

BUS 478 D300

GROUP CASE SYNOPSIS: BC HYDRO

FALL 2012

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**Submitted:** November 7, 2012

## 1. HISTORY<sup>1</sup>

As one of the oldest Canadian companies BC Hydro has a long, rich history. The company was originally founded in 1860 as the “*Victoria Gas Company*”, producing natural gas for use in industrial applications. 23 years later, an engineer named Robert McMicking took charge and incorporated the company and along with several investors started producing the first commercially available electricity in Canada. In 1898 the company raised funds from the United Kingdom to build the first hydroelectric plant in Victoria, providing stable electricity to nearby communities and laying the foundation for a bright future. Several years later, the company renamed itself “*BC Electric*” as it started providing service to communities both small and large all across B.C.

In 1945, the *BC Power Commission* was created by the government and set out to bring electricity to even the most rural regions of British Columbia. It purchased smaller electric producers and built thousands of kilometres of power lines. This was *BC Electric*'s main competitor for nearly 20 years. In 1961 the B.C. government passed the “*BC Hydro Act*” leading to the buyout of *BC Electric* and the publicly owned *BC Power Commission*, creating the crown corporation that we now know as *BC Hydro*. At the same time, its natural gas division was sold off and later acquired by *Fortis BC* (formerly *TerasenGas*). With fresh political backing and new funds, the company launched new power initiatives all across B.C. including the building of B.C.'s first large-scale Dam on the Peace Arch River near Hope. Several other Dam projects quickly followed to keep pace with B.C.'s booming population and skyrocketing electricity demand.

In the late 1980s, the company launched its *Power Smart* and *Resource Smart* programs to promote energy conservation and urban sustainability. Whilst encouraging people to lead a greener lifestyle was a nice benefit, these programs were largely the result of continuously rising power demands and the province's hesitation to greenlight the construction of new generating facilities.

In 2001, the company began re-investing into its existing facilities to optimize output and produce even more capacity. At the same time it began purchasing “clean” electricity from Independent Power Producers (IPP's) requiring that it be generated from renewable resources. As of 2007, more than 90 percent of BC Hydro's electricity stems from clean, sustainable sources. 78 percent of the energy produced stems from hydroelectric operations across BC.

BC Hydro has fuelled industry and job creation since it was formed over 50 years ago, helping build the province of British Columbia while capitalizing on and strategically leveraging its abundant, natural energy

advantages.<sup>2</sup> Such efforts continue today with BC Hydro's newest strategic objective to *Foster Economic Development* opportunities in B.C. while adhering to the *Clean Energy Act*—establishing a long-term vision for B.C. to become a clean energy leader.<sup>3</sup>

## 2. ENVIRONMENT

### General Environment

#### Demographic Segment<sup>4</sup>

There are approximately 4.4 million people living in B.C. with the majority of the population between the ages of 25-64. There is an almost equal distribution of males to females. The most populated cities are Vancouver, Victoria, and Kamloops. B.C. has a very diverse culture with 25% of the population being a visible minority and 5% of the population being aboriginal.<sup>5</sup> A rich diversity of dozens of different First Nations bands occupy traditional territories within many of B.C.'s regions.<sup>6</sup>

Further, B.C. has the second highest income inequality after Alberta in Canada and a median income of \$67,000. The unemployment rate in B.C. rose to 7.0% in 2011.<sup>7</sup> All of this demographic information constitutes important considerations for planning/forecasting, human resources, and stakeholder relations.

#### Economic Segment

BC's GDP expanded in 2011 by 3% and the inflation rate fell to 1.1%. The value of exports dropped by 0.5%, with some of that dip due to a 6.2% decrease in shipments of energy products.<sup>8</sup> The mining industry – a major industrial consumer of electricity – has however continued to grow, playing a major role in the provincial economy.<sup>9</sup>

Significant economic development opportunities are emerging on B.C.'s north coast, where several proponents are currently working to establish Liquefied Natural Gas (LNG) export facilities—a potential investment of over \$20 billion that could spur the creation of thousands of jobs. This is an important consideration as the process of converting natural gas into a liquefied state consumes large amounts of energy (ideally met by clean electricity).<sup>10</sup>

#### Political Segment

B.C. businesses currently pay 10% in taxes and use schedule 427 (BC Corporate Tax Calculation) to report.<sup>11</sup> BC Hydro pays a dividend to the government, despite being burdened by deferral accounts which B.C.'s Auditor General has

pegged at a \$2.2 billion liability in a recent government review of BC Hydro. According to the 2012 Budget and Fiscal Plan BC Hydro will pay 12.75 per cent of its deemed equity to government.<sup>12</sup> As for antitrust laws, there is the Competition Act that all businesses must follow in regards to Canada's antitrust legislation. Further, there are numerous different energy and environmental laws that are becoming more prominent in Canada and British Columbia.

Moreover, with the 40<sup>th</sup> B.C. General Election tentatively scheduled for Spring 2013, during a time of political uncertainty and contentious issues relating to energy, it is possible that a new government may drastically affect the future direction of B.C.'s energy industry.

### **Sociocultural Segment**

In BC, 62% of women are working and mostly in the service industry. Work-life balance is highly encouraged by B.C.'s top employers.<sup>13</sup> Concerns around the environment in BC are also very high, and the province is viewed as a global benchmark for sustainability and "green" thinking.

### **Technological Segment**

Technological breakthroughs in the energy industry are an important factor to consider. Smart Meters provide better two-way communication across an electrical system, and there are international efforts to modernize and integrate electricity grids. B.C.'s multi-billion-dollar shale gas industry is booming after new horizontal multi-frac technology has allowed for production of significant volumes of natural gas; globally, natural gas has become an abundant, cheap, and relatively clean energy resource.<sup>14</sup>

In B.C., there are three industries that attribute the most to R&D: pharmaceuticals, communication technology and engine alternatives.<sup>15</sup> However, the province as a whole leads the country in R&D expenditure.<sup>16</sup>

### **Global Segment**

China (and the Pacific Rim in general) is a rapidly growing economy that more B.C. firms are choosing to work with. The US dollar is hovering around the Canadian dollar making trading and working with US businesses more complicated. Outsourcing in Canada has become a standard for cost savings.

## Industry Environment

The following figure summarizes an analysis of Porter's Five Forces as they apply to BC Hydro:

|  |   |
|--|---|
| <p><b>Bargaining Power of Suppliers</b></p> <p>BC Hydro does purchase power, especially during peak times, from Independent Power Producers (IPP's). As BC Hydro has essentially a monopoly over the distribution of power to B.C. consumers, there is little bargaining power for small local suppliers. However, if BC Hydro is purchasing from larger plants or utilities outside of B.C., bargaining power is high due to the fact that BC Hydro is purchases a small amount relative to how much the supplier produces, and more importantly, the supplier knows that BC Hydro must meet its shortage and has relatively little time or few alternatives.</p>           | <p><b>Bargaining Power of Buyers</b></p> <p>Due to the fact that BC Hydro is the only electricity supplier in most regions of British Columbia, it would appear that direct bargaining power of the buyer is extremely low. However, since BC Hydro is government regulated, the public can in fact have a large say on the prices of electricity if they go through the government . If, as it has recently, the public demands lower electricity costs and objects to prosed rate increases), the government and subsequently BC Hydro will have to take this into account.</p>   |
| <p><b>Rivalry Among Competing Firms</b></p> <p>Currently, there is not evidence of intense rivalry because BC Hydro is a large Crown Corporation with a clear government mandate, resulting in what is essentially a monopoly in most regions in BC.</p>   |   |
| <p><b>Threat of New Entrants</b></p> <p>Threat of New Entrants is currently low due to BC Hydro's dominant position as a large Crown Corporation, and there are high costs and barriers to entry. But, government regulation plays a large role in maintaining BC Hydro's monopolistic power. If there were a change made to B.C. power regulation and energy was privatized, there would likely be an immediate entrance of new (international) competitors. However, BC Hydro could likely competitively retaliate and would maintain a strong presence due to its long-term relationship with the government and province, as well as its established infrastructure.</p> | <p><b>Threat of Substitutes</b></p> <p>While there are no satisfactory substitute products for electricity, there certainly exist several potential substitutes in terms of resource generation options; BC Hydro hedges risks by maintaining a broad clean energy portfolio (run-of-river hydro, biomass, wind, large hydroelectric with storage (Site C ), natural gas, and emerging technologies, such as tidal and wave). Other energy sources, such as coal (cheaper, but a significant greenhouse gas emitter) or nuclear, are not consistent with the provincial stance on clean energy, and therefore they currently pose relatively little threat.</p> |

## Competitor Environment

The competitor analysis for BC Hydro is one that could rapidly change in the next few years. If there is any sort of privatization and deregulation of power in B.C., BC Hydro will rapidly face more competitors. Secondly, with an increase in the company purchasing power from IPP's, there is a risk that they will forward integrate and start selling power to the general public. Further, as the global economy continues to shrink, there is also the risk that other international firms could attempt to enter B.C. and start to sell power to its residents.

## FortisBC

This firm is a Newfoundland based electric power and gas distributor that provides electricity to 111,500 consumers in the Kootenay Regions in British Columbia. The electricity and natural gas sector of Fortis delivers over 20% of the total energy consumed in British Columbia, and the company provides electricity to homes and businesses in B.C.'s southern interior.<sup>17</sup> FortisBC finished building a liquefied natural terminal storage facility on Vancouver Island. This site is where natural gas is converted to liquid form in order for Fortis to easily store and transport it. Even though FortisBC is a competitor for BC Hydro, it currently serves a relatively small amount of customers in the province. With the opening of the storage facility on the island, it is apparent that Fortis plans to increase the amount of customers it serves because it now has the ability to more easily transport liquefied gas to more people. Due to the fact that BC Hydro is a crown corporation, FortisBC does not have the capability to grow as fast as it would like in the province if energy was privatized; however, there is a risk that things may change in the near future, particularly if B.C. relaxes its stance on natural gas as a cheaper alternative to cleaner renewable energy sources.

## TransAlta

This firm is a Calgary based electricity power generator and wholesaler that operates 70 power plants in Canada, the US and Australia. TransAlta has reliable, low cost energy. Since this firm is already present in BC as well as other countries, it poses a significant future risk for BC Hydro. If power regulation changes in B.C., TransAlta will be one of the firm movers into the province and would compete on price.<sup>18</sup>

### 3. CURRENT SITUATION

#### *BC Hydro Today*<sup>19</sup>

BC Hydro continues to operate as a Crown corporation and abides by the energy policies set out in the *2007 BC Energy Plan*. This plan was recently updated with the *2010 Clean Energy Act*.

The *Clean Energy Act* outlines B.C.'s energy objectives and requires BC Hydro to submit an annual Resource plan (the *Integrated Resource Plan*) to address these objectives for the province. The objectives include items such as:

- Achieving electricity self-sufficiency by 2016;
- Reducing greenhouse gas emissions; and
- Maximizing consumer value.

In addition to these objectives, there are various projects that the Act prohibits including operations in various heritage-protected areas. This way the assets that many British Columbians hold close are not destroyed.

With 95% of the population being served through BC Hydro, it has maintained its dominance in the electricity market and is clearly the largest supplier of energy in British Columbia. This past year, 2011, BC Hydro was able to operate with a net profit of over \$589 million, an increase of 32% over the prior year. It was also able to add over 22,000 new customers, which signals its continuing growth and the strength of its consumer base.

Even though BC Hydro supplies an enormous amount of energy to the province, in today's environment, the existing hydroelectric projects may not be sufficient to meet the increasing consumer demand. The demand for energy is so great that B.C. consumes more energy than the province creates, which has led to an increase in the purchase of energy from other sources. Therefore, BC Hydro has been focusing its attention on making BC self-sustainable through its clean energy projects.<sup>20</sup>

In addition to supplying power to the province, BC Hydro has taken measures to diversify itself through subsidiaries. *Powerex Corp.* is one of its subsidiaries and operates in a niche market supplying wholesale energy products and services in both Canada and the US. The other subsidiary is *Powertech Labs*, which provides testing, consulting and research services to the electric and natural gas industries. This company provides analysis, testing, and consulting services to customers in North America and internationally. BC Hydro has diversified into businesses that complement their main operations.<sup>21</sup>

### **Corporate Governance**

The activities of BC Hydro are monitored by the BC Government as well as Legislation, specifically the *Hydro and Power Authority Act*. BC Hydro reports to the *Ministry of Energy and Mines* on their progress and activities. In addition, the *BC Utilities Commission* (BCUC) – an independent regulatory body – regulates and approves many of the company's actions, including any proposed rate increases.

## Goals and Strategic Objectives

With the *Clean Energy Act* in place, one of BC Hydro's goals is to *create a sustainable energy future* in BC. In line with this goal, BC Hydro aspires to *foster economic development* through a creation of innovative projects and practices. In addition, the company aspires to *reliably and safely meet the needs of its customers* through proper planning, technology and advancing its systems. Since the customers, suppliers and First Nations play a large role in BC Hydro's business, the company hopes to *build relationships* and gain support for its operations. Finally, through cost management BC Hydro hopes to *maintain its competitive rates* to generate increased value for BC.

## The Facilities

The company now operates 31 hydroelectric facilities and three thermal generating plants. Most of the facilities are located throughout B.C. The company delivers its energy through a series of networks. With over 18,500km of transmission lines and 57,648km of distribution lines, BC Hydro has built an enormous distribution network. The transmission system connects with Alberta and Washington State to improve reliability and allows for possible trade.

In efforts to innovate, enhance services, and advance its systems, BC Hydro has implemented a *Smart Metering* program. This program aims to replace roughly 1.8 million meters with modern technology. The purpose of this new device is to reduce electricity theft, improve efficiency, and reduce wasted electricity. It also helps BC Hydro to restore power to its customers faster after various natural disasters. These Smart Meters will also serve as a resource for customers to track their energy use and allow them to save money. The Smart Meter program enables BC Hydro to provide enhanced services and increases its customer satisfaction.

## 4. MAIN STRATEGIC CHALLENGES<sup>22</sup>

As a Crown Corporation with a mandate to generate, manufacture, conserve, supply, acquire, and sell power to meet British Columbians' growing demand for electricity in cost-effective and reliable manner, BC Hydro undoubtedly faces numerous strategic challenges. The utility serves 95 percent of B.C.'s population and must deliver electricity at competitive rates to its 1.9 million residential, commercial, and industrial customers; considering the vastly different energy needs of these customer classes, coupled with the realities of a constrained system, strategic trade-offs are a necessary part of BC Hydro's business.



Importantly, BC Hydro must ensure its choice and scope of strategy conforms to its mandate and regulations, as well as to constantly changing government policies, instructions, and expectations. At the same time, as a government organization, BC Hydro must carefully manage relationships with its various stakeholders—oftentimes with competing demands.

Perhaps the greatest strategic challenge facing BC Hydro in recent years has surrounded the effort to strike an appropriate balance between investing in the province's energy future while keeping rates affordable for customers.<sup>23</sup>

### *Meeting the Growing Demand for Electricity*

As a result of industrial activity and general economic and population growth, B.C.'s provincial electricity needs are forecast to grow by as much as 40 percent over the next two decades. BC Hydro must therefore engage in significant scanning, monitoring, forecasting, and planning activities.

With the province's new goal of attaining self-sufficiency by 2016, BC Hydro's task is complicated as it can no longer rely on electricity imports to augment domestic supply. This, coupled with *Clean Energy Act* directive to reduce greenhouse gas emissions (removing cheaper, more abundant sources of energy such as natural gas or coal off the table) results in a growing gap between electricity demand and supply, and a costly need to reinvest in BC Hydro's ageing infrastructure.

With new opportunities and business avenues emerging in the relatively near future – including liquefied natural gas export development, as well as the growing demand for electric vehicles – BC Hydro's strategy must anticipate and forecast these significant future loads on the system, as well as take advantage of related revenue opportunities.

### *Managing Impacts on Customer Rates*

The *Clean Energy Act* requires BC Hydro to reduce greenhouse gas emissions and secure power from clean and renewable sources. As well, British Columbia's economy depends on a reliable electricity supply, which requires billions of dollars of capital expenditures into an electricity system in need of renewal and upgrade.

The challenge emerges in that BC hydro must balance these costly requirements and objectives with the need to keep customer rates affordable. In fact, the cost of new electricity supply is more expensive than power from existing resources, implying that every new customer that connects to BC Hydro's system places upward pressure on rates. So, whereas a typical business looks to attract as many customers as possible, BC Hydro faces significant

challenges in connecting new customers (including, oftentimes, the need for costly new infrastructure), and actually promotes conservation of its product: electricity!

### **Government Review**

A recent government review of BC Hydro rejected and lowered BC Hydro's proposed rate increases, instead placing focus on inefficiency and the potential for restructuring and cost-cutting measures within the organization, making it even more imperative to find alternate strategies to manage rate burdens on BC Hydro customers.<sup>24</sup>

### ***Managing Relationships and Competing Stakeholder Demands***

BC Hydro has regulatory and legal requirements for First Nation consultation. In order to manage and reduce legal, financial, and operating risks – including claims of historic grievances, land claims, environmental concerns, and First Nation opposition to major capital projects – BC Hydro must expend significant time and resources up-front to maintain a comprehensive aboriginal relations program and build mutually-beneficial relationships.

Aboriginals, host communities, and environmental groups express concerns over the environment, safety, and corporate social responsibility on the part of BC Hydro. The recent installation of Smart Meters was faced with public outcry over health and privacy concerns, while the Site C Dam has faced enormous environmental opposition—despite the necessity of these projects to modernize the province's aging system and supply energy to meet demand.

Meanwhile, industrial, commercial, and residential customers expect reliable electricity supply, but at affordable rates. Of course, maintaining system reliability places upward cost pressures on rates.

Finally, BC Hydro must act in accordance with its mandate and BCUC regulations, all the while anticipating the direction of ever-changing government objectives and directives.

### ***Fostering Economic Development***

One of BC Hydro's newest strategic objectives is to *Foster Economic Development*. Reliable electricity supply is a vital component of many major industrial projects – including mines and liquefied natural gas export development – which create thousands of jobs and potentially billions of dollars of revenues for the Province. Thus, BC Hydro must ensure that it does not act as a barrier to economic development; this in-and-of-itself involves significant challenges and creative payment and cost allocation solutions in order to build the infrastructure required to supply electricity to constrained areas of the system, without adversely affecting residential customer rates.<sup>25</sup>

## 5. FOOTNOTES

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- <sup>23</sup> BC Hydro Annual Report 2012, pg. 3.
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