Chair, BCUC Review Panel
Victoria, BC

August 28, 2017

Re: Submission: BCUC Site C Review – via email

Dear Sir,

The scope of BCUC's review includes answering several key questions about the project, namely:

a. whether the project is on time and within budget;
b. the cost to ratepayers of suspending the project;
c. the cost to ratepayers of terminating the project;
d. what portfolio of generating projects and demand-side management initiatives could provide similar benefits; and
e. what are expected peak capacity demand and energy demand.

This submission is mostly concerned with items b, d and e of these questions, and offers information on the closely-related question of whether BC needs, or, in the foreseeable future, will need any of Site C's energy to fulfill BC Hydro's public mission – to provide reliable, affordable, clean electricity throughout B.C., safely.

The fundamental issues facing the Panel in this matter are:

1. BC's future need for electrical power;
2. whether building a capital-intensive Site C dam is the most cost-effective means of meeting that need and;
3. what will be the effect of a decision to cancel or suspend the Site C project on consumer electricity rates.

The information following will attempt to show that

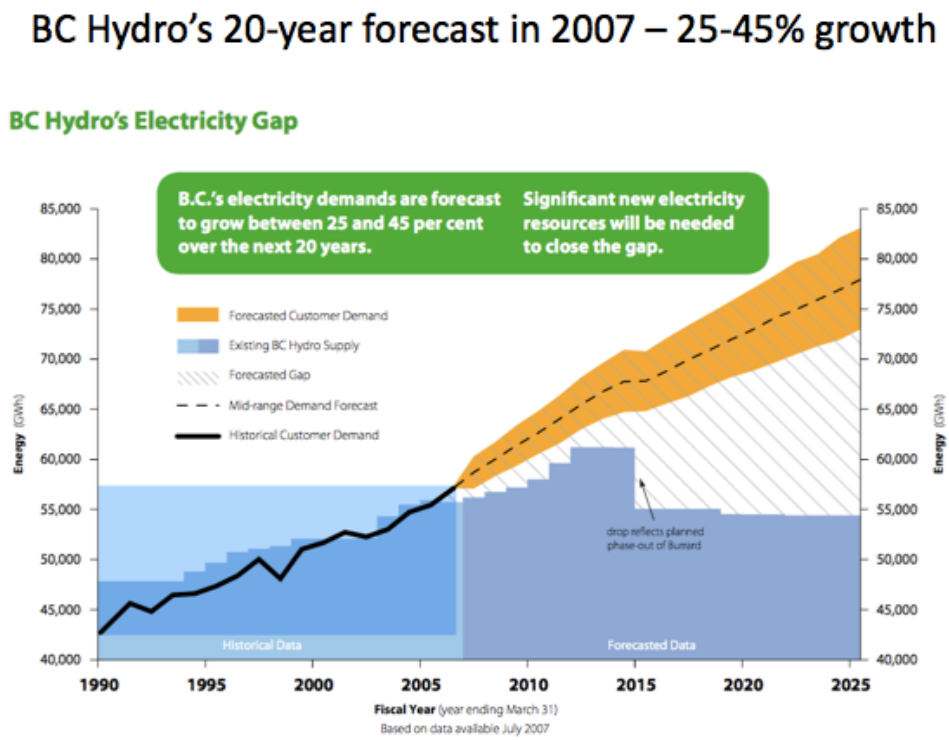
- BC is highly unlikely to need Site C's power;
- Even if it did, several more cost-effective sources of new energy are available; and
- Cancelling Site C would be a first step toward the much-needed goal of restoring BC Hydro to financial health.

Discussion of Issues

1. BC's future need for electrical power:

BC Hydro's argument for Site C is founded on its projection that BC will need the 900-1,100 MW/ 4.6-5.1 GWh of annual power that an operational Site C would produce. It further argues that, were the power not needed by the operations-ready date of 2024, then demand growth would require it early into the 7+ operational decades thereafter. In its 2007 projection, shown in Figure 1 following, BC Hydro suggests that BC-wide demand growth will be of the order of 2% per annum – amounting to 25-45% demand growth over the 20 year period to 2037. Figure 2 following shows a consistent pattern of demand over-projection. While it is prudent for any electrical utility to guard against capacity shortfalls, instituting large capital projects on the basis of flawed projections is unwise.

Fig. 1 BC Hydro's forecast for Electrical Power Demand in BC – to 2040



Even the actual demand figures published in its own reports have not deterred BC Hydro from persisting in rosy demand projections. As shown in Fig. 2 below, BC Hydro has been consistently over the mark in its projections. Clearly, BC Hydro's demand forecasts have a less than sterling record for accuracy-demand is always hugely over-forecasted.

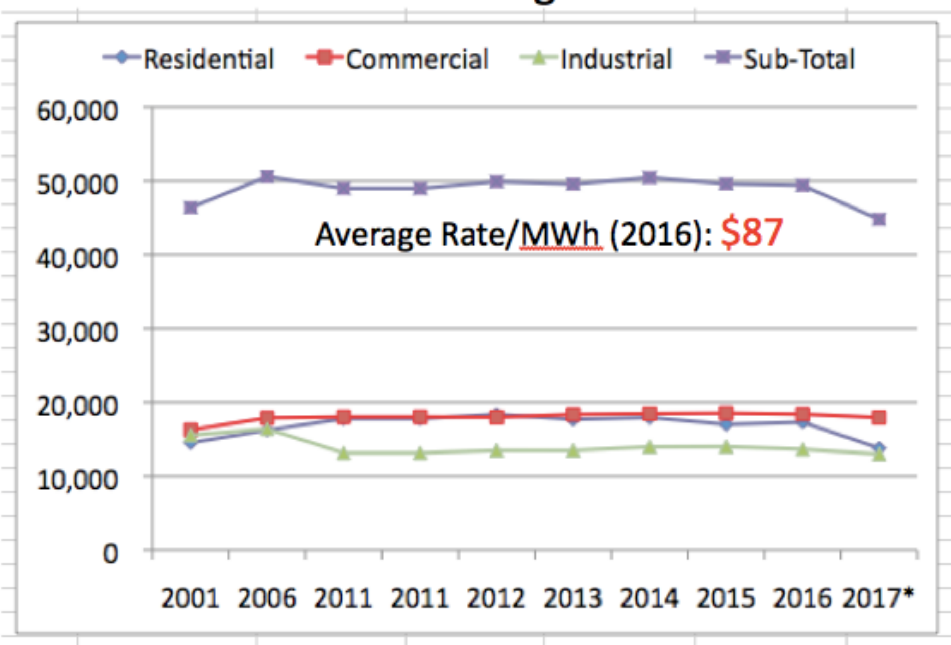
Fig. 2 BCHydro's Power Demand Projections[1] – a historical perspective

In 1994, BC Hydro said BC demand for electricity would grow 52% by 2004. It grew 18%.
In 2005, BC Hydro said demand would grow 20% by 2016. It grew 0%.
In 2011, BC Hydro said demand would grow 20% by 2016. It grew 0%.
In 2012, BC Hydro said demand would grow 9% by 2016. It dropped 1%.
In 2017, BC Hydro says demand "is expected to grow – almost 40% over the next 20 years."

The problem with BC Hydro's future demand prediction is that it is greatly at odds with local demand experience over the past 15 years (2001-2017). As shown in Figure 3 following (sourced from BC Hydro's published annual reports), electrical power demand in BC **<u>has been near-constant over the past 15 years</u>**, despite an increase of over 545,000 in BC's population (and over 392,000 additional accounts, 365,000 of them residential) in that interval.

[1] Source: BC Hydro – Annual Revenue Requirements Plans 2001-2017

Fig. 3 Electrical Power Demand in BC 2001-2017



This has led to the current situation, where , in the past 3 years, BC Hydro has reported electrical energy exports roughly equivalent to site C's output – mostly to the U.S. - via the Mid-Columbian spot market hub[2]

Fig. 4 Electrical Power Demand in BC -by sector 2001-2017

Fig. 4 BC Hydro: Power consumption per Customer a/c (MWh p.a.)			
Year	Residential	Commercial	Industrial
2001	10.30	90.21	118,878
2006	10.76	94.40	112,521
2011	10.76	92.38	79,301
2012	11.01	91.02	80,488
2013	10.48	91.93	78,535
2014	10.51	91.67	79,062
2015	9.87	91.24	76,612
2016	9.90	89.59	73,886
2017	10.17	91.28	68,990
Change (2001-2017)	(1.3%)	1.2%	(42.0%)

Closer analysis of these (overall) flat-demand figures reveals that, though overall electricity demand has been near-constant, sector demands have not. Figure 4 opposite shows that the decline in per-customer demand in the industrial sector has been large and consistent (and not, as BC Hydro suggests, surging and declining with cyclical commodity price swings),

BC Hydro admits that its current surplus is large and must be exported to help offset the costs of generating it. Its 2017-19 Revenue Requirements Report[3] states: "*Surplus sales are expected to be 4,962 GWh, 5,556 GWh and 4,517 GWh for fiscal 2017, fiscal 2018 and fiscal 2019, respectively, as shown on Appendix A Schedule 4.0, line 6. Surplus*

[2] *Source: EIA (https://www.eia.gov/electricity/wholesale/#history)*

[3] *https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/revenue-requirements/f17-f19-rra-20160728.pdf*

sales are not net of market electricity purchases which, as mentioned in section 4.4.1.2 are expected to be 230 GWh, 747 GWh and 934 GWh for fiscal 2017, fiscal 2018 and fiscal 2019, respectively[1]*"*

BC Hydro reports a total available generating capacity of 73 TWh ('000 GWh). Yet its domestic demand has been around 50 TWh for more than a decade. This surplus greatly exceeds the 5-15% capacity margin required to avoid brownouts in the springtime peak demand days. Note that at least 70% of this power is dispatchable.

The foregoing figures suggest a long-term decline of BC's industrial base and energy usage as forestry, mining and oil & gas sectors lose ground to lower-cost regions. BC Hydro's own forecast figures for these sectors show the consistent over-projections, but these are not reflected in overall demand projections, despite the sector's 28% demand share (but, at a mere 193 customers, only 0.1% of the total account base).

BC Hydro's projections of demand growth stand in stark contrast with forecasts for peer-group electric utilities. PriceWaterhouseCoopers, in its "2017 Power and Utilities Trends" report stated that: *"Everywhere in the industrialized world, the electric power and utilities sector finds itself pulled to economize and pushed to innovate — two goals that might seem to conflict, but that are actually in harmony. The pull comes from a prolonged downturn in consumer energy revenue on both sides of the Atlantic.* ***End-use electricity consumption declined in 22 out of 28 E.U. countries between 2005 and 2014, according to Eurostat. In the U.S., the Energy Information Administration (EIA) reports that the electricity sales growth rate since 2002 has hovered around 1 percent or less per year, and demand has declined in five of those years.*** *That's a steep drop from growth rates that were well above 2 percent for much of the 1980s and 1990s. The rise in demand for electricity has been consistently lower than general economic growth in recent years"*[4]

Furthermore, the U.S. Energy Information Administration (EIA), in its 2017 Annual Energy Outlook[5], stated that ***"Despite growth in the number of households and the amount of commercial floorspace, improved equipment and efficiency standards contribute to residential and commercial consumption remaining relatively flat or declining slightly from 2016 to 2040 in the Reference case"*** [6]

It is therefore apt to ask why BC Hydro's demand projections be consistently so far off-the-mark – they are entirely germane to the question of whether Site C's power is needed or not. At least three reasons can be advanced:

1. De-industrialization
2. Appliance efficiencies
3. Demand Elasticity

Examining each of these is informative in regard to why BC Hydro's forecasts are chronically over the mark.

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[4] Source: *2017 Power and Utilities Trends, PriceWaterhouseCoopers, https://www.strategyand.pwc.com/trend/2017-power-and-utilities-industry-trends*

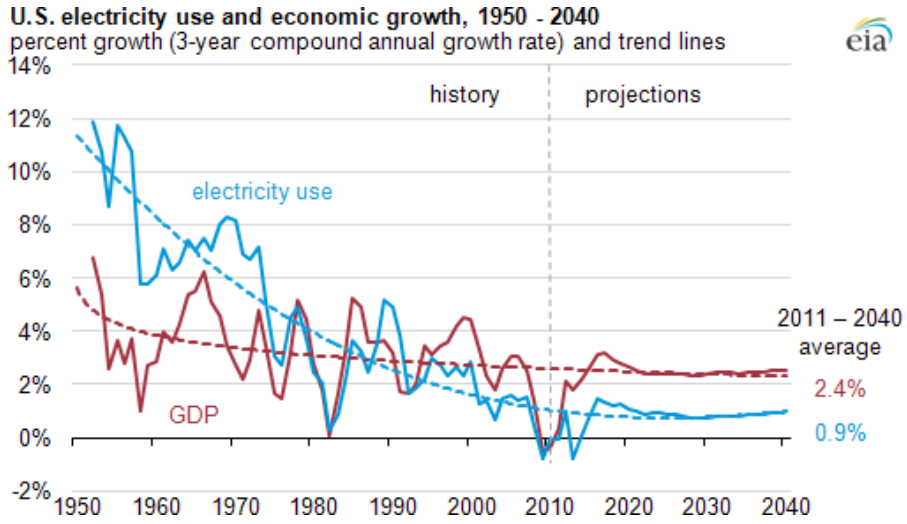
[5] *https://www.eia.gov/outlooks/aeo/*

[6] *Source: https://www.eia.gov/pressroom/presentations/sieminski_01052017.pdf*

1. De-Industrialization: Since the recession of 2008, BC has been de-industrializing – mostly in the mining and forestry segments that constitute most of BC Hydro's large-account base. Losing the industrial segment of BC Hydro's customer base has heavily eroded demand for grid electricity – from a total of 15,573 GWh (131 accounts) in 2001 to 13,177 GWh (191 accounts) in 2017- a 15% decrease. Assuming a steady-state customer base- especially in the industrial segment - is likely the #1 cause of error in BC Hydro's demand forecasting. Figure 4[7] illustrates this point – note particularly the steady and steep decline (42% between 2001 and 2017) in the .per-customer demand in the industrial sector.

2. Appliance energy efficiencies: Increasing energy efficiencies, particularly in buildings, lighting and household appliances (which use newer, more-efficient, electric motors) are changing the previous correlation of energy consumption population and economic growth . The EIA[8] has published a report of the reasons behind this de-coupling, as shown in Figure 5 below.

Fig. 5 Electrical Power Demand and Economic Growth (US)



3. Demand Elasticity: BC Hydro's use of an across-sector -5% demand elasticity factor is also at odds with peer-group utilities (who typically use a larger 15-27% number for their industrial-sector demand projections). This suggests that (i) the sector is particularly sensitive to rate increases and (ii) that BC Hydro's use of the -5% number needs changing and (iii) this may account for much of BC Hydro's consistent over-estimation of local demand. As industrial power rates in BC have increased 61% over the past 10 years, using a -5% elasticity figure for forecasting demand in a sector with other viable alternatives is indeed questionable, especially in view of the 42% decline in per-customer demand.

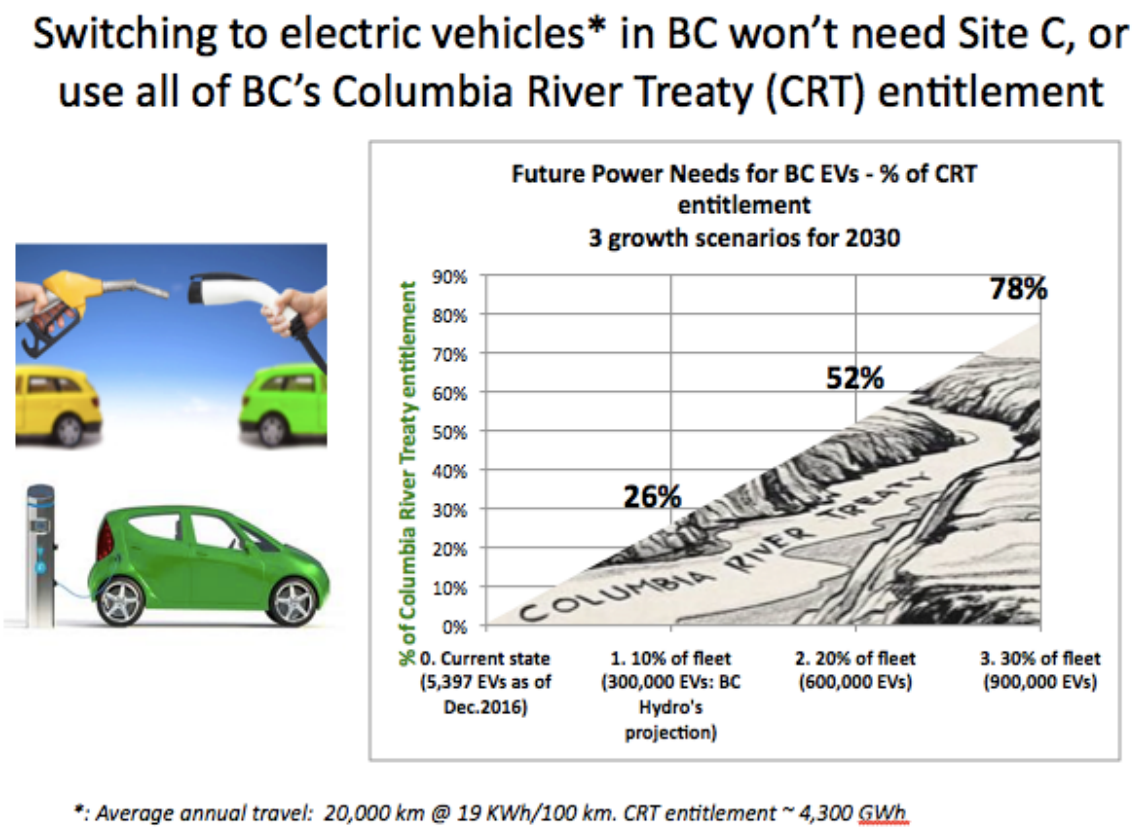
Against this overall steady-state picture of future energy demand, there is one potential factor which could increase local demand for grid electricity. Sales of electric vehicles (EVs) - now constituting less than 0.2% of BC's 3M+ passenger vehicle fleet – are expected to grow rapidly as the range and re-charge times afforded by their batteries improves and climate targets

[7] *Source: BC Hydro – Annual Reports 2001-2016*
[8] *https://www.eia.gov/todayinenergy/detail.php?id=10491*

require larger efforts to reduce burning of fossil fuels. BC Hydro forecasts[9] for electricity demand from electric vehicles are included in the residential and light industrial/commercial sales projections. Electric vehicle demand is projected to be less than 50 GWh per year and estimated total number of electric vehicles (i.e., total stock) is about 6,000 in fiscal 2017 and about 11,000 in fiscal 2019.

Fig. 6 Electrical Power Demand by BC EVs

Beyond the test years, electric vehicle load is forecast to be about 70 GWh per year in fiscal 2022, about 430 GWh per year in fiscal 2027 and1,760 GWh per year by fiscal 2036. The forecast of the total number of electric vehicles is about 30,000 in fiscal 2022, about 164,000 in



fiscal 2027 and about 580,000 in fiscal 2036.

As shown in Figure 6 above, BCHydro's 2030 projection of 300,000 EVs would consume ~ 26% of BC's 4,300GWh entitlement from the Columbia River Treaty (and less than 20% of 2017 power exports or Site C's 5,100 GWh capacity). The argument that BC will need a Site C to power EVs is therefore specious[10].

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[9] *Source: BC Hydro 2017-19 Revenue Requirements July, 2016*

[10] *BC's Clean Energy Act (Chapter 22) contains an impediment to the use of the Columbia River Treaty entitlement. It states that "The authority must achieve electricity self-sufficiency by holding, by the year 2016 and each year after that, the rights to an amount of electricity that meets the electricity supply obligations solely from electricity generating facilities within the Province*[10]*.*

Based on the facts outlined above, it is highly unlikely that BC will need Site C's power. BC Hydro's shaky projections are certainly not the basis for spending $9 Billion of public money.

3.. Alternatives to Site C

At an estimated $9 Billion (not including the estimated $1B tie-line infrastructure required to transmit the power to likely customers), Site C is the most expensive public capital project ever launched in BC. Despite this, the project has proceeded to this point without any of the scrutiny such a project would normally receive.

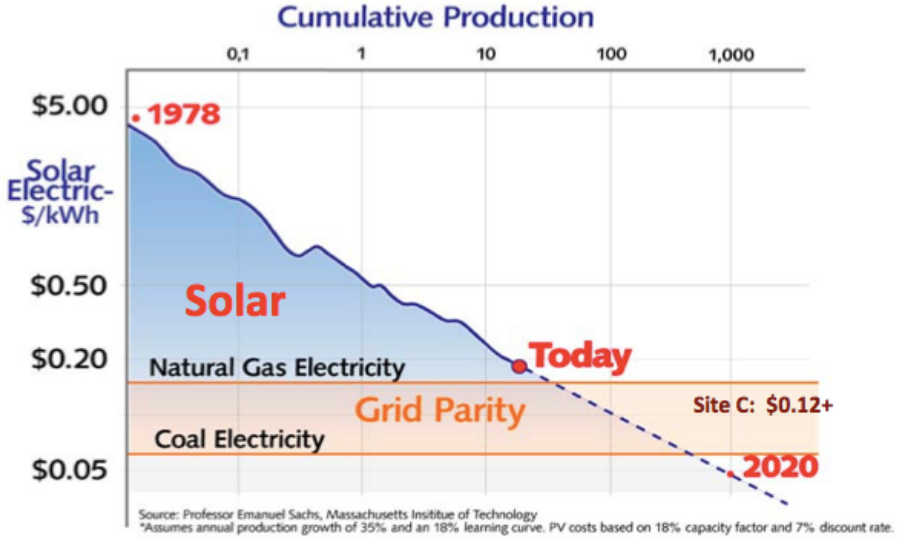
Leaving aside the evidence demonstrating the lack of a need for such a project, the Site C project has not adequately looked at alternatives for supplying grid power to British Columbians. It has failed to answer the following question : "Is Site C the best alternative for producing needed electrical energy?".

BC has a wide variety of alternative power sources, including:

- Conservation and energy efficiency;
- Renewables (Wind, Solar, Geothermal);
- Columbia River Treaty (BC's entitlement is 80% of Site C at ~$25/MWh market rate; and
- •Gas Peaking Plants (Burrard Thermal, Elk Falls)

Several recent reports (IEA[11], Lazard[12], MIT, Oilprice.com[13]) have highlighted that we are at the point of "grid parity" between costs for solar renewable and gas and hydro generation, and approaching grid parity with coal, the cheapest, most-polluting form of power generation.

Fig. 7 Relative costs of solar, gas and coal powered generation



Current trends in the cost of renewable-power (solar, wind, geothermal and bio-energy) alternatives point to an energy future consisting of a diverse mix of hydro , solar and wind

[11] *http://www.iea.org/publications/freepublications/publication/technology-roadmap-solar-photovoltaic-energy---foldout---chinese-version.html*

[12] *https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf*

[13] *http://oilprice.com/Energy/Energy-General/Wind-Energy-Now-Directly-Competing-With-Coal-On-Cost.html*

power sources, local-area and remote power generation and load-sharing . These will be combined with smart networks for sharing and account reconciliation. And BC Hydro, along with other utilities, will need to diversify its mission into being an energy provider with a large stake in associated customer services supporting the load-sharing and optimization of those diverse energy sources. Parts of Europe are already far advanced into this future energy scenario, which is driven in part by the need to reduce fossil-fuel consumption[14].

[14] *B.C. Hydro has all but ignored these renewable sources. Its solar-generation supply is around .03 per cent of total generating capacity — far below California's (five per cent), Hawaii's (eight per cent, with a target of 40 per cent by 2030) and Germany's (six per cent). Wind energy is about four per cent of B.C. Hydro's IPP portfolio, a fraction of Texas's (13 per cent), Ireland's (25 per cent, with a target of 100 per cent by 2030), Britain's (17 per cent) and Germany's (12 per cent).*

3.. Site C - effects on BC Hydro customers

The $9 Billion Site C is BC Hydro's first major dam construction project since the Revelstoke dam some 30+ years ago. BC Hydro's more recent experience – running massively over budget on the NorthWest Transmission line – is not an encouraging sign that Site C will be completed on budget. Equally discouraging are other-province dam projects – Keeyask in Manitoba and Muskrat Falls in Newfoundland-Labrador – which are both massively over budget and behind schedule. Even assuming that Site C can be brought in on budget, the likely cost of its power will be far greater than that from heritage dams. Fig. 8 below shows a simple pro-forma cash-flow analysis[15] of the project with three separate scenarios regarding the eventual market for its power. These and other analyses[16], [17] show a bleak business case for Site C.

Fig. 8 Site C pro-forma analysis – 3 alternative scenarios

Site C: Simple Pro-Forma Analysis - 3 demand alternatives

Alternative ->	A Break-Even	B Price to LNG	C NW Spot Price
80 Year Analysis Pricing ($CAD per MWh)	**$121**	**$54**	**$30**
Power Produced (GWh)	362,100	362,100	362,100
Revenues ($ Billions)	**$43,814**	**$19,553**	**$10,863**
Capital Cost*	$ 9,900	$ 9,900	$ 9,900
Maintenance Cost @ 2.5% p.a.	$ 15,145	$ 15,145	$ 15,145
Interest Cost @ 3.48% p.a.	$ 17,573	$ 17,573	$ 17,573
Total Costs ($Billions)	**$ 42,617**	**$ 42,617**	**$ 42,617**
Net Income (Loss)	**$1,197**	**($23,064)**	**($31,754)**
Net Income (Loss) NPV	**$67**	**($18,848)**	**($25,624)**

** Includes $1B tie-line infrastructure*

Scenario A in Fig. 8 estimates the break-even cost of its power over the next 80 years (incl. 9 construction years). This is estimated to be around $121/ Megawatt-hour (MWh). Given BC's flat demand for power (see previous discussion), Alberta would be the only possible Canadian market for Site C's power at this price. However, Figure 9 following shows that BC would not be low-cost supplier, and BC retail rates are generally higher that those in Edmonton and Calgary– making it likely that the power would be sold at a loss if Alberta is to be its customer.

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[15] *This analysis is purely financial. Other less-tangible factors — the loss of 5,000 hectares of agricultural land, environmental damages, loss of indigenous rights and culture, opportunity costs or other uses for scarce capital, alternative employment opportunities for Site C labour, financial stability of B.C. Hydro, and restoring the role of regulator BCUC — are also considerations in evaluating the path forward. But the business case is arguably the most pressing concern.*

[16] http://vancouversun.com/opinion/opinion-to-site-c-or-not-to-site-c *Note the statement that "What my analysis suggests is that if, in stopping Site C, up to $6.5 billion of the $9.9 billion were to be unrecoverable — what business calls "sunk costs" — that would be the so-called "point of no return", where the business cases for completing or stopping Site C would be equally unattractive."*

[17] *R. Hendriks, P. Raphals and K. Bakker, "Reassessing the need for Site C," Program on Water Governance, University of British Columbia, 2017, pp. 13-27*

Fig. 9 Comparable Large-customer Electricity Rates - Canada

LARGE POWER CUSTOMERS
Average Prices on April 1, 2015 (in $/MWh)

Power demand Consumption Voltage, Load factor	5,000 kW 2,340,000 kWh 25 kV 65%	5,000 kW 3,060,000 kWh 25 kV 85%	10,000 kW 5,760,000 kWh 120 kV 80%	30,000 kW 17,520,000 kWh 120 kV 81%	50,000 kW 23,400,000 kWh 120 kV 65%	0,000 kW 30,600,000 kWh 120 kV 85%
Montreal	57.60	51.70	50.00	49.70	54.00	49.00
Toronto	92.80	92.20	57.00	56.40	60.50	55.50
Winnipeg	50.80	46.70	40.80	40.70	43.30	40.20
Calgary	50.40	47.60	48.00	47.80	50.10	47.40
Edmonton	76.10	69.70	44.70	43.20	45.70	42.20
Vancouver	**75.80**	**70.40**	**59.30**	**59.10**	**62.50**	**58.40**
Average	*67.25*	*63.05*	*49.97*	*49.48*	*52.68*	*48.78*
Vancouver - Edmonton Difference	*($0.30)*	*$0.70*	*$14.60*	*$15.90*	*$16.80*	*$16.20*

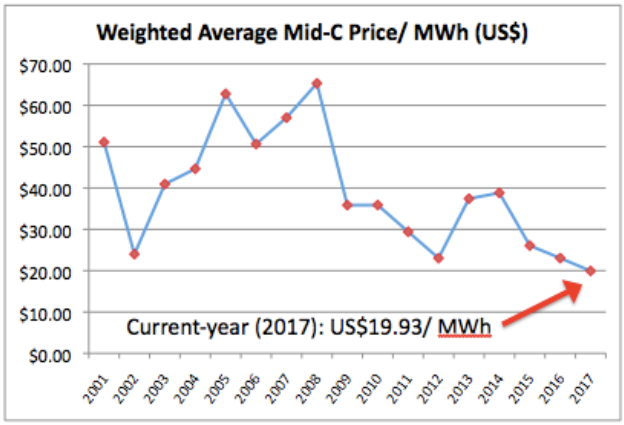
*: Source: http://www.hydroquebec.com/publications/en/docs/comparaison-electricity-prices/comp_2015_en.pdf

Scenario B (Fig. 8) shows that, if Site C's power is sold – at the discounted "eDrive" rate[18] (~$54/ MWh, promised by the previous BC Liberal Government) to the ill-advised[19] and unlikely[20] BC LNG industry, it will generate a loss to BC taxpayers of around $19 billion.

Scenario C (Fig. 8) shows what happens if , lacking any local or Albertan demand for Site C's power, it is wholesaled into the U.S. NorthWest grid at spot prices. The entry point for BC power is the Mid-Columbian ("Mid-C") hub, and Figure 10 below shows the recent history of Mid-C spot electricity prices, which have been depressed by a growing surplus of U.S. power. The trend - to lower prices - is especially worrying for BC Hydro.

Fig. 10 Mid-C Weighted-Average Spot Electricity Rates – 2001-2017 mid-year

Year	Weighted Average Mid-C Price/ MWh (US$)
2001	$51.09
2002	$23.99
2003	$40.93
2004	$44.64
2005	$62.79
2006	$50.63
2007	$57.00
2008	$65.32
2009	$35.85
2010	$35.88
2011	$29.42
2012	$23.03
2013	$37.42
2014	$38.82
2015	$26.06
2016	$23.04
2017	$19.93
Average	***$39.17***



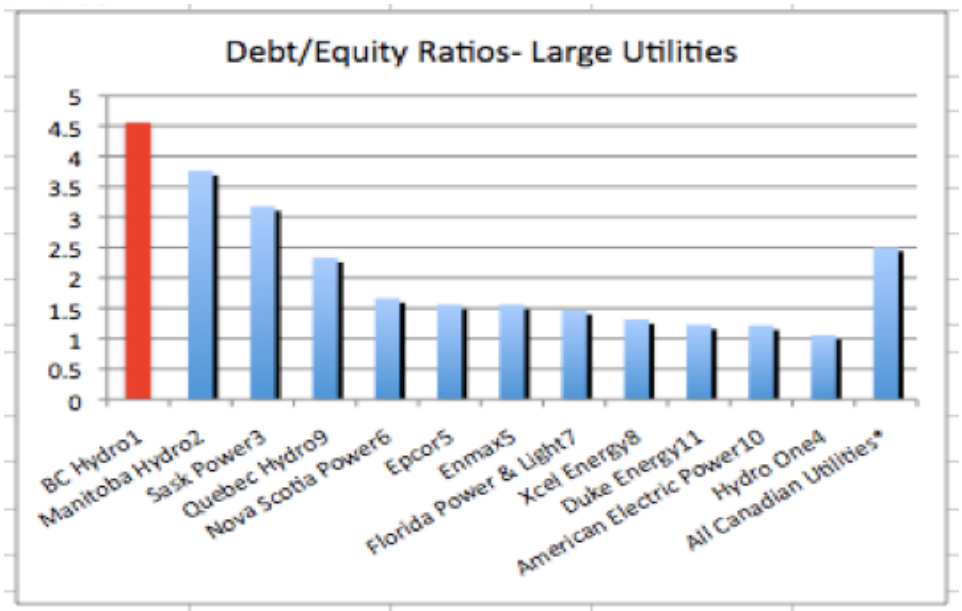
Source: EIA (https://www.eia.gov/electricity/wholesale/#history)

[18] *https://thetyee.ca/Opinion/2016/11/16/BC-LNG-Power-Bills/*
[19] *http://cwf.ca/news/commentaries/b-c-needs-to-manage-lng-risk/*
[20] *The previous government had hopes for the rapid growth of an export LNG industry, but these appear to have been dashed for at least a decade to come. One small ,highly controversial, electricity-powered project has been licensed for Howe Sound. FortisBC's facility at Tilbury Island also made a request for grid power supply. Elsewhere, prospects for a BC LNG industry are dim. The LNG industry generally prefers to power its facilities with its own gas- a practice that is hardly discouraged by BCs anaemic carbon tax regulations for LNG plants.*

At current rates, selling Site C power into the U.S. at Cdn$30/MWh, would result in a loss, over 80 years, of over $25 Billion (about $320 million annually, or around 7% of BC Hydro's domestic revenues). Were this to occur, BC taxpayers would be on the hook for this loss, and resulting rates would have to rise by at least 7% to cover the loss. Lacking any surge in local demand from any of its three major segments, this is by far the most likely market scenario for Site C's power. The implications – for customers, for triggering a further drop in electricity demand, for loss of competitiveness of cost-sensitive BC resource industries – are significant.

No analysis of the implications of Site C for BC customers would be complete without consideration of BC Hydro's current financial position. The corporation will have, by the end of the decade, a massive accumulated deficit of some $23 Billion[21], and currently has additional contractual obligations of some $57 Billion[22], mostly to the IPP sector, from which it currently sources about one-third of its energy, at an average cost of ~ $87/MWh, (which affords BC Hydro no retail margin at all to cover its distribution and admin. costs). BC Hydro has been using (under provincial cabinet direction) a unique and non-standard accounting system which masks the fact that BC Hydro is borrowing to pay hefty dividends to the Provincial Government. The system, which is incompatible with either GAAP or IFRS standards, allows BC Hydro to bring forward future revenues and defer current expenses into future periods. The effect is to mask losses accumulating in BC Hydro' accounts. A secondary, and more serious, effect is the threat that the Province's credit rating will be downgraded as a consequence of such fiscal imprudence. As shown in Figure 11 following, BC Hydro's debt-to-equity (D/E) ratio is the worst[23] of any major North American utility, and worse than the average for Canadian utilities.

Fig. 11 Debt-equity ratios – large North American utilities



The BC Government had set a ceiling D/E ratio of 4.5 for BC Hydro, but has recently had to allow it to (temporarily?) exceed that (to 4.55. That ratio means that, for every $1 of assets it

[21] *http://vancouversun.com/opinion/columnists/vaughn-palmer-b-c-s-debt-load-puts-aaa-rating-at-risk*
[22] *Source: http://www.fin.gov.bc.ca/ocg/pa/13_14/Contractual_Obligations.pdf*
[23] *Sources: Annual reports*

owns, BC Hydro owes $4.55, a staggering figure that would have most companies declared insolvent). Government has, albeit vaguely, instructed BC Hydro to plan to bring its D/E ratio into line – at 1.5 - with peer-group utilities. But BC Hydro's 2016 revenue requirements report offers little if any hope that the corporation plans to do that. The consequences of "facing the music" would be severe - were BC Hydro to right its financial ship to a 1.5 D/E ratio within , say, 10 years, a rough calculation implies rate increases of at least 33%. Over 20 years, the rebalancing required to put BC Hydro back on a sound financial footing would require a 16% rate increase, with either added to the 7% required to offset selling Site C's power at a loss into the U.S. market. Either action would be hugely problematic for all segments of BC's economy, especially those of them that are heavily reliant on inexpensive electrical power.

It is axiomatic to state that a utility in such a precarious fiscal condition should avoid embarking on large long-term capital projects with dubious economic returns, especially in the face of an imminent technological revolution in the energy industry.

4.. Summary:

The author hopes that the foregoing serves to demonstrate that:

- BC does not have a current or prospective need for Site C's power;
- Should BC develop such a need, there are better, lower-cost, less environmentally-destructive alternatives for supplying it and;
- Building Site C would have serious consequences for BC taxpayers and the competitiveness of BC's economy.

BC taxpayers do not need or want a project that would impose an intolerable and unacceptable cost burden on its taxpayers for many years to come. The BC government does not need the financial burden that the exacerbation of BC Hydro's financial situation portends. Neither does the BC economy need the negative macroeconomic consequences of higher electricity rates that would certainly result form building and operating Site C.

The option to suspend the project, rather than cancel it outright, is certainly not a desirable option. It would be unfair to Peace Valley residents and local First Nations to impose on them a state of uncertainty for the next decade or two. The uncertainty would arguably stifle economic development of the Valley's largely-agricultural economy, undermine the purposes of the ALR, place further uncertainties in the way of BC developing its renewable-energy assets and impose large costs on BC Hydro to maintain the site in its present unstable form.

The bottom line is simply stated. Flushing such large already-expended sums down the drain would be painful, not least for those currently employed there. So too would be proceeding to build a dam to produce expensive power nobody needs, and taxing B.C. Hydro's customers to bear the risk and pay the bills in the form of large rate hikes. Any prudent regulator would, facing the risk of significant public losses from this ill-conceived Project, order a stop to it until and if a solid economic case were made for it. To date, neither BC Hydro nor the BC Government have made any credible case for building Site C.

If, as it appears, we are on the wrong path with Site C, charging blindly ahead is no way to get where we need to go. Stop it.

I trust this material will be helpful for your deliberations.

Yours very truly

Eoin Finn B.Sc., Ph.D., MBA

Eoin Finn is a Vancouver resident, a director of the Pacific Electricity Ratepayers Association, and a retired partner of KPMG, a major accounting and consulting firm. He holds B.Sc. (Chemistry), Ph.D. (Physical Chemistry) and MBA (International Business) degrees and has over 30 years experience in Management Consulting, some of it as a Principal with IBM Consulting Group specialising in management advice to the Utilities industry.