

# Long Term Electric Resource Plan (LTERP)

## Resource Planning Advisory Group (RPAG) Workshop re Long Run Marginal Cost and Planning Reserve Margin (PRM) - November 5, 2015 Meeting Notes

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**Date and Time:** November 5, 2015 - 8:30 am – 12:00 pm

**Location:** FortisBC Office – 1111 West Georgia Street, 10th Floor, Vancouver

**Attended in Person:**

B.C. Sustainable Energy Association (BCSEA)	Tom Hackney
BC Hydro	Kathy Lee
First Nations Energy & Mining Council (FNEMC)	Cole Rheume
Lower Columbia Community Development Team Society	Gordon DeRosa
FortisBC	Mike Hopkins
FortisBC	Dan Egolf
FortisBC	Joyce Martin
FortisBC	Nguyen Pham
FortisBC	Ryan Steele

**Attended via conference call:**

B.C. Ministry of Energy & Mines – Electricity and Alternate Energy Division	Nat Gosman
Industrial Customers Group (ICG)	Robert Hobbs
FortisBC	Ron Zeilstra
FortisBC	Keith Veerman

## Welcome and Introductions

- Attendees took turns introducing themselves and Mike Hopkins discussed the workshop objectives and encouraged attendees to ask questions and provide feedback.

## Long Run Marginal Cost (LRMC)

- Ryan presented on the topic of LRMC, including background, comparisons to BC Hydro's LRMC, definition and the FortisBC (FBC) proposed portfolio approach to developing LRMCs as part of the LTERP.
- Ryan asked the group what does the LRMC represent and what are some important considerations in order to get initial impressions and understanding of LRMC. Comments from stakeholders included:
  - It's a key input for evaluating DSM cost effectiveness
  - Which resource establishes LRMC? And what are the differences between FBC and BCH?
  - It's the last resource to meet load growth

- It's the cost of the next resource and is a benchmark for energy efficiency
- For BC Hydro it's used for the DSM cost effectiveness test, used as a benchmark to determine if an Energy Purchase Agreement (EPA) renewal is cost effective and to evaluate other efficiency projects like transmission loss savings. It also helps guide the second tier of the stepped customer rates.
- One stakeholder was surprised that the LRMV was not tied to tier 2 of the FBC Residential Conservation Rate (RCR). It was noted that the FBC tier 2 rate is higher than the current LRMV value and that setting the tier 2 rate at the LRMV value may not leave enough of a gap between the tier 1 and tier 2 rates to encourage electricity conservation. BC Hydro noted that the BC Hydro tier 2 rate for residential customers is also higher than its LRMV since the LRMV was lowered in the 2013 IRP.
- It was asked why FBC has used a LRMV value based on the BC Hydro Standing Offer Program (SOP) and what about the BC Hydro 2008 Clean Power Call. It was explained that since FBC did not have its own SOP or Clean Power Call, BC Hydro's SOP program represented the best proxy for procuring clean and renewable resources in BC. It was noted that the SOP pricing was derived from pricing from the Clean Power Call.
- It was noted that the current BC Hydro LRMV range of \$85-\$100/MWh includes transmission for delivery of electricity to the Lower Mainland. It was asked if the BC Hydro levelized capacity cost of \$50-\$55/kW-year, equal to about \$11/MWh, could be added to the energy value range of \$85-\$100/MWh for a combined energy and capacity inclusive LRMV. In concept, this is essentially correct but one needs to consider the specific resources involved before applying this approach to ensure that costs are not double counted for a project that provides both energy and capacity; and that the conversion from \$/kW-yr to \$/MWh properly reflects characteristics of the specific resource .
- It was asked why FBC would consider a portfolio where the 93% clean and renewable requirement is removed? FBC would like to show what a portfolio would look like with the 93% clean requirement relaxed and if more gas-fired generation was included to compare to the other portfolios.
- It was asked why FBC would consider a portfolio that terminated the BC Hydro Power Purchase Agreement (PPA) as it is contracted to 2033. It was noted that there is flexibility in the PPA contract to terminate earlier than 2033 if desired. FBC noted that it is not planning to terminate the PPA any time soon as it is a cost effective and flexible resource. The purpose of this portfolio scenario is to show the impacts if FBC were to terminate it early.
- It was asked if self-sufficiency means sourcing electricity solely from within BC. Yes.
- It was asked what FBC's market reliance requirements and limits are. FBC's market reliance requirements are very limited at this time with purchases being made mainly to displace both PPA capacity and energy that would otherwise have to be purchased. FBC is not required to be self-sufficient, unlike BC Hydro. But on a practical basis imports must be about 200 MW less than the system load. FBC expects to utilize the available energy from owned and contracted resources (other than the PPA) on an annual basis before acquiring additional resources from the market.

- It was suggested that FBC should consider First Nations' resource projects in its portfolio scenarios and that First Nations resource projects include clean and renewable as well as gas-fired generation. FBC's portfolios will include consideration of clean and renewable as well as gas-fired resources within BC that are not directly tied to specific projects. When/if additional resources are required in the future, FBC will consider what the most appropriate type of resource to acquire is at that time. This could include First Nations projects.
- It was asked if FBC has any significant energy or capacity gaps in the future. FBC does not currently anticipate any significant gaps in the near term (e.g. not earlier than 2020), but larger gaps appear in the longer term.
- It was asked why complicate the analysis for meeting future gaps with several portfolios and why not just look at individual resources. It was noted that FBC was directed in the BCUC acceptance of the last 2012 resource plan to conduct portfolio analysis in the next resource plan. Also, the BCUC resource planning guidelines require portfolio analysis in resource planning. FBC also noted that, in order to meet both energy and capacity gaps, more than one new resource may be required.
- It was asked if FBC looks at other resource options factors besides cost. Yes, FBC will consider several different resource options attributes in its portfolio analysis, including cost, size and timing to meet gaps, environmental and socio-economic factors.
- It was asked how dispatchable is the FBC Waneta Expansion (WAX) Capacity Purchase Agreement (CAPA) capacity. The Waneta Expansion plant is part of the Canal Plant Agreement and as such the WAX CAPA is very flexible and dispatchable.
- It was suggested that the discussion about the considerations/limitations of LRMC seemed to be biased against clean and renewable resources, like solar, not being able to meet energy and capacity gaps. FBC explained that intermittent resources like solar are good for energy but cannot be relied on to meet capacity gaps. That is why a portfolio of resources may include, for example, some renewable resources as well as peaking resources to meet capacity requirements.
- It was asked if FBC resource options are limited to the resources within the FBC service area. No, FBC would consider resource options inside and outside of its service area if they meet the objectives of the LTERP.
- It was asked if FBC should consider a seasonal LRMC as opposed to a levelized value. FBC does not see the value in this given that its resource needs are more longer term and that the LRMC is really a high-level price signal proxy which may be different than the actual cost for a specific project once it's required. This would unnecessarily complicate the analysis. This might make more sense if FBC had more immediate resource requirements.
- It was asked if FBC has considered serving heavy load centres with direct current (DC) to reduce line losses. While there are a number of DC transmission lines in service in North America, the characteristics of DC are such that it would not be economic at this point in time to use DC in the FBC service area.
- It was asked if Grohman Narrows were to be dredged, would this provide more capacity for FBC. No, any power benefits would be received by BC Hydro as this is a proposed BC Hydro project.

The primary benefits are to help with Kootenay Lake levels and flood control rather than provide more power generation.

- It was asked if all of FBC's generation units have been upgraded. The upgrade/life extension project is complete on all FBC units except for 3 of the small units at Upper Bonnington.
- It was asked if FBC would include a wind integration cost in its wind resource options costs. Yes, but since FBC does not plan to do a detailed wind integration study specific to its resource portfolio, it plans to use the BC Hydro proxy.

## Planning Reserve Margin (PRM)

- Nguyen presented on the topic of PRM, including definitions and what is included in PRM, how it is determined and the FBC 2012 results.
- It was asked what if, for example, load requirements increased in the Kootenay region – would we need to adjust our PRM for that? Yes, if new resources were required to meet greater load-resource balance gaps, then we would need to re-assess the PRM.
- It was asked why there are so many terms related to PRM and why everyone uses them differently. FBC noted that this is how things have developed over time amongst different utilities without an overall coordinated approach. FBC plans to use the most common approach or standard.
- FBC noted that its market access of 150 MW is conservative since most of the time the full 370 MW is available to FortisBC. In addition FBC may also import and wheel power via BC Hydro's grid. FBC also noted that Line 71 is very reliable with only infrequent outages.
- It was asked how the 0.74% forced outage rate (FOR) on slide 42 was different than the Loss of Load Expectation (LOLE) of 0.1. The 0.74% Line 71 FOR is for transmission reliability while the 0.1 is for the overall portfolio resource adequacy requirement (targeted at 0.1 day/year).
- It was asked how FBC accounts for transmission and distribution (T&D) system changes for PRM. It was noted that FBC system planning conducts its own system reliability planning. FBC assumes the LOLE is changed if the resource mix changes.
- It was asked if the units in the table on slide 46 are days per year. Yes.
- It was asked why the March 2015 values on slide 46 were higher than the other months. This is because the resource portfolio changed in April 2015 with the WAX project coming online and providing significant capacity.
- It was noted that FBC has relied on the market in the past to meet PRM. FBC pointed out that relying on the real-time spot market is very different than a seasonal or longer term market purchase contract. FBC can rely on the spot market for PRM purposes but cannot do so to meet the expected gaps. To do so would mean that the same resource was being used to both meet gaps and to cover for resource shortfalls for other reasons. This creates a high likelihood that the LOLE expectation is not met.
- For case 10 on slide 47, it was asked if FBC can meet the LOLE target as long as it has Line 71 market access. Yes, the Line 71 outage rate has been determined to be less than 1% and FBC can handle an outage rate of up to 5% and still meet the LOLE target.

- It was asked if PRM is really more about cost than reliability. FBC noted that cost and reliability go together because if it could not rely on the market, then another resource would be required and this would likely cost more.
- It was asked if the PRM report includes costs and if there are additional costs to customers for PRM. No, there are no costs included in the report. Based on the 2012 report results, FBC does not need any incremental resources to meet PRM at this time. FBC does not expect increased costs to customers for PRM if future load-resource balance gaps are met. However, if significant new loads were placed on the FBC system, FBC would need to re-evaluate the PRM.
- It was asked if FBC's portfolio analysis will consider market access and no market access. Yes it will.
- It was suggested that FBC could over-build resources, above load-balance requirements, in order to sell excess power into the market. Using BC clean and renewable resources, rather than market purchases, would promote economic development in BC. FBC noted that this strategy is risky and depends highly on one's assumptions for future market prices versus resource options costs. In today's market, the cost of market purchases is well below the cost of additional resources and so this strategy wouldn't make economic sense at this time.
- It was noted that the long term market has different characteristics than the short term spot market and that there should be discussion of market access in the LTERP. FBC plans to include discussion of market access in the planning environment section of the LTERP.
- It was asked if FBC considered short-term temperature variations in the load forecast when reviewing PRM. FBC did not for the 2012 PRM report but will consider this for the 2016 update.
- It was asked if case 5 on slide 47 regarding double FOR applies to all generators. Yes it does.
- It was asked if FBC can buy different types of power (e.g. wind-sourced supply) when it uses market purchases. It was suggested that FBC should buy clean and renewable-based market supply opposed to regular market supply which may include generation from gas or coal in the region.
- It was asked if FBC can get more power from the BC Hydro PPA. FBC explained that it has access to a maximum capacity of 200 MW and assumed this capacity in the PRM study. The PRM study did not address the use of PPA energy as PRM only considers capacity adequacy, not energy adequacy. However, FBC is currently only planning to use tranche 1 energy of up to 1,041 GWh per year under the PPA. An additional 711 GWh of tranche two energy for a total of 1,752 GWh per year is actually available under the PPA and is a firm resource. Tranche 2 energy comes at a significantly higher cost compared to tranche 1 energy.

## Wrap-Up and Next Steps

- Mike Hopkins wrapped up the meeting by discussing next steps.
- Presentations and meeting notes will be posted on:  
<http://www.fortisbc.com/About/ProjectsPlanning/ElecUtility/ElecResourcePlanning/Pages/Stakeholder-consultation.aspx>
- Mike noted that, due to the timing of the Conservation Potential Review (CPR) study initial results in April 2016, FBC plans to request a LTERP filing date extension from the BCUC. At this

time FBC does not know what the requested filing date will be. No stakeholders had any issues with this.