

LONG TERM ELECTRICITY TRANSMISSION REQUIREMENTS INQUIRY

Commission Staff Discussion Draft on Scope

Introduction

The Terms of Reference for the Long-Term Electricity Transmission Inquiry, which were issued by the Minister of Energy Mines and Petroleum Resources on December 11, 2008, set out, in general terms, the purpose of the Inquiry and the issues the Commission Panel must consider. The general purpose of the inquiry is for the Commission to make determinations with respect to BC's electrical transmission infrastructure and capacity needs for a 30-year period.

Following the April 27th Procedural Conference, the Commission Panel issued Order G-47-09, which determined that Commission staff should prepare a discussion paper on the issues it considers to be within the scope of the inquiry. This paper has been prepared by staff and is intended to provide a starting point for discussion among inquiry participants relating to the scope of the issues and the level of analyses required to assess these issues. A second Procedural Conference is being held on June 24, 2009 to discuss and hear submissions related to the scope of the issues to be reviewed in the Inquiry

The Terms of Reference identify issues, evidence and submissions that must be considered by the Commission. Commission staff believe that further clarification relating to scope in the following areas would be helpful: generation, electricity demand, transmission requirements, and areas inappropriate for the development of generation. Moreover, paragraph 10 of the Terms of Reference requires the Commission to invite and consider submissions, evidence and presentations from any interested person, including First Nations. Commission staff believe further clarification related to First Nations participation would also be helpful. Finally, the assessment of export demand was the subject of a separate letter from the Commission (Exhibit A-10). Potential export demand is included in this paper under 'Assessment of Demand'.

Assessment of Generation

The Terms of Reference with respect to the assessment of generation are set out in several paragraphs, which outline issues that are in scope and that are out of scope.

The Terms of Reference in paragraph 3 outline generally what must be addressed.

The Commission must assess the generation resources in British Columbia that will potentially be developed during the determination period, grouped by geographic location....

In making that assessment the Commission must consider:

- (i) the electricity resource potential identified in long-term resource plans and any evidence filed in the Inquiry;
- (ii) their generating capability, type and geographic area;
- (iii) areas inappropriate for development such as parks and protected areas;
- (iv) electricity resources needed to meet the energy and capacity requirements of the load-serving utilities;
- (v) potential future market opportunities to export clean or renewable or low-carbon electricity.

In Scope:

Based on the direction provided in the Terms of Reference, staff consider the following issues to be within scope:

- Information on sources of electricity supply from the BC Hydro Long Term Acquisition Plan (“LTAP”) and recent calls for power, FortisBC, and any other reliable sources of information [paragraph 3(a)(i)]
- Generating capability, type and geographic area. To effectively model the transmission system, staff believe that these estimates should include:
 - The regional location of the generation option, the first and last year the energy is available, the range of peak generation capacity (MW) and energy (GWh).
 - Approximate cost (\$/MWh)
 - Capacity rating type (Dependable Generation Capacity, Effective Load Carrying Capacity, Maximum Continuous Rating)
 - Assessment of whether it meets the clean or renewable energy guidelines
- Information on all existing electricity resources, including any anticipated changes that may occur, such as Resource Smart projects and end-of life estimates with or without life extension projects.
- Developing technologies and their impacts on the economics of generation may be considered, especially as this may affect renewable generation from wind, solar, wood waste or tidal resources.
- The need for generation resources resulting from both domestic and export demand.

Staff believe that it will be in scope, and necessary, to produce a viable number of resource options for each region. Examples of possible assumptions include:

- Wind emphasis – regional generation favouring wind advantage;
- Run-of-river (“RoR”) emphasis- regional generation favouring RoR projects;
- Site C proceeds;
- Ocean (wave and/or tidal current) power or carbon sequestration from coal generation becomes cost-competitive.

Staff further propose that regional generation estimates be used as the basis to develop a range of cost forecasts for generation by region, and to assist in determining the most cost-effective and probable sequence(s) of development, and therefore the need for transmission infrastructure.

Not in Scope:

Paragraph 5 of the Terms of Reference states that:

In making the determinations referred to in paragraph 4, the Commission may not
(a) make determinations on the merits of specific generation projects; or
(b) make determinations with respect to the specific routing or technological specifications of electricity transmission projects.

Based on paragraph 5 above, the Inquiry will not consider the merits of specific generation projects. Staff believe that known projects based, for example, on determinations already made by the Commission Panel reviewing the BC Hydro LTAP application would be included in the base data.

Thus, in staff's opinion, the Inquiry Report will not include the merits, for example, of one RoR project versus another but, instead, will analyse what a reasonable range of generation potential is in the province, the geographic dispersion of that generation, and the characteristics of the generation 'cluster' in each region.

Assessment of Demand:

Paragraphs in the Terms of Reference that appear most applicable to the demand forecasts are:

6. *The Commission must...*
 - (a) *take a long term view of transmission development...to support:*
 - (i) *additional transmission infrastructure and capacity that would accommodate reasonably foreseeable resource and economic development;*
 - (b) *recognize and take account of the following:*
 - (i) *British Columbia is to achieve energy and capacity self-sufficiency by 2016 and maintain self-sufficiency after achieving it...*
 - (vii) *it is desirable to maximize the net benefit from trade in electric power with neighbouring jurisdictions in the United States and Alberta.*
7. *...the Commission must have regard for:*

- (a) *The load-serving utilities' long-term resource plans...including their most recently filed and relevant contingency resource plans as accepted by the Commission;*
 - (c) *evidence regarding the load-serving utilities' energy and capacity requirements under scenarios that in the Commission's opinion are reasonable,...including scenarios in which...*
 - (i) *there is an increase in electricity use, substituting for other forms of energy, as a means of reducing greenhouse gas emissions; and*
 - (ii) *the potential for long-term economic expansion in areas of British Columbia...is explicitly incorporated.*
8. *In addition to any other evidence and submissions relevant to the inquiry that the load-serving utilities may wish to provide, if not adequately addressed in their most recently approved long-term resource plans, the Commission must allow the load-serving utilities to provide evidence and submissions regarding:*
- (a) *their electrical energy and capacity requirements for the determination period;*

In order to meet the general purpose of the Inquiry, forecasts of demand under varying conditions for the 30-year study period are necessary. Agreement or Commission direction on a manageable number of demand scenarios, which are meaningfully different from each other, is vital to the Commission delivering useful determinations. The staff's opinion is that the Terms of Reference contain important guidance regarding forecast demand:

In Scope

- Both domestic and export demand are in scope.
- The Commission is to have regard for the utilities' "...most recently approved long-term resource plans". Therefore, BC Hydro's and FortisBC's long term resource plans, including their most recently filed and relevant contingency resource plans as accepted by the Commission are in scope.
- Because the Inquiry study period is longer than the LTAP period, the LTAP forecasts will need to be extended. In addition, forecast scenarios may need to be developed to reflect future outcomes that were not adequately addressed in the LTAP. The scenarios identified in the Terms of Reference consider heightened requirements arising from fuel switching to electricity as a greenhouse gas reduction strategy, and regional long-term economic expansion.
- Reasonable forecasts of the province's domestic long-term energy and capacity requirements, based on estimates of net domestic demand, after provincial self-sufficiency requirements and demand-side measures are taken into account, are in scope.

- New technologies such as electric vehicles and home electronics may increase demand, while conservation technologies may reduce demand. Reasonable estimates of the impact of such new technologies on domestic and export demand are, in the view of staff, in scope.

Staff expect that demand forecasts will be estimated for each year in the study period and disaggregated to show the demand at appropriate points in the study model for both capacity (MW) and energy (GWh) and that regional domestic demand forecasts will be created by disaggregating the province-wide 30-year forecasts. Forecasts will consider and adopt appropriate input from participants, including the utilities, local and regional governments, and large volume consumer groups. Such input would include key regional forecast determinants, such as the long-term outlook for major industrial sectors such as forestry, mining, and oil and gas. Staff further anticipate that regional distribution of total demand will be created by adding the regional domestic demand forecasts to the export estimates at the interconnection points with Alberta and the U.S.

The Terms of Reference recognize the need for scenarios and staff think it is important that a limited number of scenarios be used to group factors that may drive demand higher or lower in order to produce a viable number of options. e.g.

- High Demand – high exports, high economic growth, plug-in electric vehicles
- Low Demand – low exports, low economic growth, high electricity prices causing fuel switching to carbon fuels, conservation and technological improvements.

With regard to potential electricity demand created by exports, paragraph 3 of the Terms of Reference states that the Commission must assess:

- “(a) the generation resources in British Columbia that will potentially be developed during the determination period, grouped by geographic location, considering:*
- ...(v) potential future market opportunities to export clean or renewable or low-carbon electricity to other jurisdictions that is surplus to the requirements of load-serving utilities in British Columbia.*

In order to meet this requirement, the scope of evidence prepared to address exports may include:

- The most comprehensive credible information concerning renewable and low-carbon resource potential in British Columbia.
- The demand for that generation in British Columbia
- The resultant surplus that is available for sale to other jurisdictions, including from potential generation (and related transmission) that may be specifically developed for that purpose.
- The potential demand for that generation, including energy, capacity, and clean attributes, in other jurisdictions over the next 30 years.

Not in Scope

Staff interpret the direction provided in the Terms of Reference with regard to the utilities' most recently approved long-term resource plans to mean that the Inquiry is not intended to be a forum for revisiting BC Hydro's June 2008 LTAP after the Commission LTAP Panel has issued its Decision on it.

Assessment of Transmission:

As noted earlier, paragraph 5 of the Terms of Reference states that:

In making the determinations referred to in paragraph 4, the Commission may not
(a) make determinations on the merits of specific generation projects; or
(b) make determinations with respect to the specific routing or technological specifications of electricity transmission projects.

And on page 2, the Terms of Reference state:

"WHEREAS there is a need to fully consider the potential long-term regional development of generation resources and the long-term transmission needs to access those resources;"

In Scope

Staff consider the above references to long-term regional development of generation and long-term transmission needs to imply a review of the province's bulk transmission system at a high-level, and that the analysis should be regional or zonal, not route specific. Therefore staff believe that the existing bulk transmission system (230 kV or greater) would be an appropriate starting point for analysis of the transmission system.

However, as indicated in paragraph 5(a) and (b) of the Terms of Reference, the Commission cannot make determinations on the merits of specific generation projects or with respect to the specific routing or technological specifications of transmission projects. Therefore, staff believe that bulk transmission reinforcements developed in response to various scenarios should not be voltage specific, but should provide a general (not-specific) path and a transfer capacity for that path in MW.

Initial focus on the bulk transmission system should not prevent consideration of regionally significant transmission, irrespective of the voltage that such transmission might be operated at initially. For example, connecting the Fort Nelson area to the BC Hydro system north of Fort St. John by a 138 kV line could be one of several supply options to meet growing demand, and the proposed 287 kV line north of Terrace along Highway 37 may be initially operated at 138 kV.

Analysis of the bulk transmission system will include:

- the general (not specific) path location;
- the transfer capacity of the path in MW;
- component end-of-life date;
- line losses;
- timing of new additions.

Not in Scope

- detailed analysis of the lower voltage transmission system except, as noted elsewhere, for proposals for transmission that are regionally significant;
- Specific routes or technological specifications of transmission projects.

Paragraph 4 of the Terms of Reference states that the Commission must make determinations respecting the need for, and timing of, additional transmission infrastructure and capacity that would allow for:

“...improved electricity transmission intertie capacity between British Columbia and the United States or Alberta that can be used effectively to permit continued optimization of the electricity system in British Columbia, and to support the export of surplus electricity....”

In Scope:

The review will include issues with respect to the capacity of the interties with Alberta and the U.S.

Not in Scope:

The Terms of Reference are silent on the issue of cost-allocation for transmission extensions or reinforcements identified by the Inquiry. Staff consider the cost recovery/cost allocation principles to be a rate design issue, and there are already processes in place to consider cost-allocation issues. Therefore, staff consider cost-allocation issues to be out of scope, and participants shouldn't assume that a determination on need implies a determination on cost-allocation.

First Nations Issues:

Paragraph 10 of the Terms of Reference direct the Commission to invite and consider submissions, evidence and presentations “...from any interested person, including without limitation, First Nations...” Commission Order G-47-09 establishes that there will be Regional Sessions in October/November of 2009 to hear submissions from First Nations, communities, local governments and others. This timing is consistent with the timing proposed by the First Nations Energy and Mining Council.

At the April 27, 2009 Procedural Conference, several participants noted the importance of First Nations issues and First Nations participation in the Inquiry. BC Hydro referred in its submissions to a BC Hydro/BCTC First Nation consultation process, which, it described as a parallel process focused on consulting with First Nations with respect to BC Hydro's and BCTC's information and submissions into the Inquiry.

BC Hydro described the BC Hydro/BCTC consultation process as a three phase process, with the first phase consisting of introductory topics; the second phase focusing on reviewing the information BC Hydro and BCTC will file in September 2009, including the underlying scenarios and the transmission overlaid on top of those scenarios; and the third phase focusing on BC Hydro's and BCTC's filed submissions. BC Hydro expects to file a consultation report following the first two phases of the BC Hydro/BCTC parallel consultation process, and to file a second consultation report to the Commission as part of Phase 3.

Participants at the April 27th Procedural Conference speaking on behalf of First Nations groups proposed that the Inquiry should address the issue of aboriginal rights and title and historical infringements to those rights. A submission on behalf of the Shuswap/Arrow Lakes Division of the Secwepemc Nation asked the Inquiry to address past infringements resulting from transmission lines within their traditional territories and more specifically requested "... a table where the First Nations can come together with the Utilities Commission, B.C. Transmission Corporation, B.C. Hydro and of course the Ministry representatives, so that we can look at not only past infringements but also look at a way that we can come together so that we can work towards co-management for the future." (T1: 89)

Staff agree that First Nations issues are important and that First Nations must have an opportunity to participate in the Inquiry in a manner that is consistent with the Terms of Reference for the Inquiry, and aligns effectively with the BC Hydro/BCTC consultation process. Staff believe that the Inquiry, along with the BC Hydro/BCTC consultation process with First Nations, will assist in identifying First Nations issues and concerns related to electricity generation and transmission, and the Inquiry Report will provide an opportunity to summarize the concerns and ideas raised by First Nations.

Areas Inappropriate for Generation Development:

Paragraph 3(a) (iii) of the Terms of Reference notes that in assessing generation resources in British Columbia that will potentially be developed during the determination period, grouped by geographic location, the Commission must consider:

"That certain areas in British Columbia will be inappropriate for the development of generation resources, such as, but not limited to, parks and protected areas."

Staff note that the assessment of areas inappropriate for development is limited to **generation** resources, not transmission. Staff also note that the reasons for the Commission's consideration of this topic is to help with its estimate of potential generation resources grouped by geographic location, and their sequencing of development.

In staff's view, areas inappropriate for the development of generation resources can fall into two general categories. "Exclusion Areas" are those where new generation is already precluded or severely constrained by statute, regulation, or official plans. Provincial Class A, B, and C Parks, Conservancies, Biodiversity Areas, Ecological Reserves, National Parks and Historic Sites, National Wildlife Areas, National Marine Protected Areas, and Regional District Parks are examples. Staff consider that revisiting decisions made by governments about boundaries or permitted uses in these Exclusion Areas is out of scope.

The second category may cover areas where new generation should be deferred or avoided based on imminent government decisions. For example, a planning process may be recommending creation of a protected area but a regulation or bylaw creating the protected area is pending. This category may also include areas where prolonged review by permitting agencies can be anticipated, due to significant ecological, traditional use, or cultural values.

BC and other provinces and states in the Western Interconnection are participating in the Western Renewable Energy Zone Project (WREZ), an initiative to plan and foster the development of infrastructure necessary for the development of large scale renewable electricity generation in western North America. The Inquiry will welcome the Province's submissions to WREZ, to inform the Commission of Exclusion Areas or other such identified areas.

It is staff's view that consideration of areas inappropriate for the development of new generation must be based on *readily available and foreseeable* information. The Inquiry is not meant to substitute for or prejudge environmental assessment, land use, or permitting processes. Evidence should not include any individual project or permitting issues. Rather, staff believe the Inquiry will rely on current policies and land use designations contained, for example, in land and resource management plans, strategic land use resource plans and official community plans.