2 Supply Participation

This section address the requirements and processes for prequalification, self-supply designations and delisting

2.1 Prequalification applications

Prequalification of existing versus new capacity assets

2.1.1 A new capacity asset must be prequalified by the AESO in order for such asset to be eligible to participate in a capacity auction.

The final CMD will contain additional rationale clarifying that seasonal assets that are able to demonstrate an annual UCAP of 1 MW or greater may prequalify for participation in the capacity market, provided that they meet the additional eligibility requirements of this Section 2, *Supply Participation.*

2.1.2 All existing generation assets located in Alberta that currently participate in the energy market and have an estimated UCAP equal to or greater than 1 MW will automatically prequalify to participate in the first transitional auction.

As described in subsection 10.2.2, capacity assets with a maximum capability less than 5 MW but greater than or equal to 1 MW will have the option to offer in the energy market. If the capacity asset offers into the energy market it may benefit from having UCAP calculated based on an availability factor rather than a capacity factor methodology.

2.1.3 An existing external capacity asset (e.g., import) that currently participates in the energy market must be prequalified by the AESO in order to participate in the first capacity auction.

Ineligible assets

2.1.4 An asset that is the subject of a renewable electricity support agreement in connection with Renewable Energy Program (REP) Rounds 1, 2 or 3 is not eligible to participate in a capacity auction. There is no requirement for such asset to be prequalified by the AESO.

2.1.5 An energy efficiency resource is not eligible to participate in the initial capacity auctions.

General prequalification requirements

2.1.6 Parties seeking to have a new capacity asset prequalified by the AESO to participate in a capacity auction must submit a prequalification application to the AESO before a prescribed deadline. The prequalification application must contain:

(a) contact information (e.g., the names of the authorized contact person(s) responsible for liaising with the AESO, telephone numbers, registered address and email address of the contact person(s) with respect to the prequalification application);

(b) a description of the new capacity asset;

(c) a detailed project development and implementation plan that includes:

i. an overall project plan for delivery of the new asset, including the commissioning period and target in-service date;

ii. a project timeline (e.g., Gantt chart, or similar schedule diagram) with an in-service date that is no later than the start of the obligation period for the base capacity auction that the party is seeking prequalification for;

iii. a concise supporting narrative describing the basis for expectations and rationale for such timeline;

iv. the current status of the project's progression along the timeline, and key activities and major milestones that have been completed to date;

v. the critical path(s) in the timeline and the major milestones that form each critical path (such as environmental studies, construction permits, procurement lead times for critical equipment) and the key elements to be completed, addressed or achieved within the critical path;

vi. start/end dates and durations of key activities and dates of major milestones that have not been completed; and

vii. if applicable, any required distribution system connection approvals or agreements, including any which have already been attained and identification of the connecting authority and distribution facility owner involved with such activities.

(d) evidence that the new capacity asset has an estimated UCAP equal to or greater than 1 MW;

(e) evidence that the new capacity asset meets the asset-specific requirements set out in subsections 2.1.7 to 2.1.12, as required;

(f) evidence that the legal owner of the new capacity asset can satisfy security requirements set out in subsection 2.2.14; and

(g) such other information and evidence that the AESO deems necessary.

The word "base" will be removed from subsection 2.1.6(c)(ii) in the final CMD to clarify that the commercial operation date of the capacity asset must be no later than the start of the obligation period for the auction that the party is seeking prequalification for, regardless of whether the auction is a base auction or a rebalancing auction.

The rationale for the final CMD will include the following list of major milestones, as referred to in subsection 2.1.6(c)(v), as an example of what may be expected in the project plan submitted to the AESO for prequalification. Note that the list is not intended to be exhaustive.

Key Milestones of Project Delivery

- Development Activities associated with conceptualizing project, engaging in stakeholder relations, and securing all required approvals and arrangements necessary for proceeding with construction of a facility, including, without limitation:
    - Completion of land rights and site entitlement – attaining access rights; negotiating and executing lease/purchase agreements or options.
    - Completion of site analysis complete – identifying critical site considerations, such as archeological and heritage sites; conducting geotechnical surveys and studies; evaluating site conditions for constructability.
    - Attaining project connection (system access) – initiating communication with relevant connecting authority; identifying and assessing suitable connection options; developing connection facility application and filing for approval to secure relevant connection agreements.
    - Obtaining environmental approvals – identifying and conducting all

necessary environmental studies to achieve required approvals.

- Obtaining other permits and approvals – identifying, applying, and attaining all other necessary permits, and regulatory approvals.
- Demonstration of planning activities – preparing, designing, scheduling, engineering, procuring of services and equipment necessary to plan for and execute construction of a facility

- Construction activities associated with managing the building, erecting, constructing, installing, testing, and commissioning of a facility, necessary for attaining commercial operation, including, without limitation:
  - Site preparation and access.
  - Facility equipment delivery, set-up, construction, and erection of facility components.
  - Delivery, installation & commissioning of connection facilities and equipment for connecting the generating facility to the electrical system/network.
  - Testing, commissioning of a facility in order to measure the ability of a facility can reach and maintain its capacity obligation.
  - Compliance with permits, applicable law and notifying relevant stakeholders
  - Achieving commercial operation.

The rationale for the final CMD will clarify that the AESO will not request information that is not project-related as part of the prequalification application, such as information regarding the financial strength of the organization or the previous project development and delivery experience of the capacity supplier. The AESO will rely on financial security requirements and the monitoring of the achievement of project milestones to mitigate delivery risk. Please also refer to the annotation for subsection 2.1.13 below.

Asset-specific prequalification requirements

The final CMD clarify that if an asset or aggregated asset falls into more than one asset-specific category, all prequalification requirements in each asset-specific category will apply to the asset.

2.1.7 ***Demand response assets*.** A demand response asset is eligible to participate on the supply side of the Alberta capacity market. However, export is not considered a valid demand response asset. A prequalification application for a demand response asset must include:

(a) evidence that the demand response asset is or will be a retail or self-retail asset belonging to a valid pool participant;

(b) a description of:

i. the type of demand response (e.g., guaranteed load reduction or firm consumption level);

ii. how the demand response capacity asset will reduce demand during a performance assessment period and by how much;

iii. who the likely contributors (sites) are and how they will be procured;[1] and

iv. the data acquisition procedure;

(c) if the asset provides firm consumption level demand response, an estimate of the qualified baseline:

i. for new loads with no consumption history in Alberta, the qualified baseline will be declared by the applicant;

ii. for existing sites with consumption history in Alberta, the qualified baseline will be determined based on historical consumption data of the component site(s);

(d) one of the following:

i. a firm consumption level that the capacity asset will reduce to when dispatched; or

ii. a proposed UCAP representing the guaranteed load reduction.

(e) the proposed date for physical commissioning test that demonstrates the ability of the demand response asset to curtail consumption either down-by the capacity asset's UCAP or down-to the firm consumption level when dispatched;[2] and

Subsection 2.1.7(e) will be reworded in the final CMD to: "the proposed date for a physical commissioning test that demonstrates the control systems and processes for dispatch, and also checks that a relationship exists between the provider and the contributing resource(s) that results in reduced load." Footnote 2 will be removed from the final CMD.

(f) site IDs, if the demand response asset is existing load.

The AESO reviewed stakeholder feedback respecting the participation of a demand response asset on the demand side of the capacity market. As mentioned in the cover for CMD 2, participation of demand-side resources on the demand side of the capacity market may require further examination and is not contemplated at this stage. Incorporating volumes into the demand curve can significantly change the demand curve shape during the capacity auction, adding significant complexity to the auction bidding process and clearing. Demand side participants are encouraged to develop demand response products and receive capacity payments for the ability to curtail load during periods of tight supply.

2.1.8 ***External capacity assets.*** An external capacity asset may prequalify to participate in the Alberta capacity market. Such asset may be a named generating resource in, or a utility system of, another jurisdiction. A prequalification application for an external capacity asset must include:

(a) evidence of firm transmission service from the external capacity asset to the border of Alberta;

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[1] Demand response aggregators will be required to maintain records for all contributors as well as activation notices sent to their contributors specifying the start time, stop times, and dates of demand response activations, in addition to a record of contributors demonstrating the eligible portion of the demand response asset that the contributor is providing to the demand response aggregator.

[2] The test must be conducted by the AESO prior to the second rebalancing auction for the obligation period. The test will check the control systems and processes for dispatch, and also check that a relationship exists between the provider and the contributing resource(s) that results in reduced load for at least four continuous hours.

(b) evidence that the external capacity asset, or portions thereof which are registered as a capacity asset are not used as non-recallable assets in another resource adequacy program in any other jurisdiction; and

(c) evidence from the balancing authority in which the asset is located that capacity deliveries from the external asset will only be curtailed on a pro-rata basis as firm load in the balancing authority.

The sentence "such asset may be a named generating resource in, or a utility system of, another jurisdiction" will be removed from subsection 2.1.8 in the final CMD. The rationale for removing this sentence are as follows:

- External capacity assets can be a named generating resource and a utility system. The distinction between the two is no longer required.
- External capacity assets should not be limited to providing capacity from specific generating assets.
- The AESO has no ability to validate the performance and availability data submitted for a named generating resource or a utility system external resource. We would have to rely on the external entity, and would not have independency of verification.

2.1.9 ***Storage assets.*** A storage asset may prequalify to participate in the Alberta capacity market. A prequalification application for a storage asset must include evidence that the asset can maintain its energy production at its estimated UCAP level for at least 4 hours.

The AESO anticipates that the 4-hour requirement noted above in red will turn to black in the final CMD. The following rationale will be added to the final CMD:

> The prequalification requirement for storage assets to demonstrate the ability to maintain their energy production at the UCAP level for at least 4 hours derives from the historical observation that the average duration of system stress events (emergency energy alerts, or EEAs) in Alberta has been 4 hours (see Table 1 below). This requirement is intended to ensure the reliability value from storage assets aligns with Alberta's reliability needs and that storage capacity assets UCAPs are measured consistently.

Table 1 – *Historical Durations of System Stress Events in Alberta*

Year	Month	Day	EEA duration (HH:MM)
2012	January	17	2:07
2012	January	18	0:27
2012	July	9	5:10
2012	November	20	1:31
2013	May	4	4:28
2013	May	9	3:07
2013	June	28	8:32
2013	June	29	2:43
2013	July	2	6:42
2013	September	3	3:16
2013	September	4	6:03
2013	September	5	4:19
2014	July	30	6:06
2017	July	26	0:08
2017	September	26	3:37
Average			3:53

2.1.10 ***Aggregated capacity assets.*** Separate resources in multiple locations may aggregate and participate in the Alberta capacity market as a single asset, including assets which have a UCAP less than 1 MW. Aggregation beyond a single enterprise is not permitted unless clear ownership

share percentages can be specified for billing purposes. If the aggregated capacity asset is comprised of individual component resources in multiple load settlement zones, a retail asset must be created for each settlement zone and the aggregated capacity asset is then the aggregation of the retail assets. All sites within the retail asset will be considered individual component resources for the aggregated capacity asset. The capacity of individual component resources within the aggregation cannot be offered separately into a capacity auction.

A prequalification package for an aggregated capacity asset must include:

(a) an itemized list of all the confirmed or possible individual component resources of the aggregated asset;

(b) evidence that the estimated sum of the UCAP ratings for individual component resources is equal to or greater than the minimum UCAP size of 1 MW for the entire obligation period;

(c) evidence that individual component resources of the aggregated capacity asset meet the necessary asset-specific requirements in subsections 2.1.7 to 2.1.9 based on their fuel type; and

(d) evidence that each individual component resource of the aggregated capacity asset has or will have appropriate interval metering.

Stakeholders have suggested that the maximum UCAP size for aggregated capacity assets should be no greater in size than the single largest generating asset, in order to prevent reliability issues, potential increases in the operating reserve requirement and any potential impact to capacity auction clearing. The AESO notes that the size of aggregated assets is not related to real time operational risk as each component part of the aggregated asset is operated and dispatched independently (see below). However, the AESO supports initially limiting UCAP size for aggregated capacity assets to be no larger than the single largest existing capacity market asset to ensure that the introduction of aggregated capacity assets does not result in unanticipated capacity market distortions and will add this upper limit to the final CMD.

The AESO intends to include additional rationale in the final CMD clarifying how an aggregated capacity asset participates in the energy or ancillary services markets. If the individual component assets resources of an aggregated capacity asset meet the dispatch requirements in the energy and ancillary services markets, the component assets of an aggregated asset will be dispatched and operated as separate assets. The aggregation of generation assets in the energy and ancillary services markets will remain as described in the definition of "aggregated generating facility" in the *Consolidated Authoritative Document Glossary* that will be effective on September 1, 2018, and Section 501.10 of the ISO rules, *Transmission Loss Factors*.

2.1.11 ***Refurbished capacity asset***. A capacity asset is a refurbished capacity asset if any of the following apply prior to the start of the obligation period for a capacity auction:[3]

(a) retrofits have been made to the capacity asset that will result, by the commencement of the obligation period, in an increase in maximum capability by an amount exceeding the greater of:

i. **XX** percent of the capacity asset's most recent UCAP; or

ii. **YY** MW above the capacity asset's most recent UCAP;

[3] The AESO is currently evaluating what the appropriate thresholds (XX, YY, ZZ) are for refurbished capacity assets and will update future versions of the CMD accordingly.

or,

(b) the amount of capital required to retrofit the capacity asset will be equal to or greater than **$ZZ** per kilowatt of the whole capacity asset's most recent UCAP after refurbishment. Investment costs may include the costs associated with reactivating a capacity asset that was previously temporarily delisted and in which investment in the asset was undertaken prior to reactivation.

A prequalification package for a refurbished capacity asset must contain the cost data associated with the project in sufficient detail to allow the AESO to determine whether the relevant cost threshold is met.

The AESO anticipates that subsection 2.1.11 will turn to black and footnote 3 will be removed in final CMD. The thresholds for refurbished capacity assets will be updated as follows:

- XX% will be changed to 15% of the capacity asset's most recent maximum capability;
- YY MW will be changed to 40 MW above the capacity asset's most recent maximum capability; and
- $ZZ per kilowatt will be changed to $200 per kilowatt of the whole capacity asset's most recent maximum capability.
- Subsection 2.1.11(b) will reflect that an escalation rate will be applied to future refurbished capital cost thresholds. The AESO is currently evaluating escalation rates and anticipates that a specific rate will be included in the final CMD.

The rationale for the above thresholds is based on a volumetric and cost analysis of recent or proposed refurbishments in Canada. This analysis was performed to assess the capacity costs of historical refurbishments to determine the capacity cost for those projects. The results of the analysis indicated a lower range of annualized refurbishment costs of about $45/kW-year for a typical coal to gas conversion. This is equates to a capital cost of $200/kW. The $200/kW threshold is expected to be low enough to include coal-to-gas conversions of the existing coal fleet as refurbished assets.

As described in Section 7, *Market Monitoring and Mitigation*, market power mitigation will be implemented to limit the negative effects of economically withholding capacity volumes. Submitting a refurbishment plan should not facilitate the economic withholding of capacity volumes. A capacity market participant with market power that submits a refurbishment plan that is approved by the AESO is able to offer that capacity volume for the refurbished asset at an unmitigated price. A capacity market participant will be required to indicate as part of the prequalification application, for each refurbished asset, whether the asset will: (a) retire if it fails to receive an obligation; or (b) not retire and submit a mitigated offer price for the existing asset to be used in the capacity auction in the event the unmitigated price does not clear. As such, CMD final will contain the following additions:

- A new subsection will indicate that where a capacity market participant that is subject to capacity market power mitigation submits a prequalification application to refurbish one or more of its assets, it must indicate for each asset if: (a) the existing asset will permanently physically delist if it fails to receive an obligation; or (b) not permanently delist and submit an additional offer at or below the mitigated offer price to be used in the capacity auction in the event the unmitigated price does not clear. In other words, if a capacity market participant chooses option (b), and they are subject to capacity market power mitigation, they must submit two independent single block priced offers into the capacity auction: one offer based on the desired price needed to refurbish (unmitigated offer), the other based on the price the capacity market participant would have submitted had they not submitted a refurbishment plan (mitigated offer). The AESO will use unmitigated offer first, if it does not clear, then the mitigated offer is used.

This approach is intended to eliminate the risk of the refurbishment offer process being used to economically withhold from the capacity market while allowing the existing asset to continue to participate in subsequent auctions if it does not clear as a refurbishment. The AESO is currently evaluating whether the following restriction should also apply to capacity market participants:

- Capacity market participant will only be able to offer in this manner a maximum of one time before the end of the asset life. A capacity asset which elects option (b) and then does not clear will not be able to select that option again for future auctions. In any future auctions, should the capacity market participant re-file a prequalification application to refurbish, the participant must choose option (a) requiring the asset to permanent delist if it fails to clear in the auction. This restriction is to prevent a "free" option that allows participants to submit a prequalification application for refurbishment each year and be permitted to submit unmitigated and mitigated offers on an ongoing basis.

The introduction of this approach for refurbishments will require a multi-stage clearing process for the capacity auction whereby any unmitigated offers for refurbishment assets which do not clear are added back into the supply curve at their mitigated price and the market clearing process run again. This process will continue until all refurbishment assets have cleared the market or offered on a mitigated basis. To simplify the auction clearing process, unmitigated refurbishment offers will be required to be single, inflexible blocks. Changes to Section 5, *Base Auction* may be required in the final CMD to reflect this process.

2.1.12 ***Incremental capacity asset.*** The legal owner of a prequalified capacity asset may elect to add an incremental volume of capacity above the asset's most recent UCAP into a capacity auction. Such incremental volume will not be subject to market power mitigation in accordance with Section 7, *Capacity Market Mitigation and Monitoring*, if the retrofits to the asset:

(a) will result in an increase in output greater than 2% of the capacity asset's most recent UCAP, but less than or equal to the greater of:

i. **XX**% of the capacity asset's latest UCAP; or

ii. **YY** MW;

and,

(b) will be equal to or greater than $**ZZ** per kilowatt for the amount of the increase in the capacity asset's most recent UCAP resulting from the investment.

A prequalification application for an incremental capacity asset must contain the cost data associated with the project in sufficient detail such that the AESO is able to determine whether the relevant cost threshold is met.

The AESO anticipates that subsection 2.1.12 will turn to black in the final CMD and will be updated with the following changes:

- A volume threshold, as described in subsection 2.1.12(a), is no longer needed due to the introduction of UCAP range as described in Section 3, *Calculation of Unforced Capacity* and will therefore be removed.
- $ZZ per kilowatt will be changed to $100 per kilowatt.
- An escalation rate will be introduced to apply to future incremental capital capacity cost thresholds. The AESO is currently evaluating escalation rates and anticipates that a specific rate will be included in the final CMD.
- Should the incremental capacity asset fail to clear the auction, and choose not to delist:

  a) the incremental capacity remains unmitigated until it receives an obligation; and

  b) has a must offer requirement for future auctions.

The rationale for the threshold values are based on a threshold analysis. This analysis included a review of historical uprate volumes in Alberta, which are documented in Table 2 below. The results indicated there were two ranges in uprates:

1) in the 3–5% (12–19 MW) increase range; and
2) in the 12-15% (44-53 MW) increase range.

Table 2 – *Summary of Alberta historical uprate capacity (maximum capability)*

A	B	C	D	E	F
Plants	AESO MCR (MW)	PPA Comitted Capacity (MW)	Increase Capacity (MW)	Increase Percentage (%)	Note
Battle River 5	385	368.2	16.8	4.56%	uprate
Genesee 1	400	381	19	4.99%	uprate
Genesee 2	400	381	19	4.99%	uprate
Keephills 1	395	383	12	3.13%	uprate
Keephills 2	395	383	12	3.13%	uprate
Sheerness 1	390	378.1	11.9	3.15%	uprate
Sheerness 2	390	378.1	11.9	3.15%	uprate
Sundance 3	368	353	15	4.25%	uprate
Range 1 average	**390**	**376**	**15**	**3.92%**	
Range 1 min	**368**	**353**	**12**	**3.13%**	
Range 1 max	**400**	**383**	**19**	**4.99%**	
Sundance 4	406	353	53	15.01%	uprate
Sundance 5	406	353	53	15.01%	uprate
Sundance 6	401	357	44	12.32%	uprate
Range 2 average	**404**	**354**	**50**	**14.12%**	
Range 2 min	**401**	**353**	**44**	**12.32%**	
Range 2 max	**406**	**357**	**53**	**15.01%**	
Clover bar 1-3	243	243	0	0.00%	Refurbish
Sundance 1	280	280	0	0.00%	no uprate
Sundance 2	280	280	0	0.00%	no uprate

Since the smaller uprates require much lower capital additions relative to major uprates, the larger range of uprate volumes will be used to determine the volume addition threshold above which the entire asset will be considered a refurbished asset. The 15% and 40MW incremental threshold described above is comparable to ISO-NE's New Capacity Eligibility section which stated that:

"Uprate (increase above threshold)—An existing resource can qualify as new if it is

proposing an increase in output that is the greater of 20% or 40 MW above the existing qualified capacity".

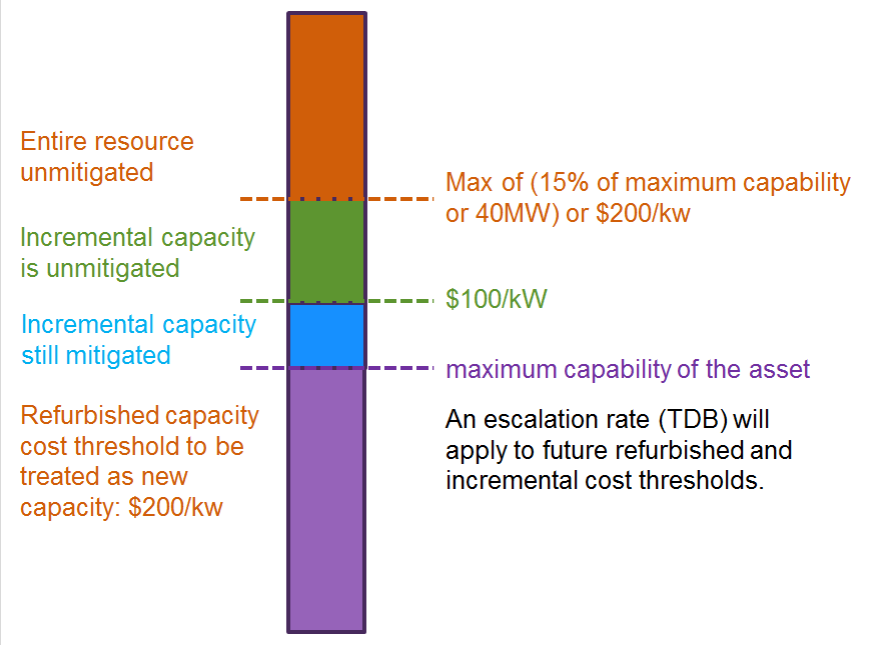
PJM uses an Avoided Cost Rate (ACR) to set their thresholds for incremental capacity, and set their cost thresholds at $25/kWy (2018$) for incremental capacity. Assuming at least 5 years of life from an investment in incremental unit capability, the incremental capital with at least 5 years life would be calculated as follows:

$25/KWy * 1/CRF = $25/KW-yr * 1/25.2% = $99.2/KW or approximately $100/KW.

Where the CRF = capital recovery factor based on 5 years and a discount rate of 8.2% (The discount rate will likely be different in based on future CONE work)

Based on the above analysis, the AESO recommends the following thresholds:

- Assets whose maximum capability is increasing by at least 15% or 40 MW (whichever is greater) or making a capital investment of at least $200/kW (across all installed MWs) will be eligible for treatment as refurbishments.
- Assets whose maximum capability is increasing by less than the 15% / 40 MW threshold and who are making a minimum capital investment of at least $100/kW for the incremental MW capability will be eligible to have the incremental MW volume classified as incremental. This illustrated below:



As described above in the annotation for subsection 2.1.11, refurbished capacity assets that fail to clear, must indicate as part of the prequalification package whether they are choosing to permanently delist or use their mitigated offer.

Security requirement for a new capacity asset

2.1.13 Parties seeking to have a new capacity asset prequalified by the AESO must post security prior to participating in a base auction. The amount of security will be equal to the most recent calculation of net-CONE multiplied by the lesser of the new capacity asset's estimated UCAP, or $**XX**. If the new capacity asset clears in the base auction, the credit requirement will be adjusted to account for the obligation price per MW and obligation volume for the obligation period. Guidelines

governing payment for the security requirement for new capacity assets will be consistent with the Section 103.3 of the ISO rules, *Financial Security Requirements*, which includes requirements for, among other things, limits on unsecured credit and acceptable forms of secured credit for participants across the AESO's markets.

The final CMD will be revised to reflect that, for the purposes of providing security to mitigate delivery risk, a new capacity asset includes brand new assets, as well as incremental and refurbished capacity assets that meet the prequalification thresholds noted in the annotations for subsections 2.1.11 and 2.1.12 above. Given the cost and increase in UCAP thresholds required to qualify as a new capacity asset, refurbishment projects, including coal-to-gas conversions, are deemed new capacity assets and will be required to provide security in order to mitigate the delivery risk.

In response to stakeholder feedback indicating that the security requirements in CMD 2 were too high, the AESO will revise the security requirement in the final CMD to reflect the following:

- A party seeking to have a new capacity asset prequalified by the AESO must post security for such assets prior to participating in the first capacity auction.
- The amount of security will be a function of gross cone that will decline through time as project milestones are reached, derived from the formula below:

  Security requirement = (CONE * 1/CRF) * 5%, where:

  CONE = the CONE value used for the reference unit in the demand curve determination, and

  CRF = {i(1 + i)^n} / {[(1 + i)^n]-1}, where:

  i = discount rate used in the gross CONE estimation determination, and

  n = plant life.

  The capital recovery factor (CRF) in the above equation delineates the number of years over which project investment can be recovered, and consequently how much of the project investment is recovered annually. For brand new assets, the CRF will use 25 years for n = plant life. For refurbished and incremental assets, the threshold costs described in subsection 2.1.11 and 2.1.12 will be used.

  The 5% value is based on Surety Association of Canada's guideline for performance bond ranging from 4% to 10% of invested capital.

The following security requirements will be applied:

i. Security requirement for brand new assets = (CONE * $1/CRF_{new}$) * 5%
ii. Security requirement for refurbished assets = $200/kW * 5%. The $200/kW value comes from the minimum refurbishment project cost threshold.
iii. Security requirement for incremental assets = $100/kW * 5%. The $100/kW value comes from the minimum project cost threshold for incremental capacity.
iv. Security requirement rate = security requirement divided by maximum number of auctions before the obligation period.
v. Declining security requirement = security requirement rate * obligation * number of remaining auctions before the obligation period.

The security requirement will decline as the asset progresses toward the obligation period provided the asset achieves its project milestones and is projected to be in commercial operation for the obligation period.

The following example will be included in the rationale document for the final CMD. The security requirement for a brand new 100 MW asset using an estimated gross-CONE of $148/kW will be

calculated as follows:

i. CRF, assuming a 8.2% discount rate = {.082(1 + .082)^25} / {[(1 + .082)^25]-1} = .095 or 9.5%

ii. Security requirement = $148/kW *1/CRF = $1557/kw or $1.557m/MW * 5% = $78k/MW

iii. Security requirement rate = $78k/MW / max number of auctions before the obligation period (6) = $13,000/MW

iv. Security requirement prior to participation in the base auction = (.013 * 100 MW) * 6 = 7.8M

Security requirement after first rebalancing auction = (.013 * 100 MW) * 5 = 6.5M

Security requirement after second rebalancing auction = (.013 * 100 MW) * 3 = 3.9M

Security requirement after commercial operation = (.013 * 100 MW) * 0 = 0M

The rationale for this change is that in determining the security requirement for a new capacity asset, the AESO must set an appropriate level that does not introduce a barrier to entry while at the same time ensuring capacity suppliers do not fail to deliver on their obligations.

The proposed security requirements for the final CMD are similar to those utilized in other situations where there is a risk of a party meeting a future obligation. For example, construction project performance bonds are a well-established mechanism for mitigating delivery risk. Construction project performance bonds are normally a percentage of the invested project cost.

Prequalification of a new capacity asset

2.1.14 The AESO will review all complete prequalification applications submitted by the prescribed deadline. The AESO has the right to verify any information in a prequalification application, including technical, financial, and operational data, through audits, requests for additional information, site visits and any other means that it deems necessary

2.1.15 The AESO will prequalify a new capacity asset that meets:

(a) the minimum size requirement of 1 MW;

(b) the asset-specific evidentiary requirements set out in subsections 2.1.7 to 2.1.12, as necessary; and

(c) the security requirements for a new capacity asset set out in subsection 2.1.13.

2.1.16 The AESO must notify all applicants of the prequalification results. Prequalified capacity assets will proceed to the qualification period. Please refer to Section 3, *Calculation of Unforced Capacity (UCAP) Ratings* for more information.

Prequalification for subsequent auctions

2.1.17 A prequalified capacity asset will remain prequalified for each subsequent capacity auction unless:

(a) the pool participant loses pool participant status; or

(b) the legal owner of the prequalified capacity asset:

i. fails to submit sufficient evidence that certain project milestones have been achieved during the forward period;

ii. performs retrofits to the asset that meet or exceed the thresholds for a refurbished capacity asset in subsection 2.1.11;

iii. successfully delists the asset in accordance with subsection 2.4 below; or

iv. changes its self-supply designation.

Subsection 2.1.17(b)(ii) in the final CMD will include "or the thresholds for an incremental capacity asset in subsection 2.1.12." The reference to subsection 2.4 in subsection 2.1.17(b)(iii) will also be updated to refer to subsection 2.3.

The rationale for this subsection 2.1.17 will be updated in the final CMD to include an explanation of why incremental capacity will need to be prequalified.

A capacity market participant with incremental capacity will be able to offer the incremental capacity above the participant's mitigated offer price cap. The participant must submit an incremental capacity prequalification plan to the AESO prior to the auction. Approval of this prequalification plan will include the provisions defined in 2.1.14 to 2.1.16 as well as ensuring the asset meets the thresholds defined in this sub-section. Prequalification will allow the participant to offer this extra capacity at an unmitigated price; otherwise, the initial UCAP of the asset will be derived from historical values excluding any consideration for uprates.

2.2 Self-supply designations

2.2.1 The following are required to self-supply capacity:

(a) the City of Medicine Hat;

(b) a site with onsite generation[4] that is only net-metered;[5] and

(c) a site with onsite generation that is net-metered and cannot physically flow its gross volumes due to system connection limitations.

2.2.2 A site where load is served by on-site generation that can physically flow its gross volumes to the interconnected electric system has the option to self-supply capacity providing that it has a bi-directional net-interval meter at the connection point to the system. Legal owners seeking a self-supplier designation must submit a request to the AESO before a prescribed deadline.

2.2.3 The AESO will review self-supply designation requests and approve those that meet the criteria in subsection 2.2.2. Self-supply designations will remain in effect for at least 4 years. Sites who intend to no longer self-supply must declare their intention to the AESO before the prescribed deadline.

The AESO anticipates the 4 year requirement for self-supply designations in red above will turn to black in the final CMD. The 4 year requirement is intended to align with the proposed timing of the approval of the demand curve parameters (and will be adjusted should the demand curve filing cycle be shorter or longer than 4 years), thereby providing the market enhanced certainty with respect to the demand curve. Self-supply volumes are not included in the procurement volume and therefore, the choice of whether or not to self-supply will impact the procurement volume. Stakeholders have suggested that the 4 year requirement is too restrictive and does not align with changes in operation and market conditions. To address this concern, the final CMD will reflect an ability for participants to submit a change in self-supply status inside of the 4 years provided the participant can demonstrate a physical change to the operation of the site.

[4] Sites with onsite generation include Industrial System Designation sites and sites under the Duplication Avoidance Tariff.
[5] Net meters measure electricity at the connection to the grid. Gross meters measure electricity at the electric terminus of the generator.

2.2.4 The AESO will determine the volume of self-supply capacity by subtracting the sites' net load from its gross load in the 100 tightest supply cushion hours per year for the past 5 years.

The AESO anticipates that the red text in subsection 2.2.4 above will turn to black in the final CMD. The reference to "100 tightest supply cushion hours per year for the past 5 years" will also be changed to "250 tightest supply cushion hours per year for the past 5 years".

Stakeholders raised concerns that allowing loads to self-supply introduced a free rider issue that may occur when a self-supply generator is off or de-rated and the self-supplied load relies on capacity purchased on behalf of loads which are not self-supplying, rather than the self-supply load curtailing its own load. Stakeholders were in agreement that it would be inappropriate for non-self-supply loads to pay for capacity for unreliable self-suppliers.

As stated in the rationale for CMD 2, the preferred solution of Working Group members was to use cost allocation to provide proper financial incentives for self-supplied load to not consume during system stress events. The intermittent high consumption rate, described within the weighted energy methodology framework in the Section 2 rationale document of CMD 2, provides an example by which proper incentives can be created for self-suppliers to curtail self-supplied load. Further consultation will be conducted in 2018/2019 to determine the details of a final proposed cost allocation approach.

2.2.5 The excess load (i.e., net load) in a self-supply arrangement may apply to the AESO to prequalify as a demand response asset, in accordance with subsection 2.1.7. However, a self-supply site cannot participate as both a demand response asset and a generating capacity asset in the same obligation period.

2.3 Delisting

2.3.1 A legal owner of a capacity asset that cannot participate in the Alberta capacity, energy and ancillary services markets for physical or economic reasons must submit a temporary delist request or a permanent delist notification, as applicable, to the AESO by a prescribed deadlines.

The final CMD will include, with respect to temporary delisting for either physical or economic reasons, a requirement for a corporate officer to attest that the submitted costs for economic delist or the outage durations for physical delists are accurate.

The rationale for the final CMD will clarify that when referring to "participation" the AESO is referring to supply participation in the Alberta capacity, energy and ancillary services markets (i.e., providing energy production or demand response). A load that applies, prequalifies and obtains a capacity obligation to provide demand response is considered a supply of capacity and the capacity market participant will have a must offer requirement in the energy market and capacity market. As such, these demand response assets will be required to delist should they choose to no longer offer demand response. When a load delists it does not mean the load must no longer consume electricity or lose the ability to self-curtail their consumption. Self-suppliers that are net load and choose not to provide demand response are not considered to be supply participation.

2.3.2 The legal owner of a capacity asset that is currently on an extended mothball outage pursuant to Section 306.7 of the ISO rules, *Mothball Outage Reporting* must submit a temporary delist request or permanent delist notification if they want to remain mothballed for the for the first applicable capacity auction.

AESO review of impacts to the reliability of the interconnected electric system

2.3.3 The AESO may conduct a reliability review for a temporary delist requests or a permanent delist notification to determine whether the capacity associated with such delist is needed to maintain the reliability of the interconnected electric system during the obligation period (e.g., thermal overloads, voltage, etc.).

The AESO anticipates that subsection 2.3.3 will turn to black in the final CMD.

2.3.4 The AESO will only review impacts on supply adequacy to assess whether there is sufficient amount of capacity available to ensure the minimum resource adequacy standard is met. If the results of the reliability review identify reliability concerns, the AESO may consult with the legal owner who submitted the request prior to finalizing its assessment of the temporary delist request or permanent delist notification.

The first sentence of subsection 2.3.4 will be replaced in the final CMD to read: "The AESO will only review impacts on supply adequacy to assess whether there is sufficient amount of capacity available to ensure the minimum target on the demand curve is met." With this change, the AESO anticipates that subsection 2.3.4 will turn to black in the final CMD.

Temporary delist request for economic reasons

2.3.5 The legal owner of a capacity asset may submit a temporary economic delist request to the AESO during the prequalification period for the second rebalancing auction for the corresponding obligation period. The legal owner must specify the capacity proposed to be economically delisted and provide net-going forward cost information for further assessment, as outlined in subsection 7.1.10 of Section 7, *Capacity Market Monitoring and Mitigation*.

The AESO anticipates that subsection 2.3.5 will turn to black in the final CMD, subject to the AESO adopting a market power mitigation model which incorporates asset-specific offer caps as described below. The term "net going forward cost" will be replaced with "net avoidable cost" in order to reflect consistent use of terminology with Section 7, *Market Monitoring and Mitigation*.

The AESO acknowledges stakeholder feedback surrounding the requirement for a capacity market participant to offer into the base and first rebalancing auction even when it plans to temporarily delist its asset for economic reasons during the obligation period. As described in the rationale for CMD 2, only after the capacity asset fails to clear in the base and first rebalancing auctions will a firm be able to determine, with the most up-to-date information, that the capacity asset will not earned sufficient revenue to remain economic. As long as the offer reflects the avoidable costs of temporary economic delist, the requirement that a temporary economic delisting request can only be submitted before the second rebalancing auction should not take away the opportunity for a capacity market participant to make arrangements to prepare to temporarily delist the asset for the upcoming obligation period.

In addition, the requirement to submit temporary economic delist request during the pre-auction period for the second rebalancing auction should not have an undue impact on the market outcome. If the offer clears in the base auction or first rebalancing auction for the upcoming obligation period, there is no economic reason for the capacity asset to delist for the upcoming obligation period. If the offer does not clear, the temporary economic delist request for the upcoming obligation period may be submitted before the last rebalancing auction relevant to the subsequent obligation period. As such, allowing economic delist bids for the second rebalancing auction only does not unduly restrict an asset from economically delisting for more than one obligation period.

If the AESO adopts the market power mitigation model that applies a default offer price cap of

net-CONE to all existing capacity assets as described in the annotation for subsection 7.1.2, the AESO will remove the requirement that a temporary economic delisting request must be submitted during the second rebalancing auction. Allowing a temporary economic delisting request of such a capacity asset to be submitted before the base and the first rebalancing auctions will prevent the capacity asset from having to take on an obligation at an operating loss.

2.3.6 In addition to completing the reliability review described in subsection 2.3.3, the AESO will, for each request as per subsection 2.3.5 above, review and approve the net-going forward cost information based on economic justifiability and benefits to the balance of the legal owner's portfolio.

The AESO anticipates subsection 2.3.6 be replaced by the following in the final CMD: "In addition to completing the reliability review described in subsection 2.3.3, the AESO will, for each temporary economic delist request as per subsection 2.3.5 above, review and approve the net avoidable cost information based on whether such costs are economically justifiable.

Subsection 2.3.6 will clarify that the temporary economic delisting request must include the avoidable cost data that the economic delisting decision was based upon and a corporate officer's attestation to the accuracy of the avoidable cost data. The AESO is requiring an avoidable cost data submission and attestation to verify that the temporary economic delisting request is not for the purpose of removing an asset from the market in order to increase capacity or energy prices to benefit the firm's portfolio.

A capacity asset may temporarily economically delist from the capacity market but choose to participate in the energy and ancillary services markets for no more than 5 continuous months in the same obligation period. The temporary economic delist request must specify which continuous months during the obligation period the capacity asset would be participating in the energy and ancillary services markets. The avoidable cost submission associated with such a temporary economic delist request must reflect the fact that the capacity asset will be available in the energy and ancillary services markets in the specified continuous months.

Allowing a temporarily economically delisted capacity asset to participate in the energy and ancillary services markets for a portion of the obligation period allows supply flexibility to capture market opportunities. However, a temporary economic delisting request suggests a capacity asset is intended to be mothballed due to economic reasons. Participating in the energy and ancillary services market for a prolonged period would not be consistent with the intent of temporary economic delisting. Therefore, the final CMD will place a 5 month limit on the duration of participation in the energy and ancillary services markets for such assets. In addition, assets will not be able to participate in the energy and ancillary services markets for periods in which they declared they would be mothballed as per their submission prior to the second rebalancing auction.

2.3.7 If the AESO approves the net-going forward costs, the legal owner must offer the net-going forward costs of the capacity asset into the capacity auction. If the capacity asset does not clear the auction, the legal owner will be required to temporary delist the capacity asset.

In the final CMD, the term "net going forward cost" will be replaced with "net avoidable cost" in order to reflect consistent use of terminology with Section 7, *Market Monitoring and Mitigation*.

2.3.8 A capacity asset may not economically delist for more than two consecutive obligation periods. A legal owner must submit a temporary delist request for each capacity auction.

The AESO anticipates subsection 2.3.8 will turn to black for the final CMD. A capacity asset may not temporarily economically delist for more than two consecutive obligation periods. The intent is

to facilitate the optimal use of the existing transmission system and prevent price distortion caused by tuncertainty surrounding the duration and timing of a delisted capacity asset's return to operation.

Temporary delist request for physical reasons

2.3.9 A legal owner of a capacity asset must submit a temporary physical delist request during the prequalification period of a capacity auction if it is expected that the capacity asset will be physically unavailable to meet its obligation for a period equal to or greater than 5 continuous months in any one obligation period. A temporary physical delist request must include:

(a) an explanation of the physical limitation accompanied by supporting documentation as evidence of one or more of the following:

i. a significant physical operational restriction;

ii. major repair(s) that will extend into the applicable obligation period for more than 5 months;

iii. an order, decision, final rule, opinion or final directive from a regulatory authority specifically mandating the retirement or derating of the capacity asset; or

iv. asset retirement beginning mid-way through an obligation period;

or,

(b) a written, sworn and notarized statement of a corporate officer certifying that a new capacity asset, which cleared the capacity auction for the obligation period prior to the obligation period of the relevant capacity auction, will not be in full commercial operation prior to the upcoming obligation period.

Subsection 2.3.9(b) will be revised in the final CMD the sentence to state "a written, sworn and notarized statement of a corporate officer certifying that a new capacity asset, which did not clear in the capacity auction for the obligation period prior to the obligation period of the relevant capacity auction, will not be in full commercial operation prior to the upcoming obligation period." With this change, the AESO anticipates that subsection 2.3.9 will turn to black in the final CMD.

A capacity market participant will be required to temporarily delist a capacity asset that is physically unavailable to meet its obligation for a period equal to or greater than 5 continuous months in any one obligation period. Temporary delisting for physical reasons will not be allowed if the capacity asset is physically unavailable to meet its obligation for a period less than 5 continuous months in any one obligation period. Additionally a capacity supplier will not be allowed to temporarily delist a capacity asset for physical reasons for more than two consecutive obligation periods.

The rationale for the 5 month threshold is that the 5 months is short enough to enable seasonal assets to participate, and long enough to ensure the seasonal asset provides adequate value for reliability.

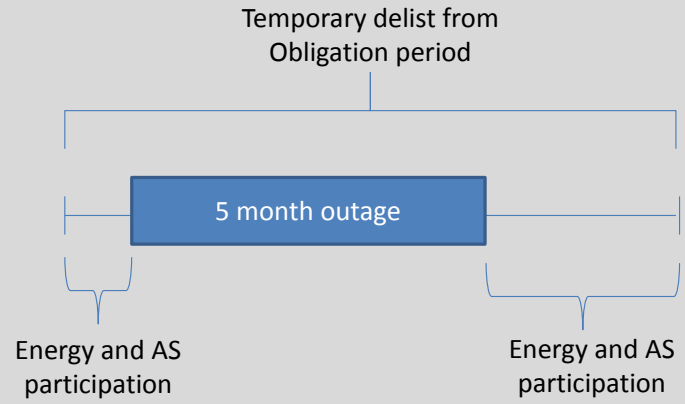
A capacity asset may not temporary delist for physical reasons for more than two consecutive obligation periods. A legal owner must submit a temporary delist request for each capacity auction. The restriction of up to two consecutive obligation periods is applied to temporary physical delisting to facilitate the optimal use of the existing transmission system, as well as ensure that the capacity market price signal is an effective investment signal.

The rational for the final CMD will explain that the obligations in subsection 2.3.9 apply to demand response assets that lose and cannot replace component assets to maintain its UCAP. As reflected in Section 3, *Calculation of Unforced Capacity* (UCAP) of CMD 3, demand response aggregators will be required to maintain records for all component assets specifying the start and stop dates and times of component demand response activations. This data is required to

calculate the aggregated UCAP to be used in each auction.

2.3.10 The AESO will approve a temporary physical delist request if the AESO is satisfied that the capacity asset is physically unable to function for a period equal to or greater than 5 continuous months. An approved temporary physical delist request for physical reasons for a portion of an obligation period will delist the capacity asset from the capacity market for the entire obligation period. The capacity asset will be required to participate in the energy and ancillary services market for the remainder of the obligation period not included in the temporary physical delist request.

The AESO anticipates that subsection 2.3.10 will turn to black in the final CMD. Further clarification will be added to the rationale for the final CMD to explain that a capacity asset that has received approval to temporarily delist due to physical reasons may participate in the energy and ancillary services markets during the period that the asset is physically capable of providing energy (able to function) assuming that period is less than 7 months of the obligation period, as outlined below:



The asset will not receive a capacity obligation for the obligation period but will be able to participate in the energy and ancillary services market.

Permanent delist notifications

2.3.11 A legal owner of a capacity asset may submit a permanent delist notification to the AESO during the prequalification period of a capacity auction, excluding however during the last rebalancing auction for the corresponding obligation period. The legal owner is not required to submit supporting documentation unless requested by the AESO. Once the permanent delist notification is received by the AESO it cannot be withdrawn.

The final CMD will clarify that the asset retirement date does not need to occur at the start of the obligation period. A capacity market participant that is currently participating in the energy market and is intending to permanently delist, if the asset has a must offer requirement in the energy or ancillary services markets, must participate in the energy market until to the physical retirement of the asset. The criteria for receiving a capacity obligation is the same as the criteria described for temporary physical delisting described in the annotation for subsection 2.3.9.

The final CMD will clarify that external capacity and demand response assets which permanently delist may re-enter the capacity market by submitting a prequalification application for a new asset.

The red text above in subsection 2.3.9 will be changed from red to black in the final CMD.

Permanent delist notifications are required prior to the final rebalancing auction in order to give the market sufficient time to provide new capacity in response to retirements.

2.3.12 The AESO will review each permanent delist notification for reliability concerns as outlined in subsection 2.3.3. If there are no reliability concerns, the capacity asset (or portion of such asset) will be required to fully and permanently retire and will not be eligible to participate in any capacity auctions.

The wording “or be eligible for energy payments following the retirement” will be added to the end of subsection 2.3.12 in the final CMD.

2.4 Physical bilateral transactions

2.4.1 A physical bilateral transaction is a contractual arrangement between a load market participant and a capacity asset which leverages the transmission or distribution system to physically delivery of all or a portion of the load’s capacity needs, removing both the supply and demand volumes from the AESO administered capacity market. Physical bilateral transactions will not be permitted; however, a site may choose to self-supply capacity provided the site meets the qualification requirements described in subsection 2.2 above.