

Pricing Framework Review Session 3 May 21, 2020

Notice



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Agenda



- Review of stakeholder feedback
- Recap results of efficiency analysis
- Discuss framework options and risks/benefits with each
- Closing remarks and next steps

AESO Stakeholder Engagement Framework









Recap objectives of the pricing framework



Energy pricing framework should ensure efficient and effective signals are provided to promote the following:

- <u>Long-term adequacy:</u> through providing clear transparent signals on the need for capacity, and revenue sufficiency with reasonable expectations of recovery of capital and return on capital
- <u>Efficient short-term market response:</u> involves ensuring that the pool price creates the right signals for the market and administrative price levels do not hinder these signals, including:
 - Provide short-term price signals to encourage flexibility and response from both supply and demand resources
 - Provide self-commitment decision signals, and also provide a mechanism for the recovery of start-up and cycling costs
 - Provide the signal for participants to import or export

Stakeholder feedback Support for change



Price cap:

- Incremental changes to price cap could improve incentives to respond while urgency for immediate change is not here today, this should not dissuade AESO from pursuing incremental improvement in pursuit of greater efficiency
- Capacity across western system is tightening, in the future there may be situations where Alberta will be competing for import supply against other markets with higher price caps
- Potential for increased DR, however important to ensure consumers do not pay more than electricity is worth to them
- Other jurisdictions have set their cap at the average VOLL, which is likely greater than \$1,000/MWh

Price floor:

- Existing procedures should handle future levels of surplus, but would be enhanced by a more market-based approach to handling imports/exports
- A lower floor would have no impact in the short-term, but would provide transparency for future renewable investment

Stakeholder feedback **Concerns with change**



Price cap:

- Change not needed now
 - AESO should commit to market stability and certainty in the absence of pressing concerns
 - Efficiency gains expected to be small relative to need for market stability
- AESO should optimize current demand response before making changes to the price cap
- Infrequency of shortfall events and complexity of shortage pricing raises concerns that pursuing shortage pricing is a theoretical and academic exercise

Price floor:

- Change not needed now
 - Efficiencies could be gained, but urgency is not immediate
 - AESO has suitable tools to manage supply surplus

Increases risk

- A more robust analysis on revenue sufficiency impacts changing asset risk profiles and commercial impacts need to be assessed
- Introduces new risk to market that could influence long term investment decisions

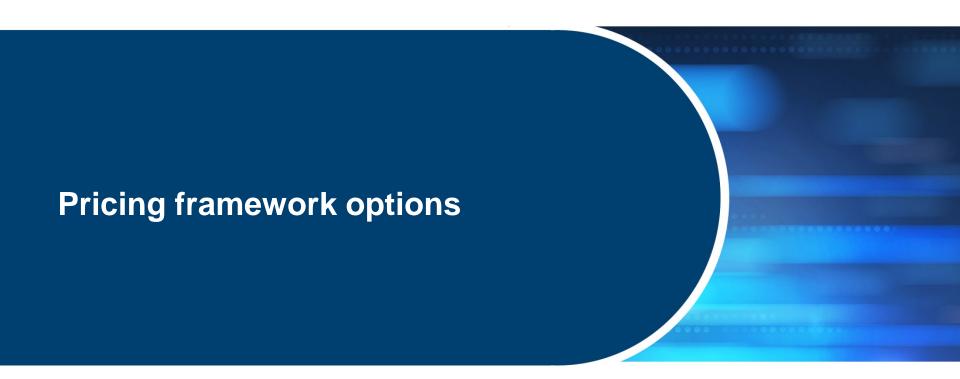
Recap results from analysis



Long-term adequacy expected to be maintained

- Offer Cap
 - Throughout the various scenarios the existing pricing framework appears to provide reasonable financial returns to developers of diverse generation types
 - Results do not demonstrate a long-term supply adequacy issue
- Opportunities to increase efficiency in short-term market response
 - Price cap
 - There may be an opportunity for incremental demand response at prices higher than \$1,000/MWh
 - Price cap does not appear to overly impede supply response during shortage events
 - Price floor:
 - Lowering the price floor could allow future supply surplus events to clear based on market signals rather than administrative actions





Pricing framework options



Three implementation options for efficiency improvements have been identified. We will review the risks and benefits with each in the following sections:

- A. Implement improvements to the pricing framework now to incent efficient market response during <u>supply shortage and supply surplus</u> situations
- B. Implement option A, in future, but <u>delay</u> due to conflicting priorities and external issues that exist today
- C. <u>Maintain current pricing framework</u>— AESO will continue to monitor the state of the market for signs of loss of system efficiencies



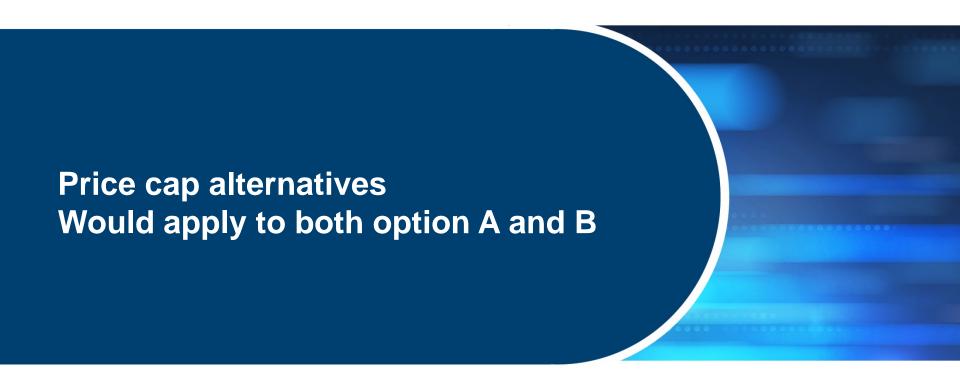


Option A: Implement changes now Why this option?



- Improved efficiency: benefits to short-term efficiency during supply surplus and supply shortfall conditions that an alternative framework can ensure are realized
- Provide market certainty and stability of the pricing framework to support market sustainability and flexibility needs
- **Improved demand response:** there is demand that responds above \$1,000/MWh. A change to the price cap incents market based response from these loads
- Improved supply response:
 - A change to the price cap ensures competitive import supply during coincident high demand/ high price western events
 - A reduction in the floor price may promote market based generation curtailment from imports and in province generators rather than administrative clearing Public





Price cap alternatives



The price cap alternatives are reviewed in terms of improving efficiency during supply shortfall situations, as resource adequacy has not been deemed as a concern

Price Cap Alternatives

- 1. Administrative shortage pricing loss of load probability curve method
- 2. Administrative shortage pricing stepped shortage pricing linked to energy emergency alert (EEA) levels
- 3. Increase the price cap and implement a scarcity pricing mechanism (similar to Australia model)
- 4. Current framework, however allow offers above \$999.99/MWh with verified reasons

Price cap – Alternative 1 <u>Loss of load probability curve</u>



- The loss of load probability (LOLP) curve is a method for implementing administrative shortage pricing
- The LOLP curve represents the probability of experiencing a supply shortfall given the conditions of the system
 - As a probability, it is bounded at all times between 0 and 1
 - This curve would be applied at all times; however, LOLP is approximately 0 when supply cushion is high
 - This LOLP curve would be multiplied by a scalar to achieve scarcity and shortage pricing
 - This scalar would likely be related to the value of lost load (VOLL) and would be determined using a separate process
- Two approaches have been explored:
 - Forecast error method
 - Supply cushion method

Loss of load probability Supply cushion



 To estimate LOLP, the data underlying the AESO's short term adequacy (STA) report is used

Supply Adequacy Report

HE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
05/06/20 Wed	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
05/07/20 Thu	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
05/08/20 Fri	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
05/09/20 Sat	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
05/10/20 Sun	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
05/11/20 Mon	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
05/12/20 Tue	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Report updates = Every five minutes for the current trading day, every hour for the six remaining days following the current trading day

- 4 = greater than 400 MW of supply available in the merit order
- 3 = 200 to 400 MW of supply available in the merit order
- = 0 to 200 MW of supply available in the merit order
- 1 = not enough supply available to maintain 6% reserve requirements
- = not enough supply available to maintain 3% reserve requirements.

Loss of load probability Forecast error method



- T-1 forecast errors are measured to determine the probability of realizing an error of at least a given magnitude (e.g. probability of an error of at least 500MW)
 - Actual supply cushion at T minus T-1 estimate of supply cushion at T
 - This method is similar to the 1-hour Reliability Unit
 Commitment (RUC) error methodology currently utilized by ERCOT

Example

- In HE 16, the AESO forecasts 1,000 MW of supply cushion for HE 17
- The actual supply cushion in HE 17 is 700 MW
- The forecast error is 700 1,000 = -300 MW

Loss of load probability Supply cushion method



- Another approach is to measure the actual observed differences in supply cushion between hours
 - Actual supply cushion at T minus actual supply cushion at T-1
 - The AESO conducted this analysis as well and found minor differences compared to the forecast error method

Example

- In HE 16 the actual supply cushion is 1,100 MW
- In HE 17 the actual supply cushion is 700 MW
- The difference in supply cushion is $700 1{,}100 = -400 \text{ MW}$

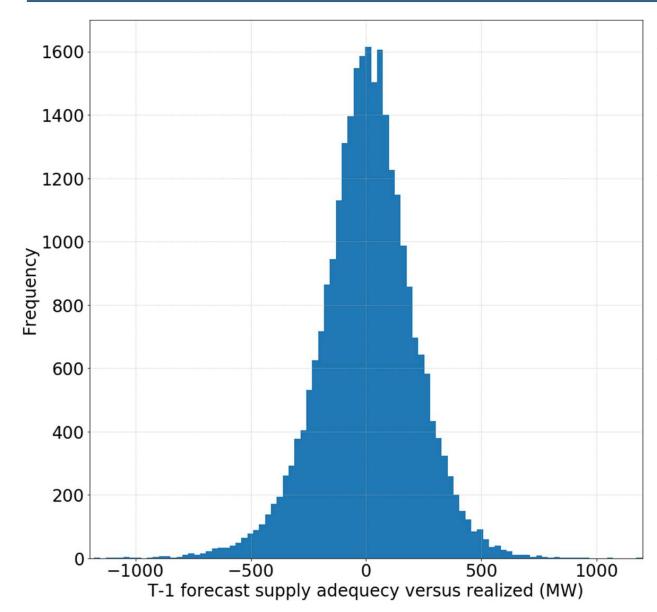
Loss of load probability Method comparison



- The supply cushion method captures actual changes in supply cushion between hours
- The forecast error method captures changes in the expectation of supply cushion between hours
- The AESO would recommend the forecast error method of these two approaches, as it better captures the type of unexpected events that can typically lead to shortfall conditions
 - For instance, the supply cushion method would treat an anticipated gradual ramp down of a unit the same as a trip, while the forecast error method would treat the trip as more likely to result in a supply shortfall
- The following slides illustrate the forecast error method

Loss of load probability Distribution of forecast errors

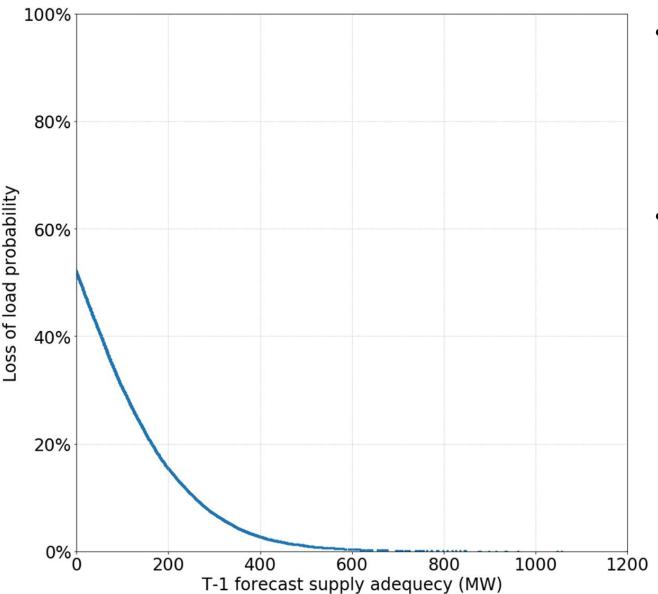




- Time period used was January 2017 to early May 2020
- The distribution of forecast errors is approximately normally distributed around 0 (mean of 5.39)
- The cumulative density
 of this forecast error
 distribution is used to
 determine the
 probability of incurring
 a forecast error above
 a certain magnitude

Loss of load probability Loss of load probability curve





- The loss of load probability with a forecasted supply cushion of 0 is approximately 50%
- This occurs because
 the forecast errors are
 approximately
 symmetric around 0,
 resulting in a 50%
 chance our forecast
 supply cushion is too
 high (resulting in load
 loss) and a 50%
 chance that it is too
 low

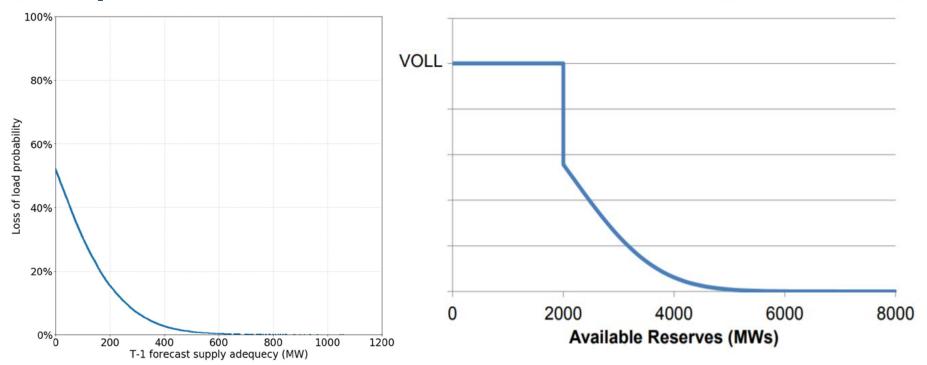
Loss of load probability Interpreting the LOLP curve



- Determining the loss of load probability in a given hour uses the following logic:
 - The supply cushion forecast for the next hour is X MW
 - There is a Y% chance that the realized supply cushion will be at least X MW below the forecast
 - The loss of load probability is Y%
- If the AESO is already forecasting a negative supply cushion, LOLP is not necessarily 100% as the AESO's forecast may be too low
 - However, for the purposes of determining the shortage price,
 LOLP would be set at 100% to incentivize the maximum response

Loss of load probability Comparison to ERCOT





- The ERCOT curve, pictured right, is not a true LOLP curve; it is the probability of falling below 2,000 MW of reserve
- The Alberta LOLP curve, pictured left, would be designed similarly and shifted right to account for minimum operating reserve requirements
 - Likely the volume of the contingency reserve requirements (spinning and supplemental reserve)

Price Cap – Alternative 2 Stepped shortage pricing



- Stepped shortage pricing involves establishing price adders at times at varying degrees of shortage risk to the system
 - Similar to the graduated curve, but with fewer changes, this approach may provide additional information to the market as to the degree of system tightness
- Steps on the curve could be established at administrative steps that indicate increasing system risk

Stepped shortage pricing Recapping EEA1 steps & possible price steps



- EEA1 declared after all available resources in the energy market have been used to meet AIES firm load
- Sufficient operating reserves intact still have about 500 MW reserves
- Energy is imported through the interconnections with BC and Saskatchewan as per schedules
- Energy exports are curtailed to zero
- At this point AESO would issue a directive to customers who have Demand Opportunity Service (DOS) contracts to lower their demand on the system
- Any transmission maintenance that results in generation constraints is cancelled
- System marginal price (SMP) is set at last offered MW

Stepped shortage pricing Recapping EEA2 steps & possible price steps



- All steps under Alert 1 have been taken
- Power service is maintained for all firm load customers
- Lift ATC Constraints

- 2
- Contingency reserve are being used to supply energy requirements – regulating reserve is maintained
- 3
- Load management procedures have been implemented, which may include voltage reduction
- A public communication may have been issued to request customers to voluntarily reduce demand
- Emergency energy has been requested of neighbouring control areas
- System marginal price (SMP) is set at last offered MW

Stepped shortage pricing Recapping EEA3 steps & possible price steps



- All steps under Alerts 1 and 2 have been taken
- After receiving directives from the AESO system controllers, the transmission facility owners work with the distribution facility owners to curtail the directed amount of firm load
- Power service to some customers are temporarily interrupted to maintain the minimum required regulating reserve and the integrity of the overall system
- System marginal price (SMP) is set to \$1,000/MW

No incremental price adders in EEA3

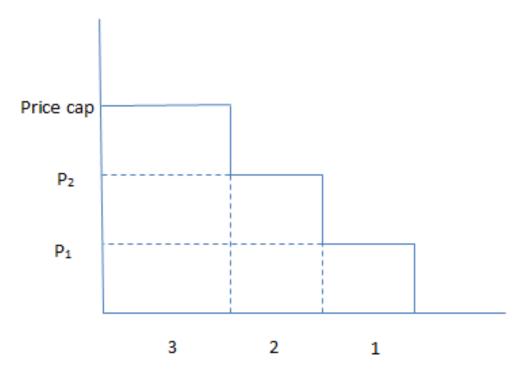
Stepped shortage pricing Proposed pricing steps



- Curtail opportunity service customers (exports & DOS)
 - Why step here
 - Once the system controller has taken an action to curtail opportunity service customers, increase the price to incent response from the market
 - This step represents a curtailment of non-firm demand customers a step here indicates increasing system scarcity
- 2. Increase available transfer capability (ATC) on tie lines
 - Why here
 - This step increases system risk load is being used to backstop additional intertie flows
 - Prices may need to be high enough to attract imports from neighbouring markets
 - May signal additional response from internal Alberta load assets
- 3. Direct internal supplemental and spinning reserves to meet load requirements
 - Why here
 - System risk is nearing the highest level, fewer reserves are carried than required
 - Price should be increased to the maximum price cap level to incent the most response we can from the market prior to firm load shed

Stepped shortage pricing Example curve





- How should price adders be established? One way is to base the adders on the type of response that we are hoping to incent
 - 1. At DOS curtailment: a level to increase incremental scarcity price
 - 2. Import certainty: comparable to price caps in competing jurisdictions
 - 3. **Demand response:** at an estimate of the price of willingness to curtail. Will vary based on type of load and would require a VOLL study to determine level

Price Cap – Alternative 3 <u>Outright price and offer cap increases</u>



- Establish a higher price and offer cap level to incent demand and supply response during supply scarcity and shortage situations, up to the theoretical value of lost load (VOLL) level
- Since an offer cap increase is involved in this option, market power mitigation may need to be reviewed
- In Australia the implementation of this option includes a price limiter or speed bump
 - If the sum of settlement prices for the previous 7 days exceeds the cumulative price threshold, the entire trading day will have an administered price threshold of \$300/MWh applied to it
 - The cumulative price threshold is set to approximately the revenues required by a hypothetical peaker, the implied marginal unit, to remain economic for 1 year
 - If considered for Alberta a similar style price limited would need to be included

Outright price and offer cap increases Australia price limiter parameters



Parameter	Value (\$ AUD)	Notes
Market price cap	AUD14,700/MWh (or \$13,360/MWh CAD)	Price and offer cap are adjusted for inflation each year
Cumulative price threshold	AUD221,100/MW (7 day rolling)	If the sum of settlement prices for the previous 7 days exceeds the CPT, the entire trading day will have the administered price threshold applied to it
Administrative price threshold	AUD300/MWh	
Price floor	AUD-\$1,000/MWh	

Price cap alternative 4 Allow exceedance offers at verified costs



- No change to administrative price levels
 - Price cap of \$1,000/MWh,
 - Offer cap of \$999.99/MWh
 - Price floor of \$0/MWh
- Offer cost re-imbursement
 - Explore allowing re-imbursement of marginal costs when demonstrated they exceed offer cap of \$999.99/MWh
 - Criteria and approach to be established and vetted
 - Likely only applies to imports and only when power prices in neighbouring jurisdictions exceed Alberta's offer cap
 - Ensures import incentive scarcity situations
- No change to existing procedures when in surplus and shortfall situations

Comparison of price cap alternatives



Criteria	1.LOLP	2.Step	3.Pric e and offer	4.Veri fied costs	No change
Long term adequacy, transparent signals, revenue sufficiency	(4)				(+)
Short term efficiency: signals to encourage flexibility					
Short term efficiency: self commitment signals					
Short term efficiency: signals aligned with external markets					
Relies on market rather than administrative mechanisms					
Robust over time, meets the need of uncertain load & generation types, other market changes					
Creates/ maintains a stable market		\triangle	0		
Implementation complexity and cost					



Option positively impacts given criteria



Option negatively impacts given criteria



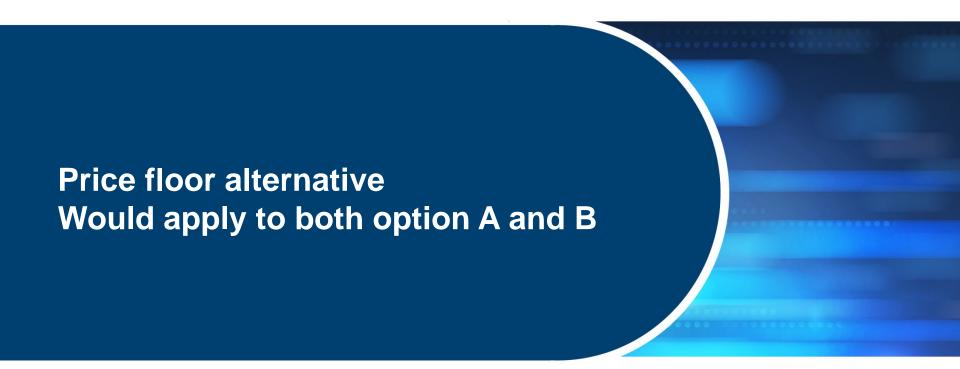
Options impact is minimal; there is a potential for negative impacts in the future for the given criteria

Price cap Suggested approach



- The AESO believes a stepped price cap would provide the opportunity for better signals during shortage events:
 - Implementation is easier and less administrative than that of the LOLP curve
 - The market receives signals of changing degrees of scarcity
 - Price levels can be set to ensure Alberta remains an attractive market for imports
 - Aligns with/works within the major aspects of the existing market framework
- Changes to both the price cap and offer cap
 - Not required as demonstrated by the AESO's revenue sufficiency analysis
 - Would require a substantial change to the market power mitigation framework
- Offers at demonstrated costs
 - May ensure Alberta remains attractive for imports but doesn't provide any further efficiency benefits





Negative pricing



- Negative pricing would allow market participants to submit offers below \$0/MWh
 - Some assets do not have incentive to curtail production until prices are negative
 - A floor of -\$100/MWh is estimated to capture the willingness to curtail of many resources
- The merit order would continue to arrange offer blocks from lowest to highest, and operators would dispatch seamlessly from positive to negative prices
- This would mitigate the need for administrative curtailments under the current supply surplus rule (ISO Rule 202.5)

Negative pricing <u>Efficiency analysis - method</u>



- The AESO completed an analysis to determine what incremental efficiencies may be gained by implementing negative pricing compared to the current supply surplus procedure
- Assets were ordered from lowest to highest cost to simulate the merit order below \$0
 - Cycling costs were considered for coal and combined-cycle assets
 - The value of provincial carbon offset credits was considered for wind assets
 - The Mid-C price, with added transportation and losses, was used as the marginal cost of imports
- The model then curtails the highest cost combination of dispatched generation in each supply surplus hour

Negative pricing Efficiency analysis – indicative inputs



- Cycling costs
 - Coal (warm start): \$94.94/MWh
 - CC (warm start): \$81.59/MWh
- Carbon offset credit value
 - 0.59 tCO2e/MWh grid intensity factor
 - \$15/t carbon price in 2015
 - \$20/t carbon price in 2016
 - \$30/t carbon price in 2017-19
- Import assumptions
 - NWUS to US/AB: transmission US\$5.32/MWh, losses 1.9%
 - Through BC: transmission \$1/MWh LLH, \$3/MWh HLH, losses
 7.02%, variable costs \$0.55
 - Into Alberta: applicable trading charge for each year was used (\$0.460 for 2019), also losses were included (losses were 4.05% for 2019)

Negative pricing <u>Efficiency analysis - results</u>



- Efficiency gains from negative pricing are estimated to be minimal
- The total potential enhancement in efficiency from 2015-2019 is estimated to be approximately \$18,000
 - These savings were concentrated in hours when imports were not available for curtailment
 - By curtailing high-cost resources instead of pro rata curtailment, some modest savings were achieved
 - Any re-ordering of the merit order due to offer behaviour would further limit the potential for savings
- In nearly all instances, curtailing imports is the economically efficient solution
 - This aligns with our current supply surplus procedures

Comparison of price floor alternative



Criteria	Neg Pricing	No change
Long-term adequacy, transparent signals, revenue sufficiency		
Short-term efficiency: signals to encourage flexibility		\triangle
Short-term efficiency: self commitment signals		
Short-term efficiency: signals aligned with external markets		\triangle
Relies on market rather than administrative mechanisms		\triangle
Robust over time, meets the need of uncertain load & generation types, other market changes		
Creates/ maintains a stable market	\triangle	
Implementation complexity and cost	\triangle	



Option positively impacts given criteria



Option negatively impacts given criteria



Options impact is minimal; there is a potential for negative impacts in the future for the given criteria





Revenue sufficiency update Overview



 To understand the impacts of potential changes to the price floor and price cap, the AESO analyzed the financial impact that could result from a change to either metric

Note: the price levels on the following slides are for illustrative purposes only and do not represent the AESO's recommendation

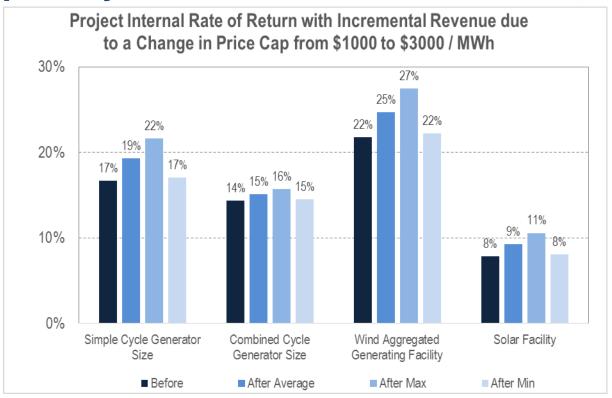
Revenue sufficiency update Approach



- Price cap was analyzed at \$3,000/MWh in occurrences where the price cap was realized in previous Revenue Sufficiency modeling
 - Where EEA events occurred in the simulation, the difference between the existing price cap (\$1,000/MWh) and the hypothetical price cap (\$3,000/MWh) was added to the cash flow for each new generation source
 - The result estimates the maximum impact that a change in price cap could have on the IRR of a new facility
- Price floor was analyzed at -\$100/MWh in instances where supply surplus was observed in previous Revenue Sufficiency modeling
 - Where supply surplus events occurred, the difference between the existing price floor (\$0/MWh) and the hypothetical price floor (-\$100/MWh) was removed from the cash flow for each new generation source
 - The result estimates the maximum impact that a change in price floor could have on the IRR of a new facility

Revenue sufficiency update Price cap analysis

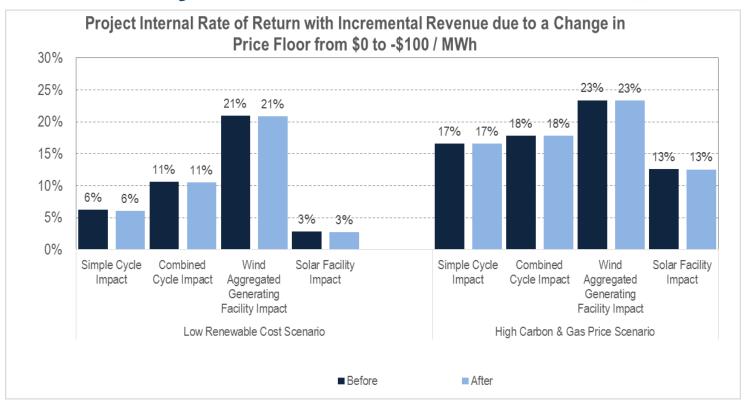




- The first plant build for each technology type was analyzed in four different scenarios
 - The Reference Case
 - Cash flow adjusted for the average EEA hours observation, every year
 - 3. Cash flow adjusted for the maximum EEA hours observation, every year
 - Cash flow adjusted for the minimum EEA hours observation, every year
- Additional EBITDA added cash flow for projects, but was only material in the maximum EEA hour scenario
- Dispatchable resources are more likely to capitalize on price cap changes than renewables

Revenue sufficiency update Price floor analysis





- The AESO's Revenue Sufficiency analysis contained two scenarios with supply surplus events: "Low Renewable Capital Cost" and "Increased Carbon Cost"
- The impact on cash flows and project internal rates of return was negligible when the difference between the current price floor (\$0/MWh) and the hypothetical price floor (-\$100/MWh) was removed during each supply surplus event





Option B <u>Delay change to future date</u>



- Benefits of Option 1 implement changes now would be realized
- Delay is required due to larger than normal external events and electricity industry work load
 - COVID-19
 - there are too many work force and economic unknowns to progress now
 - Historically low oil prices
 - Economic outlook for a large number of customers and suppliers are extremely uncertain
 - Power demand outlook is also uncertain
 - Other pressing market design initiatives
 - Tariff cost issues: increasingly important to resolve in current climate
 - Distribution system inquiry
 - others





Option C <u>Maintain the current pricing framework</u>



- No change is required to the pricing framework
 - AESO's revenue sufficiency study indicates the market remains reliable and generation units profitable
 - Many new, diverse generation unit build announcements have been made since Q3 2019 demonstrating the attractiveness of the current design
- As has always been done, the AESO would continue to monitor key market indicators to ensure the system remains reliable
 - Short-term and long-term market outcome efficiencies
 - Ongoing reliability outlooks





Recap objectives of the pricing framework



Energy pricing framework should ensure efficient and effective signals are provided to promote the following:

- <u>Long-term adequacy:</u> through providing clear transparent signals on the need for capacity, and revenue sufficiency with reasonable expectations of recovery of capital and return on capital
- <u>Efficient short-term market response:</u> involves ensuring that the pool price creates the right signals for the market and administrative price levels do not hinder these signals, including:
 - Provide short-term price signals to encourage flexibility and response from both supply and demand resources
 - Provide self-commitment decision signals, and also provide a mechanism for the recovery of start-up and cycling costs
 - Provide the signal for participants to import or export

Comparison of alternatives



Criteria	Change now	Delay	Maint- ain
Long-term adequacy, transparent signals, revenue sufficiency			
Short-term efficiency: signals to encourage flexibility			\triangle
Short-term efficiency: self commitment signals			
Short-term efficiency: signals aligned with external markets			\triangle
Relies on market rather than administrative mechanisms			\triangle
Robust over time, meets the need of uncertain load & generation types, other market changes			
Creates/ maintains a stable market	\triangle	0	
Implementation complexity and cost		\triangle	



Option positively impacts given criteria



Option negatively impacts given criteria



Options impact is minimal; there is a potential for negative impacts in the future for the given criteria

AESO's draft recommendation



Maintain the current pricing framework

- Long-term adequacy
 - The current framework historically and as modelled into the future demonstrates meeting the AESO's supply adequacy needs while ensuring revenue sufficiency for the marginal supply assets
- Short-term signals to encourage flexibility
 - The current framework provides the incentive for the vast majority of existing demand to actively alter consumption in response to prices
 - Risk: changing future electricity consumers may have different cost drivers than traditional industrial load
- Short-term signals to allow for self commitment
 - The current framework provides the needed incentive for self commitment and long lead time asset availability during scarcity and shortage conditions

AESO's draft recommendation



Maintain the current pricing framework

- Short-term signals to allow for self commitment
 - The current framework has provided the needed incentive for historically demonstrated robust intertie usage
 - Risk: Alberta may not always be an economically attractive market for imports
- Relies on market rather than administrative mechanisms
 - Scarcity, shortage and surplus events are forecasted to be relatively rare. With approximately 40 MW of load responding to prices greater than \$1,000/MWh and price floor efficiency losses of approximately \$18,000 the existing framework has limited efficiency losses
 - Risk: in the event scarcity, shortage and surplus events are more frequent than forecast, administrative rather than market based clearing mechanisms may be relied on with increasing frequency

AESO's draft recommendation



Maintain the current pricing framework

Robust over time

- The Alberta market has a straightforward design that has stood the test of time,
 attracting generation when needed and delivering extremely high load service reliability
- The AESO will continue to monitor the performance of the market and identify in the future when enhancements are required.
- Risk: the future is hard to predict and unfolds faster than expected.
- Risk: current pricing framework will not send as efficient signals for flexibility during supply shortage and supply surplus conditions, could impair future investment decisions

Creates and maintains a stable market

- Current pricing framework is well understood and maintaining it will provide stability
- The AESO is of the view that the Market Power Mitigation advice provided to the Minister is aligned with the existing framework and as such will not be updating that advice

Implementation complexity and cost

 No change is the least administratively costly approach. Ensuring industry resources can focus on other pressing electricity market and 2020 economic and pandemic issues

Next steps



- AESO does not believe a 4th session is required the majority of stakeholders seemed supportive of no change to the pricing framework
- AESO will be seeking further written stakeholder feedback following this session
- Recommendation to be finalized and submitted to the Minister by July 31, 2020

Contact the AESO







