

Name: Vern Ruskin

BCUC INQUIRY RESPECTING SITE C

F 26-5

Date: October 02, 2017

Subject: Site C Inquiry ---- Columbia River Treaty

Further to my verbal presentation in Vancouver on Sept 23, I didn't have enough time to fully submit my written talk.

Attached is the document I used to prepare for that talk

Sincerely

--

Vern

[REDACTED]

VERNON RUSKIN, PhD, MCom, BSc, Retired PEng (BC), PE(WA) Numbered Author

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File name BCUC Site C and Columbia River Treaty – Ruskin.doc

Dear Commission Secretary Mr. Wruck and Dear Erica Hamilton

SITE C - EXECUTIVE SUMMARY & CONCLUSIONS

IN REPLY TO YOUR QUESTION RE Columbia River Treaty (CRT) appendix B of the BCUC INTERRIM REPORT



Eisenhower and Diefenbaker signed The Columbia River Treaty (CRT) in 1961. It was ratified by Johnson and WAC Bennett in 1964.

HOW LONG CAN BC DEPEND ON CRT

Until at least 2040, the CRT is for next 23 years a sure supply of 4,100 GWhrs

Because there is a 6,200 MW power surplus in the US northwest, which is 6 times the size of Site C.

And during those 23 years BC Hydro/Powerex recycles over \$7 billion surplus US power that US power companies would otherwise lose.

Reductions below 4,100 GWhrs are impossible until 2030 (i.e. over 3 BC elections)

By US law any proposed reduction requires not only 10 years notice but also 2/3 majority vote in the US Senate which is difficult to get. e.g. over 12 years Obama and Trump couldn't get it.

WHY THE CRT IS GOOD UNTILL AT LEAST 2040

There is a 6,200 MW power glut (6 times the size of Site C) in the Northwest US, e.g. Oregon Senate legislated that the 5% wind power in 2011 grows to 50% wind power by 2040.

BC Hydro annual statements prove their Powerex department "trade" (Using 6% of Lake Williston reservoir on the Peace River), around 20,000 GWhrs per year' to recycle US surplus power that would otherwise be lost.

That power is worth around \$ 600 to 800 million per year, that US power companies would otherwise lose.

If BC NEGOTIATORS RESPECTFULLY AND CLEARLY POINT IT OUT;

'No US PRESIDENT, certainly NOT Trump, will ever stop US Power companies free trading with BC Hydro - Powerex, recycling their surplus power and make money instead of losing them \$2.4 Billion during his current 4 years TERM of Office.

Trump wrote: in Negotiations, Leverage is what the other party wants, or better needs, or best of all "can't do without"

Bottom-line

No US President “can’t do without” BC Hydro flood control for Northwest Americans.

And

“Can’t do without” BC Hydro recycling US surplus power, ensuring US companies make money instead of losing over \$ 2.4 billion.

The amount of surplus US power is legislated to grow until 2040. BC will not need to fear that The CRT and energy trading by Powerex will ever stop before 2040.

The treaty will never be cancelled

In 1944 during WW2 the US Army Corps of Engineers (USCE) were tasked with protecting Oregon which was threatened by Columbia River floods. So USCE initiated the CRT and CAN NEVER cancel it in view of flooding Port of Vancouver WA, New Orleans Louisiana, and Houston Texas.

The treaty will NEVER be cancelled by the US because they need flood control.

If Canada cancelled the CRT Canada WOULD BE accountable FOR DAMAGES in the US due to Columbia River Flooding.

BC needs CRT ELECTRICAL POWER, NOT MONEY

CRT physical electric power is essential to BC in emergencies and what the treaty and *Gen. McNaughton insisted on it, remembering WW2 (I spent 1year in London 1944)*

I respectfully submit to BCUC commissioners, BC Hydro, please do not forget (regardless of what political party you favor and want to get more votes), in emergencies, war, lightning, earthquakes, flood, mudslides, storms, hurricanes or terrorism FIRST: ELECTRIC POWER IS ABSOLUTELY NEEDED, WHILE MONEY becomes WORTHLESS.

The CRT is a US Federal treaty that Canadian citizens, homes, defense, police, hospitals, street lights and other public departments MUST be able to depend upon

whenever needed. Any BC law, like parts of Clean Energy Act denying Canadians physical access to that power should be struck in Federal Court or amended.

BCUC could ask a lawyer to investigate this very relevant issue and do it under the terms of this Site C inquiry.

Can CRT power be delivered to BC?

The treaty, in black and white specifies that the US must deliver power into two BC entry points, one near Vancouver, BC.

BC Electric Engineers built two heavy quadruple conductor high voltage tie-lines to Bonneville Power Administration (BPA). Dr Harry Ellis in my Planning Division especially designed high voltage tie-lines around 1956. In the US the tie lines tap into the HV lines from Grand Coulee to Seattle. Dr. Ellis designed the BC tie especially to suit.

If BC Hydro knows of any current obstacles (i.e. Seattle bottleneck?) to US delivery reneging the CRT terms, they must inform Feds in Ottawa, who will inform the US State Dept. BPA is an agency of the State Dept and would love any reason to justify money to beef up their transmission system.

Columbia River Treaty (CRT) (can supply 80% of Site C at low cost)

The CRT Entitlement:

BC Hydro/Powerex is “entitled” to 4,100 GWhrs generated in the US under the Columbia River Treaty (CRT).

Instead Powerex could sell it at around 1/3 the cost of Site C which is not cost effective.

DOWNSTREAM BENEFIT CALCULATIONS

One key fact is that the downstream benefits cannot be measured but must be hypothetically calculated.

In the horse-trading involved in the Treaty, both sides picked fine print terms for calculating the downstream benefits that are unreal, disputable, purely hypothetical, and sidetrack common sense.

No practical businessman would agree to THEORETICALLY COMPUTE, AND REPEAT IT EVERY YEAR, to predict the 30 years moving average flows due to weather, 5 YEARS IN ADVANCE, and estimate how big future loads will be 5 years hence under then unknown prevailing economic conditions.

The bad news is: Keenleyside's lawyer's fine print rules for the calculation of downstream benefits are like a computer game with arbitrary game rules such as:

BC will not count in the game the US storage dams that were actually built and are physically operating after the Canadian dams were built.

US will not count in the game 25% of the storage that is actually built and physically operating in Canada called "Non-treaty storage".

Canada's Keenleyside let lawyers crank in various fine print terms and picked controversial methods for calculating hypothetical benefits FIVE YEARS IN ADVANCE under all kinds of hypothetical assumptions which no one can possibly predict.

US negotiators got into picking terms that would shrink those Keenleyside's hypothetical benefits over time. e.g. depending on counting how much power how many windmills and thermal plants might be producing 5 years from now under then prevailing economic conditions, and winds blowing, in 5 years time.

Weather is ultimately the result of solar radiant energy impacting earth, sunspot cycles and all. Nobel prize winners Einstein and Keynes in heaven would laugh about predicting weather, rain and snow, the US economy, the number windmills, (which depends on US government subsidies), the unpredictable effect of the unregulated energy market on what plants will operate, where and how long, every year 5 YEARS IN ADVANCE, what hydro, thermal plants, windmills and solar plants will be producing, and how the whole power system will be operated IN 5 YEARS TIME.

For example for August 2010 through to July 2011, officials theoretically computed a 535.7 average MW = 4,962 GWhrs. It was calculated with many totally uncertain theoretical assumptions nobody knows 5 YEARS IN ADVANCE

But a figure around 4,100 GWhrs is a good estimate

Please NAIL DOWN UNIT ENERGY COST OF SITE C IN SERVICE

BCUC asks submitters for portfolios with equal or lower unit energy cost after it goes into service.

Therefore BCUC should please give submitters a reliable unit cost estimate from Deloitte what the unit cost of Site C is estimated to be AFTER it goes in service.

BC Hydro KEEPS giving a figure around \$87 npv (Net Present Value), KNOWING IT likely deceives or confuses most of THE LAY PUBLIC AND press and Ratepayers and politicians who are not accountants.

BC Hydro applies a 6% interest DISCOUNT AND 7 YEARS Future DELIVERY TODAY. But we need to know what is the \$/MWhr that ratepayers will in fact be charged for Site C power AFTER Site C goes in to service in 2025 (assuming it is on time)

(Including interest during construction plus all the huge deferred charges and including environmental and legal AND “SOFT” COSTS AND SITE C “SLUSH FUND”) that will be applied by BCUC when Site C goes into service).

President Eisenhower signed the CRT to build flood control dams in BC to prevent recurrence of floods, killing 15 Americans and wiping out the second largest town in Oregon. BC downstream benefit entitlement is calculated according to fixed rules five years ahead and does not vary with actual flows.

Can CRT power be delivered to BC?

Powerex regularly sends 20,000 GWhrs back and forth so
Sending 4,100 GWhrs is a relatively small amount.

I note the biggest wind power company in Oregon made a submission to BCUC offering to supply wind power to replace Site C at approximately \$50 per MWhr, which is much cheaper than Site C.

BCUC should note that offer supports my submission in two respects.

There is a huge wind power glut in the US Northwest

THERE IS NO PROBLEM Transmitting CRT 4,100 GWhrs POWER FROM THE US TO BC OVER THE BPA TRANSMISSION LINES.

I researched 4 options of transmitting the CRT power and wrote a book on CRT options, “Clean Energy Starvation in the Midst of plenty” ISBN 9781492222552. I was invited to the US State Dept in Washington DC on November 14, 2012, and to BPA in Portland OR on May 30 2013 to informally discuss some options on the Columbia River about which I wrote in that book.

BPA top Engineer, John Hyde also discussed and emailed Kathy Eichenberger in Victoria who was in charge of the CRT in BC about a power swap back and forth. John wrote that it might save BPA 1,000 Mw and \$750 million for fish water releases. The amount of power involved exceeds the CRT power. I am sure John Hyde would not consider an optional co-operative power swap and the scheduling of Lake Williston of 1,000 mw at the right time for both systems, if BPA could not deliver 1,000 mw, which is approximately the peak power for the CRT

FLOOD CONTROL

If Canada cancelled the Treaty, Canada would be liable for damages caused by the flood.

To provide a perspective, the treaty specifies BC dams must reduce floods in Oregon down to 600,000 cubic feet per second, that's like 222 million 1 gallon water bottles going past your feet every minute.

BC provides the US with free flood control.

The extra stored water, when released to the US Generator(s) creates power which is shared equally with Canada and US. As a result the US is receiving 4,100 GWhrs of FREE downstream power and BC receives 4,100 GWhrs FREE .

Therefore in return the BC, CANADA entitlement is equal to 4,100 GWhrs of electric power, enough for 150,000 homes and 450,000 BC people for 1 year which is approximated 80 percent of Site C at NO COST.

BC Politicians should not stop CRT POWER COMING into BC.

The Federal US/Canada CRT can not be changed by BC Laws (e.g. Clean Energy Act (CEA)).

The CRT protects Canadian citizens and ratepayers so they can receive power anytime needed, (including outages of BC northern transmission lines, earthquakes etc) by guaranteeing physical delivery of 4,100 GWhrs per year

I am not a lawyer but believe any attempt by BC politicians to stop BC Canadians from receiving CRT treaty power would be declared invalid by Federal Courts.

History



Van port was dramatically destroyed at 4:05 p.m. on May 30, 1948, when a 200-foot (61 m) section of the dike holding back the Columbia River collapsed during a flood, killing 15. The city was underwater by nightfall leaving its inhabitants homeless.

In 1944 during WW2 the Us Army Corps of engineers (USCE) initially advocated building flood control dams in BC because 60% of dangerous flooding on the Columbia River comes From BC. USCE planned to keep maximum Columbia floods below 600 000 cubic feet per second. For perspective, that's like 222 million 1 gallon water bottles floating past your feet per minute.

President Eisenhower in 1961 signed the Columbia River treaty (CRT) WITH PM DIEFENBAKER to build BC dams to prevent recurrence of 1948 floods, killing 15 American Blacks and wiping out the second largest town in Oregon (PORT OF VANCOUVER WA)

THAT IS A FEDERAL MATTER and BC cannot alter the terms which included delivery points for the downstream power generated at Grand Coulee Dam in the US.

Downstream benefits

Before we built the BC dams, the river flooded in spring and trickled down in winter,

With the dams we supplemented more water flow and thus extra power in winter at Grand Coulee Dam in the US,

General McNaughton in Ottawa who commanded Canada's Army in WW2 and was head of the Canadian section of the IJC (international joint commission on boundary waters) invented the concept of Downstream benefits whereby BC is "entitled" to Half that extra power which exceeds 4,100 GWhrs for BC.

Gen McNaughton insisted on INFLATION PROOF payment in ELECTRIC POWER (not money)

The CRT is a federal treaty that Canadian homes defense police hospitals streetlights and other public depts. MUST be able to depend on whenever needed - Background

APPENDIX A US power glut

Today wind power glut in WA AND OR has already increased to 6,200 MW which is 6 Times as much as Site C.

Thus growing amounts of surplus US energy (which would otherwise be wasted) could become available to BC at very low cost.

Engineer Kuala, with Northwest Power & Conservation Council tells it like it is.

"BPA started the wind-power curtailments in mid-March, earlier in the season than ever before".

When rivers run too high from snowmelt there is only so much water that legislation allows to be spilled over the top of dams, bypassing turbine generators. Too much spill can harm threatened and endangered fish. Add to that springtime winds and there could be too much power on the grid. That could cause a blackout, and with more solar on the grid, California's not buying as much of the Northwest's surplus. That leaves the extra US power with nowhere to go except sell it to BC Hydro Powerex adept, or else Wind operators must stop producing and lose money every day" US has wind power surplus-

six times the capacity of site C - during spring and nights - which would otherwise be wasted so BC Hydro Powerex dept buys power at \$5 to \$30.

Powerex virtually stores surplus power in 6% of Lake Williston and then sells it during peak hours back to US power companies around \$40 /MW at a fraction of Site C expected unit power cost of \$132 after applying interest during construction and all the many deferred charges (such as legal, hearings, environmental, consulting etc charges BCUC must permit if Site C goes in service(.Deloitte might tell us).

APPENDIX B

How come I know about the CRT?

I was employed as BC Electric's Director of Planning. I and 45 colleagues were privileged to work for 8 years to build CRT flood control and power dams to do some good in BC/Canada and USA

.I next became Partner PS Ross Consulting arm of Touche Ross (which later became Deloitte Touche and then Deloitte)

I then formed my own engineering company and expanded into the US with offices in Vancouver, Bellingham, San Francisco, Los Angeles, Chicago, Atlanta and Cincinnati.

I retired to Vancouver in 1999 When I heard in 2009 the treaty might get cancelled, I volunteered to do everything I possibly could to save the treaty

But the growing NW US power glut did what I couldn't do with all my efforts'

It made sure the Treaty will continue till at least 2040

“Dear Vernon, Thank you for writing. I appreciate hearing from you and I share the vision of millions of Americans who want to take control of our Nation’s energy future...sincerely,”

Barrack Obama, US President 2012

“I have another thought: you and other knowledgeable and concerned citizens organize something called "Friends of the Columbia River Treaty “and set yourselves the goal of writing a report.”

Ralph Sultan, PhD, MBA (Harvard) P.Eng. BC Minister for Seniors, 2012

“Vern, Thanks for all your energy and enthusiasm on this important issue “

Doug Robinson, Secretary, Canadian Entity, Columbia River Treaty (CRT) 2012

“Vern, I very much look forward to hearing your ideas.”

Scott Simms, Secretary, United States Entity CRT, BPA- 2013

“Vern – Thank you again for coming in to meet with us. Additional hydropower is certainly a compelling angle reviewing the Columbia River Treaty.”

Tracey Newell, US State Dept. 2012

”Vern Ruskin. He's a tireless advocate for the treaty and the benefits that have resulted.”

John Horgan, MLA, NDP Energy Critic 2013