives. These include the controversial $930 million "smart meter" program (see below), the $830 million paid to Teck-Cominco for one-third of the electricity of its Waneta power plant, the new $562 million Northwest Transmission Line, and the $250 million spent on carving out and then reintegrating the BC Transmission Corporation.[57] The Crown corporation has also

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[54] Dyble et al., *Review of BC Hydro*, 77. Site C refers to BC Hydro's proposed new hydro dam on the Peace River downstream from the Bennett Dam and the large Williston reservoir. If built, it would have eleven hundred megawatts of capacity and generate about fifty-one hundred gigawatt hours of electricity annually, or about 10 percent of British Columbia's current electricity production. See http://www.bchydro.com/energy_in_bc/projects/site_c/site_c_an_option/what_is_site_c.html.

[55] BC Hydro, *F2012 to F2014 Revenue Requirements Application*, Executive Summary, p. 1, Submitted to the BCUC 1 March 2011 (BCUC Project No. 3698592). Available at www.bchydro.com/planning_regulatory/regulatory_documents/revenue_requirements.html.

[56] Dyble et al., *Review of BC Hydro*, 73.

[57] BC Hydro, "BC Hydro Plans to Purchase One-Third Interest in Waneta Dam," BC Hydro Press Release, 17 June 2009. It cost BC Hydro $65 million to carve out its transmission system in 2003. It estimated that it would save $25 million annually by reintegrating the grid. Assuming

faced extra costs associated with its ten-year outsourcing contract with Accenture, which, according to one analyst, amounts to $250 million.[58]

BC Hydro is also incurring significant costs for building and servicing the increasing number of private power projects that it is connecting to its main grid. While it includes some of these costs in the price it pays for private power, part is absorbed in the overall administrative expenses of the utility, although it is difficult to get a clear picture of just how much this is. A major portion of BC Hydro's proposed capital expenditures is also earmarked to construct new transmission lines, substations, and related facilities to service the rapidly expanding mining, LNG, and oil and gas sectors, which are a core component of the government's economic development strategy.

### *Smart Meters*

The government's directive to BC Hydro to introduce the Smart Meter Program will also raise rates. Smart meters enable BC Hydro to measure customer electricity use in real time. They are attached to each house or business and send data continuously via a wireless transmitter. Through this the utility has access to the constant monitoring of electricity use every minute of the day. The government's arguments in support of smart meters are that they will allow BC Hydro to eliminate energy theft, deal more expeditiously with outages, and provide technical efficiencies in the management of its system. It claims that, by 2033, the $930 million Smart Meter Program will have produced total savings of $1,629 million. After deducting the total costs of the program, the savings are reduced to $520 million.[59] However, the "savings" from reducing grow-op theft – estimated at $730 million – is included in these calculations, and if these grow-op savings do not materialize, the program will lose money far into the future. The heavy reliance on reducing theft is the main business case for smart meters. No one knows precisely how much theft is occurring, and BC Hydro cannot be certain that the new meters will

this $25 million was the extra annual cost of operating a separate grid over eight years, and adding the start-up costs, the total amounts to over a quarter of a billion dollars.

58 Will McMartin, "Accenture's BC Hydro Contract Way over Budget" *The Tyee*, 21 June 2010. Avaialbe at http://thetyee.ca/Opinion/2010/06/21/HydroContract/.

59 BC Hydro, "Smart Metering and Infrastructure Monitoring Business Case," available at http://www.bcBCH.com/energy_in_bc/projects/smart_metering_infrastructure_program.html. The figures are the net present value. See especially the business case summary on page 2 and Table 1 on page 9.

stop electricity theft, given that "hackers" have circumvented the security arrangements of many sophisticated computer systems.[60]

In other jurisdictions the rationale for smart meters is to use real time monitoring (time of use [TOU]) of energy consumption to permit variable pricing over twenty-four hours, with the highest rate corresponding to the periods of peak demand. Two-way smart meters provide customers with information that may encourage them to reduce consumption during peak demand periods. But, in 2011, only 17 percent of US customers had fully advanced, two-way interactive TOU meters that gave them, as well as the utility, this information.[61] BC Hydro will provide these to customers only as an extra-cost option.

Aside from their cost, a second major concern is that smart meters are a solution to a problem that British Columbia's hydro-based system, with its reservoir storage, does not have. Jurisdictions dependent on energy production from coal or nuclear power plants cannot easily adjust their output to meet fluctuations in energy demand over a twenty-four-hour period. Their problem is that output is relatively constant, while demand changes significantly, peaking at breakfast and dinner and falling off at night. But in British Columbia, it normally does not matter what time of day electricity is used. BC Hydro's reservoirs, with their large storage capacity, enable it to respond to additional demand by running more water through the turbines in the big dams. BC Hydro has extensive data on daily electricity use and already has the ability to plan its output to meet short-term fluctuations in demand. Hourly fluctuations are not a problem for BC Hydro. British Columbia's capacity problem is seasonal, not daily. It comes in December, when days are short, nights are cold, and people use more electricity. Meeting peak demand during the coldest days of winter is a serious issue. But it is not resolved by time-of-use metering. The removal of any oversight on the smart meter system by either the BCUC or the *Review* prevented any real cost-benefit examination of the issue.

## CONCLUSION

The government's recent policy changes – and, specifically, its repeal of the more extreme requirements of the Clean Energy Act – signal that it recognizes some of the limitations of its earlier electricity policies.

[60] Opponents have also raised concerns about privacy, given the data collected. Some have questioned their safety. However, these issues are outside the scope of our analysis.

[61] United States Energy Information Administration (EIA), *Today in Energy*, "Advanced Electric Meter Installations Rising in Homes and Businesses," 15 March 2011. Avaialbe at http://205.254.135.7/todayinenergy/detail.cfm?id=510.

Nevertheless, it continues to support the overall restructuring project that is at the root of the problems BC Hydro now faces. The government remains committed to expanding the role of the private power industry in British Columbia's electricity system, while continuing to restrict BC Hydro's role to that of being a purchaser of new energy, with the major exception of Site C, should it be built. And even with this project, the government has signalled that it envisions incorporating a larger role for partnering with the private sector.

Cutting 20 percent of BC Hydro's staff will have a major impact on its future operations due to the loss of key skilled personnel. Ratcheting back the utility's capital investment plan and laying off staff will weaken the corporation and limit its ability to oversee private-sector contracts. Introducing public-private partnerships will further expand the role of the private sector in BC Hydro's operations, introduce additional management complexity, and weaken the utility's control over procurement and other costs. Rather than addressing BC Hydro's current revenue challenges, these decisions will only push costs on to future ratepayers.

Increasingly, the government's energy-intensive resource development strategy will also shape the future of BC Hydro and the province's electricity system. Its view that BC Hydro can provide all the electricity these projects demand without major impacts on ratepayers is problematic, given the volume of new and very expensive energy that the Crown utility will have to acquire. How the province will fulfill its GHG reduction targets, avoid purchasing large volumes of energy on the international electricity market, and still meet the projected energy demand of gas projects, LNG plants, and new mines is a deeply puzzling question.

British Columbia's ratepayers have still not felt the full impact of the electricity policies the government has pursued over the past decade. BC Hydro's 2011 revenue requirement submission to the BCUC, outlining its need for a 100 percent increase over the coming decade, indicates what to expect. But the financial challenges now facing BC Hydro have wider implications for the government as well. Unlike in the past, it will no longer have the Crown corporation's substantial profits to fund other important public programs, unless it ratchets up rates even further. And, on the policy front, restructuring initiatives have reduced its policy flexibility by giving private power interests a much greater stake – and influence – in future electricity decision making.