

Stakeholder Comment Form

Long Term Adequacy Recommendation

Date of Request for Comment: March 8, 2007
Period of Consultation: February 21 – March 8, 2007

Stakeholder: ENMAX

Section	Topic	Description	Stakeholder Comments
1	Introduction	Purpose of the paper is to recommend a solution that meets the requirements of the Policy Paper.	
2	Background		
2.1	Requirements of the Policy Paper	Definition of Metrics, Thresholds, Threshold Actions and Market Modifications.	
2.2	Long Term Adequacy in an Energy Only Market	The market determines the appropriate level of adequacy in the long term. LTA as a bridging mechanism.	<p>ENMAX agrees that decisions relating to the investment in generation must be guided by competitive market forces.</p> <p>The paper states that “the market determines the appropriate reserve margin; it determines the appropriate level of adequacy in the long term.” ENMAX concurs with this statement and observes that this raises the question of whether the AESO should be determining threshold values (even if it does so in consultation with stakeholders).</p> <p>With respect to the graph and related text on page 8, the paper states that in the event of a breach of the threshold, the AESO would implement one or more of the threshold actions (for example, load shed service). In this</p>

			example, there is a possibility that some load values electricity at more than the price cap. ENMAX submits that the AESO must be prepared to pay a price that maybe above the pool price cap, as was done in the voluntary load-shed program.
2.3	Locational Resource Adequacy	Within context of LTA, the paper is not proposing metrics or thresholds for locational issues.	Locational resource issues are more complex (and a somewhat different problem) than addressing adequacy issues from a system wide perspective. As such, ENMAX fundamentally disagrees with the statement that “regional issues suggest that the underlying issue is not one of generation adequacy but one of transmission adequacy.” Regional issues may arise because of improper or weak generation siting signals, and siting decisions that do not internalize the cost of transmission investment.
3	Metrics	The metrics were chosen because they cover the key elements that directly or indirectly measure adequacy, relatively simple to understand, to the extent possible is based on public and verifiable information, provides an outlook on adequacy.	See comments in section on Fixed Costs of Notional Gas-Fired Peaking Units
3.1	New Generation Status and Retirements	Summarize public information on generation status and retirements.	
3.2	Reserve Margin	A forecast, expressed in percentage terms, of the amount of Alberta firm generation capacity at time of system peak that is in excess of the annual peak demand.	ENMAX continues to be concerned that different assumptions are being used to forecast load growth than to forecast generation additions. ENMAX is specifically concerned with the use of ‘Active Construction’ only in the forecast of installed generation capacity, especially as this metric is proposed to be forecast 5 years out (which is longer than the build time of many generation technologies). ENMAX believes that ‘Approved’ projects

			<p>which have had a public statement by the proponent (including expected project costs and in service estimate) should be included in the calculation of reserve margin. If not, the reserve margin calculation will be systematically underestimating the future reserve margin.</p> <p>To include only “Active Construction” would mean that the AESO would ignore a project like Keephills 3, which it clearly does not ignore for transmission planning purposes. If a project is too uncertain for use in an LTA assessment, then it should also be too uncertain for planning purposes. In other words, any project worthy of triggering transmission investment is worthy of inclusion in LTA metrics. To the extent possible, assumptions should be consistent.</p>
3.3	Supply Cushion	Two year forecast of available daily generation capacity and peak demand.	<p>Given that this metric relies on average forced outage rates, wind capacity, hydro capacity and peak load, ENMAX questions whether is it possible to identify specific days that cause concerns, especially up to 2 years in the future. If the metric could do that, the AESO could simply contract for load shed on the problem days.</p> <p>Forecast intertie capacity should be included in the forecast of the supply cushion given that intertie capacity has been historically available.</p>
3.4	Two Year Probability of Supply Adequacy Shortfall	A probabilistic assessment of a supply shortfall over the next two years.	<p>The AESO states on page 13 that the 2yrPSAS could be expressed as the expected number of hours of involuntary curtailments, the expected MWh not served, and/or the expected number of events of involuntary curtailments. (We will use the variables <i>H</i>, <i>E</i>, and <i>N</i> for each of these quantities.) Is the AESO suggesting that 2yrPSAS is really three different metrics (with the second one being the expected unserved energy), or that the three values would be combined somehow, perhaps using an equation like</p> $I = (a \times H) + (b \times E) + (c \times N)?$

			<p>Also, is the AESO suggesting that there would be a single value for <i>I</i>, <i>H</i>, <i>E</i>, and/or <i>N</i> for the entire two-year period, or that there would be (for example) monthly values of each for the next 24 months, as would seem to be the case from the figure on page 8?</p> <p>Without knowing details of the 2yrPSAS design, it appears problematic that a probabilistic forecast that does not include price (yet it includes price responsive load). Does the model assume zero price elasticity of both supply and demand over 2 years?</p> <p>EUE is a widely accepted metric that can be calculated over a two year period and defined for monthly values. EUE has the added advantage that it allows an assessment of the economics of lost energy against alternatives. ENMAX therefore recommends that that EUE is used in place of 2yrPSAS.</p>
3.5	Loss of Load Probability and Expected Unserved Energy	Demonstrate the probability of involuntary curtailments, expressed in total hours, and the expected total amount of unserved load, in MWhs during those involuntary curtailments, over a forecast period of 10 years or greater. A shorter timeline, or elimination of this metric is being considered.	<p>ENMAX supports the use of EUE, but does not believe a 10 year forecast should be relied on for taking any actions. Input errors become unwieldy and the period well exceeds the timeframe to build new capacity. The fact that this metric relies on an hourly forecast 10 years forward means that the uncertainty of the inputs will far outweigh the LOLP/EUE values; that is, we would expect results like $EUE = 500$, with an error band from 0 to 500,000. ENMAX suggests that monthly EUE be reported for 24 months.</p> <p>Results reported should include both the number of hours or events and the expected total MWhs not served. ENMAX supports the use of an independent Pool Price and fuel price forecasts (as with the Generation Investment Signposts metric below).</p> <p>ENMAX recommends that all of the metrics use the same forecast inputs, such as Pool Price and gas price, in order to maintain comparability and consistency across metrics. It is also imperative for the credibility of the</p>

			metrics that non-commercially sensitive inputs are publicly available, including the price forecasts.
3.6	Generation Investment Signposts	Show forecast/trends of reserve margin, forward electricity prices, forward natural gas prices, levelized cost of generation	ENMAX supports these metrics and believes that the same independently sourced data should be used as inputs into all relevant metrics.
3.7	Contribution to Fixed Costs of Notional Gas Fired Peaking Unit	Demonstrate the contribution to fixed capital of a new gas-fired peaking unit could have received over each of the previous three years.	<p>On Page 10, and again on page 17, the Paper contends that “The ‘Contribution to Fixed Costs of Notional Gas-Fired Peaking Unit’ metric when tracked over time, will help in the assessment of whether or not the Alberta market has a “missing money” issue, its significance, and whether any actual implemented market changes are having an impact on that issue.</p> <p>ENMAX agrees that this is a coarse investment indicator. Without knowing the detailed design of this model, we suspect that this indicator will be highly sensitive to modeling assumptions, such as a generator’s ability to react to pool price.</p> <p>ENMAX is not sure that this metric can provide insight into whether Alberta has a missing money problem, its significance or whether the LTA market enhancement (outage reporting) is having an impact on that issue. The missing money issue could be assessed using a model that estimates what the price would have been if there was no price cap (or other institutional price suppressors such as \$0 TMR, \$0 imports, etc). The model would need to estimate market behavior in the absence of the price cap, as increased contracting and hedging would likely change the shape of the price-duration curve. The non-constrained duration curve could then be compared to the constrained duration curve to determine the degree of the missing money problem.</p>

4	Threshold	When the 2yrPSAS is calculated and breaches a specific level, the AESO would take steps to implement the Threshold Actions within the 2 year time frame.	<p>ENMAX does not support the use of the 2yrPSAS as the threshold metric. A 2 year EUE is a more well understood metric and should be considered instead of the 2yrPSAS. The 2yrPSAS appears to provide a probability distribution whereas EUE is a single number. A threshold value related to a probability distribution requires a notion of utility and tradeoffs among duration, magnitude and frequency of outages. Therefore the notion of a “threshold” can be applied to EUE more easily than 2yrPSAS.</p> <p>Under the Rationale section, the Paper presents 2 reasons for using the 2yrPSAS – 1) the threshold calculation looks forward 2 years; 2) 2yrPSAS will provide information to determine circumstances under which involuntary curtailments could occur. ENMAX notes that most metrics can be calculates for 2 years, such as reserve margin, EUE, LOLP, etc. Therefore, ENMAX believes EUE is a better threshold metric.</p>
5	Threshold Actions	Determining threshold actions must balance effectiveness, market stability, and cost.	ENMAX supports the threshold actions. Engaging load as part of the LTA approach is essential to the continued development of the industry.
5.1	Threshold Actions for Inclusion in AESO’s LTA Toolbox	Three options are recommended. Other options are not being considered due to significant cost that outweighs perceived contribution, or due to significant structural change that would be required to be made to the market.	ENMAX support the LSS, backup generation and portable generation programs as threshold actions. ENMAX requires more details before it can make specific comments.
5.2	Load Shed Service	AESO would contract with load customers for the right to curtail load under specific terms and conditions.	ENMAX requires more details before it can make specific comments.
5.3	Self-Supply and	AESO would contract with	ENMAX requires more details before it can make specific comments.

	Back-up Generation	back-up generation owners for the right to dispatch it on under specific terms and conditions.	
5.4	Emergency Portable Generation	AESO would contract with emergency portable generation owners for the right to dispatch it on under specific terms and conditions.	ENMAX requires more details before it can make specific comments.
5.5	Rationale for This Suite of Threshold Actions	The threshold actions provide a balance of effectiveness, market stability/certainty and reasonableness of cost, when compared to other alternatives. Load would pay for the service, either as an ancillary service, or through another AESO cost recovery mechanism.	
6	Market Modifications	Any market enhancement or modification can impact the level of adequacy in the market. Discussion of modifications that will require an extensive consultation effort are more appropriately held outside the LTA initiative, as outlined in the Policy Paper.	
6.1	Outage Disclosure	Generators 5 MW and greater must provide planned outages on a rolling 2 year basis, which will be used for calculating	ENMAX is not opposed to reporting planned outages on a rolling basis if unit specific information is maintained as confidential. ENMAX would support the issuance some outage information on a lagged

		metrics. Forecasts will be provided in aggregate form, as provided today. Actual planned outages will be reported after the fact. Forecasts may be made available on a historical basis.	historical basis, but would not support issuing this information in real time to ensure commercially sensitive information is not released. ENMAX does not believe a historical report on forecast outage dates will provide significant benefit to the market.
7	Next Steps	After considering feedback and making appropriate modifications, implementation of LTA will be in the form of rules, and adequacy reports. Topical workgroups will be hosted in areas that require further development.	ENMAX suggests that the actual design of each of the metrics be determined and vetted by stakeholders, prior to implementation of the LTA in the form of rules.
	Additional Comments	Additional comments that supplement the feedback being provided are welcomed.	

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