



# Minutes

## Transformation Design and Operation Working Group – Meeting 7

**Time:** 2.00pm – 4.00pm  
**Date:** 21 January 2020  
**Venue:** AEMO offices

### Attendees:

| Name              | Organisation           | Name               | Organisation          |
|-------------------|------------------------|--------------------|-----------------------|
| Aden Barker       | EPWA                   | Kate Ryan          | Energy Policy WA      |
| Alex Cruickshank  | Oakley Greenwood       | Liz Aitken         | Perth Energy          |
| Antoine Riboulon  | TESLA                  | Matt Shahnazari    | ERA                   |
| Ashwin Raj        | EPWA                   | Matthew Fairclough | AEMO                  |
| Brad Huppertz     | Synergy                | Melissa Sizoksi    | AEMO                  |
| Bronwyn Gunn      | EPWA                   | Miles Jupp         | ETIU                  |
| Dean Frost        | Western Power          | Neetika Kapani     | AEMO                  |
| Dermot Costello   | Clean Energy Council   | Neil Hay           | Oakley Greenwood      |
| Dev Tayal         | Tesla                  | Noel Schubert      | ERA                   |
| Dora Guzeleva     | EPWA                   | Oscar Carlberg     | Alinta                |
| Drew Harris       | Simcoa                 | Patrick Peake      | Perth Energy          |
| Elizabeth Walters | ERA                    | Paul Arias         | bluewaters            |
| Emma Rowe         | Department of Treasury | Quentin Jeay       | Kleenheat             |
| Erin Stone        | Point global           | Raja Sarawat       | ERA                   |
| Geoff Gaston      | change energy          | Rebecca White      | EPWA                  |
| Glen Carruthers   | Western Power          | Richard Beverley   | Alinta                |
| Greg Ruthven      | AEMO                   | Rodney Littlejohn  | Tersum Energy         |
| Jacinda Papps     | Alinta                 | Shannon Hewitt     | BSC Solar             |
| James Townsend    | Lacour                 | Simon Middleton    | AEMO                  |
| Jason Froud       | Synergy                | Stephen Eliot      | RCP WA                |
| Jo-Anne Chan      | Synergy                | Steve Gould        | Community electricity |
| Jupp, Miles       | EPWA                   | Stuart Featham     | AEMO                  |
|                   |                        | Wes Medrana        | Synergy               |

| Item No. | Issue |
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|----|---------------------------------------------------------------|
| 1. | Reserve Capacity Mechanism (RCM) allocation design parameters |
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Ashwin Raj (AR), Energy Transformation Implementation Unit (ETIU) opened the meeting and set out the ground rules, noting that the meeting would be recorded and requesting people state their name and organisation when asking a question.

AR discussed the purpose of the workshop

- Outline the design parameters to be endorsed by Taskforce
- Discuss the Network Access Quantity (NAQ) and Capacity Credit (CC) assignment process

- Review worked examples
- Identify detailed design issues for later discussion and for the Taskforce

AR noted that the session would aim to capture issues raised on the whiteboard and review and categorise at the end of the session.

AR noted the design parameters to be put forward for endorsement at the 7 February 2020 Taskforce and other matters to be brought to Taskforce for endorsement post the 7 February 2020 meeting.

Matters to be endorsed 7 February 2020 Taskforce meeting:

- The need for a mechanism (the NAQ) to ensure the RCM continues to achieve the Reliability criterion.
- The NAQ mechanism will be performance based and not time limited. The current performance framework is fit-for-purpose. ETIU has identified several areas for improvement – these will be subject to further consultation before recommendations are provided to the Taskforce.
- Design principles of the NAQ framework
- No market mechanism to facilitate transfer of NAQ at this time, nothing this may be revisited in the future.
- DSM providers to receive same level of investment certainty as generation facilities (noting that this may be through an alternative framework).
- High-level NAQ assignment process

Matters to be brought to Taskforce for endorsement post February 2020

- Transition issue: whether NAQ will be assigned in the 2020 Cycle or not.
  - ETIU to consult further
  - Target TDOWG in late February/early March
  - Taskforce endorsement targeted for March
- Treatment of storage (options to accredit) and DSM (mechanism for certainty)
  - Commence consultation in February through 1:1s
  - Target TDOWG presentation March
  - Taskforce endorsement targeted by mid-2020

AR covered off on purpose of the RCM

- Ensure reliability by incentivising investment in generation capacity when needed by the system by providing a predictable stream of revenue that provides investment certainty.
- This can be undermined in a constrained access framework, as network constraints may impact a facility's ability to transfer its output into the network when needed by the system and reduce its Capacity Credits. Accounting for constraints may therefore expose capacity revenues to volatility and result in uncertainty.

AR discussed NAQ design principles

- Capacity Credits must not be assigned beyond the physical capacity of the network
- Available network capacity should be efficiently rationed to maximise the access of parties and therefore the economic benefit of the network
- The value of existing assets on the system should be respected and those assets should retain economic value under the RCM as long as facility performance is maintained
- The new framework should contribute to locational signals for new entrants so they can make informed decision about risk and opportunity
- Barriers to entry and exit should be minimised
- The new framework should be simple, transparent and readily implemented in the WEM with minimal changes to existing processes.

AR noted other changes that are occurring or being proposed that needed to be accounted for during the design of the NAQ framework.

- RCM pricing reforms. Noted the introduction of fixed vs floating prices.
- ERA review of the Relevant Level Methodology (RLM). Noted the previous concerns raised by market participants to defer the NAQ assignment until the new RLM is adopted.

- Outage management. Noted the key change to develop new calculations for intermittent generators to account for outage rates in the accreditation process.

AR noted the different prioritisation orders that would apply depending on whether there are fixed price offers or not.

AR explained the relationship between Certified Reserve Capacity (CRC), NAQ, and CC.

- A facility's performance must always support its NAQ.
- This means a facility's CRC must always be equal to or greater than its NAQ (i.e.  $CRC \geq NAQ$ ).
- A facility may be eligible for a higher NAQ where its  $CRC > NAQ$ .
  - Increase treated as 'new' NAQ, to be competed for with everyone else.
  - Jacinda Papps, Alinta (JP) noted that CRC could increase due to efficiency improvements each year and queried whether an efficiency improvement of a small amount (e.g. 0.5MW) would be treated as new?
    - AR noted preference to keep NAQ constant and treat the increase as new but if there is a need for a small tolerance it can be discussed during the development of detailed design.
    - Alex Cruickshank, Oakley Greenwood (AC) asked JP about the kind of efficiency improvements that were being contemplated and up to what amount/difference.
    - JP replied year on year small efficiency improvements, plant might have performed better in one year and having proven performance at that level would be able to be certified. Generally a sub 5MW variation.
- Where a facility's  $CRC < NAQ$ , then:
  - The facility's NAQ is adjusted down until  $CRC = NAQ$
  - 'Surplus' NAQ is available to other market participants
  - JP queried if this would include the carve out for intermittent generators. AR replied yes.
- CCs will generally be assigned equal to the facility's NAQ (i.e.  $CC = NAQ$ ).
  - Exception for intermittent generators under certain circumstances discussed later.

AR discussed the four stage NAQ assignment process

- Stage 1: AEMO assigns CRC.
- Stage 2: Facilities submit their trade declarations, noting that:
  - RCM pricing reforms will introduce a requirement for new facilities to nominate whether they have chosen the fixed or floating price.
  - The NAQ reforms will require proposed facilities to nominate a minimum requirement for Capacity Credits, to streamline the process for assigning NAQ.
- Stage 3 – AEMO confirms existing quantities for NAQ holders and assigns CC up to NAQ.
- Stage 4 – AEMO assigns new NAQ:
  - AEMO assesses residual network capacity through a network capacity modelling exercise.
  - AEMO assigns NAQ based on available network capacity and assigns CC up to NAQ.
- Patrick Peake, Perth Energy (PP) queried whether AEMO or Western Power would run stage 4. AR replied that for enduring arrangements it will be AEMO but until these are in place it is likely to be Western Power running a process similar to the current Constrained Access Entitlement process.

AR discussed adjusting NAQ where facility performance does not support NAQ (i.e. where  $CRC < NAQ$ ).

- The general rule is that NAQ will be reduced (so that  $CRC = NAQ$ ) and that the surplus NAQ will become available to other market participants in stage 4 of the same cycle. Some exceptions.
- JP queried whether there would be a transparent process for market participants to find out how much surplus NAQ is available.
- AR noted participants would already be well into the Capacity Cycle before surplus NAQ is known.
- Andrew Stevens, Perdaman (AS) noted that this would still be useful market information for future Capacity Cycles.
- AR agreed and noted it would be a matter for detailed design.
- Liz Aitken, Perth Energy (LA) queried whether, if a facility received a lower level of CRC in one-year (e.g. if on an extended outage for maintenance) and then was certified back to the original level the next year, would the pricing arrangements (fixed v. floating) change for that facility?

- AR replied that pricing arrangements for the increased NAQ would not change and would reflect the existing arrangements for the facility.
- Aditi Varma, ETIU, (AV) queried over what timeframe NAQs would be held in this situation
- AC noted that if there was a defined and achievable return to service the NAQ would be held. AR noted this would be something AEMO would consider in their assessment of whether a facility has met its performance obligations (through the CRC process)

AR discussed adjusting NAQs where facility performance exceeds NAQ (i.e. CRC > NAQ).

- In these circumstances, a facility may be eligible for a higher NAQ to match its CRC if available network capacity supports the additional NAQ.
- The facility will compete with other facilities in the Stage 4 process (i.e. no priority solely because of incumbency).

AC discussed worked example of adjusting NAQs where CRC > NAQ.

AR discussed replacement of capacity through maintenance or improvements.

- Noted that NAQ would be retained where capacity is replaced with like-for-like technology.
- But changing generation technologies (e.g. swapping gas turbines for wind) would be treated as new, requiring the NAQ to be relinquished and the facility having to compete for NAQ with other facilities in the Stage 4 process.

AC discussed worked example for replacement of capacity.

- During the discussion of the worked example, Greg Ruthven, AEMO (GR) queried whether replacing smaller wind turbines with larger ones (e.g. 1.5MW turbines to 5MW turbines) would trigger a change in technology that would require the NAQ to become contestable.
- AC noted that there are a whole series of factors that would need to be considered and that an upgrade of this size could change the flow of power into the network, and that this should therefore be treated as a change in generation technology.
- There was general disagreement with this statement from attendees.
- AR noted a decision hadn't been made on where the change in technology threshold would sit and this would be addressed as part of the development of a detailed design. It was noted as an issue.
- JP queried whether changing between different types of gas turbine technologies would be treated as a change in generation technology.
- AR and AC stated that more work would need to go into deciding where the threshold lies.
- LA noted that under Western Power's technical rules any change in the type of machine was treated as a change in the facility and stated it wouldn't be suitable to use those provisions as a model for this process.
- AC noted that picking criteria will be difficult as even upgrading turbines might change the way a facility interacts with the network
- PP noted that this a big issue as owning a site can be a massive market power issue
- AR noted that the concept that the Taskforce would be asked to endorse would be that replacing capacity doesn't necessarily mean that you lose NAQs. But a change in characteristics or technology would be treated as new and the NAQ associated with the original generation technology would be relinquished and become available to be competed for.
- Noel Schubert (NS) queried whether a site should just have a certain level of access and the beyond that it shouldn't matter how capacity was provided?
- AR noted that different types of capacity interact with the network differently
- Aden Barker, ETIU (AB) noted that at this stage the paper going to Taskforce just needs to have principles that will be followed, not solutions for every scenario.
- JP noted that change in technology sounds like a good principle but the meaning will be different for different parties.
- Adam McHugh, Ernst and Young (AM) noted that reform is being driven by changes in technology that were not anticipated, and queried whether the proposed design creates an incentive to lock in old technologies.

- AR noted that the design of the NAQ framework needed to balance competing objectives. On the one hand, the reforms should not disincentivise efficient investment in existing capacity (e.g. as part of maintenance). On the other hand, incumbents should not be given carte blanche to hold on to Capacity Credits and entrench their incumbency by being allowed to change generation technologies and to hold on to NAQ assigned to the original facility.
- AM noted the change in technology requirement may incentivise facilities with older technologies to hold on to their plant to keep their NAQ rather than investing in lower cost technologies and risk losing their NAQ.
- AC noted that the decision would be up to market participants and they would make economic decisions about more efficient technology.
- LA noted that the NAQ framework will change the economics of that decision.
- AS noted that if the principle of performance is broader – e.g. capability to deliver energy or carbon emissions – performance metric may need some filter which permits a participant to swap out for more efficient/low carbon technology without relinquishing their NAQ.
- LA queried whether the market objectives would be changed as they state Market Rules should be technology neutral and this process locks in existing technologies.
- AC stated that it was technology neutral, LA disagreed.
- AC noted that there is a question as to what technology neutral means. LA noted that there is no further information about what it means beyond what is written in the Market Rules.
- LA noted that the least cost objective principle also becomes problematic if existing and older inefficient technology is locked in.
- AR noted that the NAQ framework would not prevent participants making efficient investments in their existing capacity (e.g. as part of maintenance). However, there needs to be some threshold where the investment in the capacity results in a new capacity resource that should trigger the NAQ becoming contestable, so as to prevent entrenching incumbency
- PP noted that there are no correct answers
- LA noted that a decision has been made by the Taskforce that they would work within the confines the Market Rules.
- AC noted that this is the market objectives as a group
- LA stated that there is no definition of which is more important, and it is inappropriate to pick and choose. Queried what would happen when cannot tiebreak between objectives during detailed design.
- AR noted that the detailed design of the NAQ framework will be considered in the context of the market objectives. The intent is to strike a balance between incentivising efficient investment in existing facilities. AR stated that the Taskforce would be asked to endorse:
  - Replacement of capacity will not automatically be treated as ‘new’ capacity, to encourage participants to make efficient investments in their existing capacity.
  - Where the replacement of capacity results in a change in generation technology, then the capacity that is replaced should be treated as ‘new’, requiring the NAQ associated with the original capacity resource to be relinquished and become available to be competed for in the Stage 4 process. The definition of what would constitute a change in generation technology will be determined as a part of detailed design in consultation with stakeholders.
- AV queried how this principle would be extended to DSM capacity – how would changes in technology be assessed if the same level of certainty was being provided. AC noted down as an issue.

AR discussed adjusting NAQ for decreases in network capacity.

- Network capacity can be reduced due to retirements of network assets or a reduction in demand.
- Where this occurs, then NAQ would be adjusted proportionally across facilities to ensure that Capacity Credits are assigned based on the available capacity of the network.
- Matthew Fairclough, AEMO (MF) queried whether the proportional reduction applies to all generators or just the generators located behind the relevant constraint?
- AR indicated that it would only apply to generators located behind the constraint.

- AS queried why a reduction in demand would reduce available network capacity.
- LA noted it will increase the amount of time a constraint will bind on the line that will get capacity to other sources of demand.
- AR noted that if network capacity subsequently increased, for example demand increased or a new block load connected, that facilities that were previously impacted would receive a priority in the NAQ assignment process over other facilities that were not impacted and new facilities.
- GR queried whether that would only be up to previous level and if new capacity beyond that would be contestable. AR – yes.
- GR queried whether AEMO would need to be able to look backwards in history for NAQ reductions and know why they were applied to determine if the facility should have priority in the NAQ assignment process. AR – yes, this would need to be incorporated into system / process design.
- AC noted that the general principle is that where something is outside a facility's control some leniency should be applied
- PP noted that if network capacity is reduced by Western Power then Western Power should be required to offer compensation, otherwise decisions will be made without accounting for the potentially negative effects on market participants or the market. LA noted that this was particularly the case where Western Power uses non-network solutions.
- AR noted that this is an issue outside of scope for this project but that the Taskforce is aware of this issue and this will be addressed separately.

AR discussed adjusting NAQ for increases in network capacity.

- Facilities that have been previously impacted by a reduction in network capacity will be prioritised in the NAQ assignment process over other facilities seeking new or additional NAQ.
- In all other cases, facilities will compete equally with all other facilities seeking new or additional NAQ.
- Stuart Featham, AEMO (SF) queried whether facilities are applying for NAQ or applying for CRC/CCs with NAQ as an outcome. AR – the latter, however the process will be developed as part of a detailed design.
- AS queried what happens when a participant paid to augment a line but another facility behind the constraint has previously had capacity reduced and therefore had priority.
- AR replied that participants that fund network augmentation will receive a priority over all other facilities. The current discussion on adjusting NAQ for increases in network capacity assumed that any augmentation is a result of network funded investment and not participant funded investment. AR noted that the prioritisation order will be clarified in the detailed design.
- LA noted that industry did not want another Competing Applications Group (CAG) process.

AC discussed worked example adjusting for augmented network capacity (network funded).

AR discussed accounting for changes in the Relevant Level.

- Under general rules if  $CRC < NAQ$  then NAQ adjusted down with the surplus NAQ becoming available to be competed for by all other market participants.
- At the last TDOWG, several market participants indicated that this is inconsistent with principle of investment certainty for intermittent facilities that have their CRC reduced under the RLM because of, for example, the wind resource was poor.
- The ETIU has acknowledged that a strict application of the general rule may disadvantage intermittent facilities, particularly when the wind resource improves in a subsequent year and the existing intermittent facility must compete for the additional NAQ with all other facilities.
- The ETIU is therefore recommending to the Taskforce that a partial exception to the general rule will apply for intermittent facilities.
- The options for providing this protection (i.e. the duration of the protection) will be developed as part of a detailed design in consultation with industry. Considerations in developing a solution include:
  - The need to provide a measure of protection for performance issues outside of the control of a facility, to meet objective of investment certainty.

- The need to balance providing investment certainty by not unfairly penalising intermittent facilities for performance issues outside their control and maximising use of the network by allowing new entrants the opportunity to compete for unused NAQ.
- SF noted that scheduled facilities can also experience issues outside of their control (e.g. fuel issues, gas turbine fails unexpectedly). Noted that in this case AEMO does not automatically decrease CRC.
- AR noted that the exception will bring the treatment of intermittent facilities closer to how scheduled facilities are treated.
- Matt Shahnazari, ERA (MS) noted that investment certainty is not an objective of the Market Rules and queried whether it should be. AC logged this as an issue.

AC discussed worked examples accounting for changes in relevant level.

- Noted that having a one year 'memory' for NAQs resulted in the best outcomes for intermittent generators based on preliminary modelling by Oakley Greenwood. This means that an intermittent facility could recover from one bad year, but that NAQs would eventually decrease if performance continued to decrease.
- Noted that this was just one potential approach and that all that Taskforce would be asked to endorse would be the need for some protection for intermittent facilities.
- AS noted that intermittent facilities can easily have 3 years of lower performance followed by 6 years of better performance.
- AM asked if there was another (scheduled) generator behind the constraint when the relevant level dropped whether that generator would be able to pick up that NAQ during that year.
- AC – yes, but on a temporary basis. AS noted this seemed like a good solution. Noted that any change in relevant level only impacts NAQ to the extent that CRC is reduced to a level below the facility's NAQ.

AR discussed prioritisation order for new facilities (NAQ seekers)

- AEMO must accept offers from all committed floating price facilities. Will look at them as a group in network capacity modelling exercise. NAQ allocated based on results of that model, noting that facilities may get all or part of their CRC as NAQ.
- Scenario 1 – there are no fixed price facilities.
  - AEMO considers Proposed Floating Price facilities if the RCR is not met after accepting all Existing and Committed Floating Price facilities.
  - Apply a prioritisation order to select proposed facilities for NAQ until the RCR is met.
  - The prioritisation order can be based on the existing prioritisation order in the Market Rules (i.e. size, whether an EOI was submitted etc) or an amended prioritisation. This is discussed later.
- Scenario 2 – there are fixed price facilities.
  - If the RCR +3% is not met after accepting Existing and Committed Floating Price facilities, consider facilities in the following order until the target is met
    - Committed Fixed Price facilities. AEMO must accept all offers.
    - Proposed Floating Price facilities. AEMO accepts individual offers until the target is met using a prioritisation order.
    - Proposed Fixed Price facilities. AEMO accepts individual offers until the target is met using a prioritisation order.
  - MS noted that facilities that are accepted in the fixed price step might affect constraints for floating price facilities. If there are fixed price facilities and they do not end up running you will end up with a different generation mix. As soon as someone pulls out it will affect what is available for everyone else. Capacity value depends on technology mix that is already there – cannot assign without knowing what this is.
  - AR replied that what we are trying to do is to select facility to run through modelling tool to see if network can accept its output. The Market Rules (under the RCM pricing reforms) require that all committed facilities are accepted; therefore there is no basis to assess them separately in the network model (noting that they may get zero NAQ). In contrast, proposed facilities may

still withdraw from the process if they do not achieve their minimum CC requirement under the network model. By requiring proposed facilities to nominate their minimum CC requirement as part of their trade declaration, the need for iterations in the network model will be reduced and the NAQ assignment process simplified.

- LA questioned how the NAQ assignment process would result in locational signals for new investment. AR replied that the availability of NAQ in a part of the network is one piece of information that would inform new investments, and that this should be considered along with the WOSP and other information that would be made available to the market as part of the broader Energy Transformation Strategy.
- LA noted that it is difficult for generation facilities to locate in certain parts of the network, such as the CBD, and queried how this would be solved in terms of signalling a need for investment in this area. AR indicated that in an import constrained region of the network where it is difficult to locate new generation, the planning process should trigger a need for new network and that this would satisfy the investment tests under the Access Code.
- LA queried how information would be made available about where generation should be situated to meet demand, noting that it needs to be forecast.
- MF noted that Western Power forecasts load growth 10 years out.
- AS noted that this is a vague tool. When building power stations need specific information that you can rely on.
- AR acknowledged that it is not a perfect solution – that would be nodal pricing that more accurately reflects the value of generation capacity in over supplied (constrained) regions and under supplied regions. However, nodal pricing is complex and costly to implement as is not part of the reforms under the Energy Transformation Strategy.

AR discussed prioritisation order for proposed facilities.

- AEMO does not accept offers from all proposed facilities but only accepts offers from individual facilities until the RCR is met.
- The issue is whether proposed facilities should be considered as a group in the network capacity modelling tool or whether they are considered individually.
- If proposed facilities are considered individually, then the existing prioritisation order can be used to select the individual facility to be run through the network model. I.e., select the facility based on:
  - Size (largest first), then
  - Offers for capacity that was included in an EOI, then
  - Timing of the facility's offer (earliest first), then
  - Timing of the facility's CRC application (earliest first).
- If proposed facilities are considered as a group in the network model, then an 'amended' prioritisation order can be used to assign NAQ to facilities. I.e., run the network model and then assign NAQ based on:
  - Efficiency Quotient (replacing size), then
  - Offers for capacity that was included in an EOI, then
  - Timing of the facility's offer (earliest first), then
  - Timing of the facility's CRC application (earliest first).
- The 'Efficiency Quotient' is the ratio of the modelled facility output in the network capacity modelling tool at peak demand to its nameplate capacity.
- It is a measure of how efficient the facility is at providing its energy into the market under modelled conditions.
- AR noted that the network capacity modelling tool could operate in a similar way to the Constrained Access Entitlement tool, however other options are being considered by AEMO.
- AR noted that the ETIU will provide the Taskforce with its recommendations as to the preferred prioritisation order for proposed facilities following further consultation as part of the development of a detailed design.
- MS noted that periods of high loss of load probability are occurring outside of peak demand intervals and that this trend is expected to continue. The current process is centred around meeting

peak demand – queried whether there had been consideration of shift to different types of intervals with higher loss of load probability than peak intervals. AR noted that this may need to be considered as part of broader improvements to the RCM rather than as part of the NAQ framework.

AR discussed transitioning to the new arrangements

- AR noted the previous proposal to run the 2020 Capacity Cycle as usual and for AEMO to assign CCs under existing processes and timelines, after which NAQ would then be assigned to facilities based on their CC assigned in the 2020 Capacity Cycle
- AR noted concerns that other substantial changes are occurring to the RCM that need to be considered before implementing changes to the assignment of CCs.
- On that basis won't seek decision from Taskforce on transition approach as part of the 7 February 2020 Taskforce. Will come back to TDOWG to attempt to address concerns.
- Options include
  - Deferring current RCM timetable by up to 6 months (not preferred as rule changes are required).
  - Deferring the assignment of NAQ until the 2021 Capacity Cycle.
  - Continue as per the ETIU's previous proposal
- Targeting a date in March to seek Taskforce endorsement on the approach.

AC summarised issues that had been raised

- <https://www.wa.gov.au/sites/default/files/2020-02/TDOWG%20Meeting%207%20-%20List%20of%20issues%20-%20web%20version.pdf>

AR discussed next steps

- JP noted there was lots to still be designed – lends itself to a deferral so participants know what they are applying under
  - AR noted that the Capacity Cycle could continue without NAQ being assigned.
  - LA noted that it would be preferable to know what constraint equations will look like before allocation, but that industry does not know when they will be available
  - AV noted that Western Power and AEMO were doing this work and that the initial set should be available late 2020 or early 2021.
-