

**A. Reference: Questions Concerning the Price of Natural Gas**

- 1.1.0 Puget Sound Energy recently put out a Request for Proposals in which they asked the bidders either to assume the risk for the future rise in the price of natural gas, or to explain why they could not assume that risk. No bidders were able to fulfil either of these requests, with the result that no natural gas bids were included in the proposals. Which forecasts does BC Hydro use to justify its confidence that the future long-term cost of natural gas will remain low over the full life of the project?

**RESPONSE:**

**Please refer to the response to BCUC IR 1.24.3 for the natural gas price forecast used to evaluate the portfolios.**

**Please refer the response to BCSEA 1.A.2 regarding the source of the gas price forecast.**

**A. Reference: Questions Concerning the Price of Natural Gas**

- 1.2.0 Can BC Hydro suggest any reasons why, if they are confident in the validity of these studies, are other North American gas suppliers not using the same forecasts to justify their bids?

**RESPONSE:**

**The Energy Information Administration was the basis of the gas price forecast. This forecast is reputable, independent and widely used in the industry.**

**A. Reference: Questions Concerning the Price of Natural Gas**

1.3.0 Can BC Hydro show us the studies that it used to estimate the future price of natural gas?

**RESPONSE:**

**The natural gas price forecast used in the CFT Quantitative Evaluation Methodology is derived from the Energy Information Administration.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.4.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**A. Reference: Questions Concerning the Price of Natural Gas**

1.4.0 When BC Hydro undertook to assume the risk of any future rise in the price of natural gas, what margins of error did it assume?

**RESPONSE:**

**Please refer to the response to BCUC IR 1.17.1.**

**A. Reference: Questions Concerning the Price of Natural Gas**

1.5.0 When BC Hydro undertook to assume the risk of any future rise in the price of natural gas, did it assume that the consumer will shoulder the likely incurred cost?

**RESPONSE:**

**Please refer to the response to BCUC IR 1.17.1.**

**A. Reference: Questions Concerning the Price of Natural Gas**

1.6.0 In the US, which is not a signatory to the Kyoto Protocol, the Portland-based utility PacifiCorp factored an assumed future carbon tax of \$8 US per ton of CO<sub>2</sub> into its 2003 Integrated Resources Plan, after running scenarios of a range of potential fees. The Idaho Power Company recently assumed a price of \$12 US. When BC Hydro made its estimates of the future price of natural gas, did it include a similar cost to reflect the gas plant's future carbon emissions, given that Canada is a signatory to the Kyoto Protocol?

**RESPONSE:**

**Yes. To provide a valid comparison for generation projects, BC Hydro included the Commission-recommended greenhouse gas cost adder of \$3.60/MWh in the CFT benchmark. This cost is based on a \$10/tonne CO<sub>2</sub> equivalent, which is similar to the cost adders noted in the Information Request. Please also see the response to BCUC IR 1.18.2 and GSXCCC IR 1.23.2.**

<b>BC Sustainable Energy Association</b> Information Request No. 1.7.0 Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**A. Reference: Questions Concerning the Price of Natural Gas**

1.7.0 If BC Hydro did not factor in an assumed carbon tax, what arguments did it use to justify its decision not to to the BCUC?

**RESPONSE:**

**Please see the response to BCSEA 1.A.6.**

**A. Reference: Questions Concerning the Price of Natural Gas**

- 1.8.0 Assuming that BC Hydro's natural gas price forecast assumes a stable supply of natural gas for the life of the proposed plant, does it assume a 100% local North American supply, or supplementation with imported LNG?

**RESPONSE:**

The natural gas price forecast used in the CFT Quantitative Evaluation is derived from the Energy Information Administration (EIA). This can be obtained at the following website:

[http://tonto.eia.doe.gov/FTPROOT/forecasting/0383\(2004\).pdf](http://tonto.eia.doe.gov/FTPROOT/forecasting/0383(2004).pdf)

All assumptions regarding world energy supply are contained in and consistent with the EIA Reference Case.

**A. Reference: Questions Concerning the Price of Natural Gas**

- 1.9.0 If BC Hydro's price forecast assumes a 100% local North American natural gas supply, what forecasts does it use to give it the confidence that there will be a sufficient supply of natural gas, given the simultaneous demand from many other North American players?

**RESPONSE:**

**Please see response to BCSEA IR 1.8.0.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.10.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**A. Reference: Questions Concerning the Price of Natural Gas**

1.10.0 Following from the above question, does BC Hydro's price forecast take into account the fact that the entire supply of natural gas coming down the McKenzie pipeline has been contracted for use in the Alberta tar sands?

**RESPONSE:**

**Please see response to BCSEA IR 1.8.0.**

**A. Reference: Questions Concerning the Price of Natural Gas**

1.11.0 If BC Hydro's price forecast does not assume a 100% local North American natural gas supply, what percentage of natural gas does it estimate will need to come from imported liquefied natural gas, and starting in which year?

**RESPONSE:**

**Please see response to BCSEA IR 1.8.0.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.12.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**A. Reference: Questions Concerning the Price of Natural Gas**

1.12.0 Following the above question, where will BC Hydro obtain this supply of LNG, and does this assumed supply depend on the local rezoning and permitting of land for LNG terminals which have yet to be built?

**RESPONSE:**

**Please see response to BCSEA IR 1.8.0.**

**A. Reference: Questions Concerning the Price of Natural Gas**

1.13.0 When calculating the future price of LNG, what risk factors did BC Hydro assume for potential civil unrest or conflict in Russia, Iran and Qatar, the three main nations from which the world's future supply of LNG will come?

**RESPONSE:**

**Please see response to BCSEA IR 1.8.0.**

**A. Reference: Questions Concerning the Price of Natural Gas**

1.14.0 When calculating the future price of LNG, did BC Hydro take into account the fact that the United Kingdom is due to run out of its own supply of natural gas very soon, which will place a large additional demand on existing Russian supplies, causing inevitable price inflation?

**RESPONSE:**

**Please see response to BCSEA IR 1.8.0.**

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.15.0 When BC Hydro argued that demand management initiatives (efficiency and conservation) would not be able to meet the forthcoming 2007/8 peak load shortage, for what reasons did it dismiss Norske's offer to apply load management to its current industrial demand, in order to reduce the projected peak?

**RESPONSE:**

**BC Hydro has been working with all its customers, including industrial customers on Vancouver Island, explaining the opportunities for load displacement and Power Smart conservation. Projected load reductions on Vancouver Island resulting from BC Hydro's Power Smart program are provided in Tables 11.4 and 11.5 in the CFT Report, Appendix I.**

**While Norske has made public a number of demand management proposals, Norske has not submitted a contract offer to BC Hydro. Demand side management options, including load shaping and load curtailment were extensively discussed as part of the VIGP proceedings. In the VIGP decision, the Commission concluded the following:**

**"... no contracted demand reductions should be added to dependable supply for the purposes of the Application. Nevertheless, arrangements with Norske Canada for short-term curtailments are an attractive option in the event that BC Hydro needs to bridge a period until a resource like a 230 kV transmission line, other on-island generation, or even VIGP can be completed."**

**For the purposes of the VI CFT, the Commission established that demand side management and load curtailment projects were not eligible under the scope of the VI CFT, which was to acquire generation projects with an aggregate capacity of at least 150 MW.**

**Please also see response to BCUC IR 1.38.1.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.16.0</b> Dated: 08 December 2004 BC Hydro Response issued 23 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.16.0 In a similar vein, what effort did BC Hydro make to approach other key industrial customers to explore peak load shifting options, and with what results?

**RESPONSE:**

**Please see BCSEA IR 1.15.0.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.17.0</b> Dated: 08 December 2004 BC Hydro Response issued 23 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.17.0 If BC Hydro did not approach its other key industrial customers, as above, we would like to know why it did not.

**RESPONSE:**

**Please see BCSEA IR 1.15.0.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.18.0</b> Dated: 08 December 2004 BC Hydro Response issued 23 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.18.0 If BC Hydro is undertaking to assume the risk for the increased price of natural gas without having fully explored the potential for peak load shifting options among its other key industrial customers, will it explain this decision to its consumers?

**RESPONSE:**

**Please see BCSEA IR 1.15.0.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.19.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.19.0 On what basis did BC Hydro decide that renewing the subsea cable to the mainland would take too long, and that it could not be achieved in time to forestall the forecast peak power shortage?

**RESPONSE:**

**Please see the response to JIESC IR 1.8(a).**

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.20.0 When BC Hydro decided that the subsea cable could not be replaced in time, did it seek information from the BC Transmission Corporation and from the various approving authorities and cable installing companies, to confirm that this decision was correct?

**RESPONSE:**

**BC Hydro has not determined that the 230 kV AC transmission replacement project would not meet its earliest in-service date of October 2008. Please see the response to JIESC IR 1.8(a).**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.21.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.21.0 Following from the above, if BC Hydro did seek information from these people, what were their findings?

**RESPONSE:**

**Please see the response to BCSEA IR 1.B.20.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.22.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.22.0 Following also from the above, if BC Hydro did not seek this information, how can it argue that replacing the subsea cable is not the most effective way to forestall the forecast peak demand shortage?

**RESPONSE:**

**Please see the response to BCSEA IR 1.B.20.**

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.23.0 When assuming that replacing the subsea cable would take too long, did BC Hydro inquire into and calculate what additional demand side measures would be called for to postpone the forecast peak power shortage long enough for the subsea cable to be replaced?

**RESPONSE:**

**Please see the response to BCSEA IR 1.20.0. The BCUC also established that load management (demand side management) and load curtailment projects were not eligible under the scope of the VICFT, which was to acquire generation projects with an aggregate capacity of at least 150 MW.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.24.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**B. Reference: Questions Concerning the Vancouver Island Load Forecast**

1.24.0 Following from the above, if BC Hydro did not explore the potential of additional demand side measures to postpone the forecast peak power shortage long enough for the subsea cable to be replaced, how can it argue to the BCUC that replacing the subsea cable is not the most effective way to forestall the forecast peak demand shortage?

**RESPONSE:**

**Please see response to BCSEA IR 1.B. 23.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.25.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**C. Reference: Questions Concerning the Tier One CFT Applicants**

1.25.0 Why did BC Hydro reject the Sea Breeze Power Corporation wind power application for the initial CFT?

**RESPONSE:**

**Please see BCUC IR 2.69.2.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.26.0 &amp; 1.27.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**C. Reference: Questions Concerning the Tier One CFT Applicants**

1.26.0 If the reason for the CFT rejection was in part because BC Hydro decided that Sea Breeze could not produce dependable capacity to meet the peak power needs, is it true that BC Hydro assigned a zero per cent dependable capacity factor to wind energy?

1.27.0 If this is true, why did BC Hydro assign a zero per cent dependable capacity factor to wind energy, when the accepted utility standard in North America is to assign a 20% or higher dependable capacity factor to a turbine's rated capacity?

**RESPONSE:**

**BC Hydro did not assign a zero percent dependable capacity factor to wind in the CFT.**

**C. Reference: Questions Concerning the Tier One CFT Applicants**

1.28.0 Can BC Hydro confirm that they are aware that (and I quote) “Utility-based studies have laid to rest the concern that a wind plant needs to be backed up with an equal amount of dispatchable generation. Even at moderate penetrations, ancillary services to back up new wind power need not be more than is required of a system as a whole. An initial report on utility integration of wind, compiled by the Utility Wind Interest Group (UWIG), an organization of more than 50 utilities with wind power on their systems, looked at a series of studies from Xcel Energy, PacifiCorp, Bonneville Power Administration, We Energies, and consultant Eric Hirst, and concluded that the need for additional generation to compensate for wind variations by backing up with an equal amount of dispatchable generation “is substantially less than one for one, and often closer to zero”. (*Backed by Wind*, by Ron Lehr, past chair and commissioner of the Colorado PUC. Public Utilities Fortnightly, December 2004)

**RESPONSE:**

**No.**

**C. Reference: Questions Concerning the Tier One CFT Applicants**

1.29.0 When rejecting the Sea Breeze proposal, did BC Hydro calculate whether the potential existed for a wind/hydro storage partnership, using Vancouver Island's four existing hydro reservoirs to store excess power at times when the wind turbines were putting power into the grid, which could then be used to meet the peak demand?

**RESPONSE:**

**No, all pre-qualification submissions were evaluated against the published CFT Mandatory Criteria. This evaluation did not take into account system capacity.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.30.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**C. Reference: Questions Concerning the Tier One CFT Applicants**

1.30.0 If BC Hydro did not make this calculation, the BC SEA would like to ask why not?

**RESPONSE:**

**Please see the response to BCSEA IR 1.C29.**

<b>BC Sustainable Energy Association</b> Information Request No. <b>1.31.0</b> Dated: 08 December 2004 BC Hydro Response issued 21 December 2004	Page 1
British Columbia Hydro and Power Authority Call for Tenders for Capacity on Vancouver Island Review of Electricity Purchase Agreement	

**C. Reference: Questions Concerning the Tier One CFT Applicants**

1.31.0 If BC Hydro did make this calculation, the BC SEA would like to know the results of the calculation, as they are very relevant to the case for future wind energy projects.

**RESPONSE:**

**Please see the response to BCSEA IR 1.C29.**