

# Initial feedback on the RCP's draft decision on the proposed method for the capacity valuation of intermittent generators

The ERA Secretariat, 10 May 2021



Economic Regulation Authority  
WESTERN AUSTRALIA

## RCP's draft decision

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- The RCP draft decision accepts the ERA's proposal with modifications.
- In the RCP's modifications, the ERA Secretariat identified barriers to the efficient allocation of capacity values to facilities.
- This presentation identifies key issues of the RCP's draft decision and makes recommendations for addressing those issues.

# Addressing issues in the draft decision

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1. Using the Delta method to allocate fleet capacity value to individual candidate facilities is unlikely to provide results consistent with principles of capacity valuation. It will cause highly variable results.
  - Explore the use of Delta method for facility group ELCC allocation.
2. Adjusting capacities in the COPT to match reserve capacity requirement is inconsistent with the planning criterion and other WEM rules.
  - This can influence the capacity value estimated for IG facilities and increase the supply cost of electricity to consumers. This is also discriminatory against renewable energy technologies.

## Average available capacity during stress periods against allocation method results (shown for large facilities only) – ERA’s proposal sampling method

facility	average_output_peakDemand	average_output_peakLS	current_RLM	ERA_Allocation	Delta_allocation
INVESTEC_COLLGAR_WF1	61.23	31.21	20.74	30.03	64.9
WARRADARGE_WF1	95.29	49.68	33.61	47.43	39.8
YANDIN_WF1	101.39	40.99	34.23	46.33	31.2
BADGINGARRA_WF1	66.28	28.44	25.94	32.12	21.3
ALBANY_WF1	7.30	6.41	5.48	5.97	17.1
GRASMERE_WF1	4.90	4.36	3.69	3.93	11.1
MERSOLAR_PV1	12.61	5.62	13.54	16.49	10.8
ALINTA_WWF	38.25	16.45	16.19	16.85	10.2
EDWFMAN_WF1	28.73	9.73	14.15	13.25	9.4
GREENOUGH_RIVER_PV1	5.82	2.78	6.28	6.4	7.6

## We also considered average outputs during top 50 peak LSG and peak Demand periods

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- RCP considered to use top 50 peak demand and peak LSG periods for calculating average performance and allocation to small facilities. (note peak LSG=peak LOLP, peak LOLP(ex all other facilities output) ~ peak Demand)
- Delta method results still do not make sense given average performance over this sample
- This is not to state that a sample of top 50 peak demand and 50 peak LSG is reasonable but to show the problem with Delta method
  - The 50 largest demand TIs in the past 7 years occurred in 12 distinct days only.
  - 50 largest peak LSG occurred in 13 distinct days only.

## Average performance over the top 50 stress periods.

Facility	Average over 50 largest demand TIs (MW)	Average over 50 largest LSG TIs (MW)
YANDIN_WF1	92.08	52.78
INVESTEC_COLLGAR_WF1	83.08	56.74
WARRADARGE_WF1	76.65	47.24
BADGINGARRA_WF1	59.69	30.32
ALINTA_WWF	34.40	18.71
EDWFMAN_WF1	28.20	11.73
MWF_MUMBIDA_WF1	17.83	9.46
MERSOLAR_PV1	12.79	7.87
ALBANY_WF1	11.29	12.89
GRASMERE_WF1	7.52	8.37
GREENOUGH_RIVER_PV1	5.64	3.75
TAMALA_PARK	4.51	4.39
SOUTH_CARDUP	3.34	3.24
RED_HILL	2.96	2.69
ROCKINGHAM	2.44	2.49
HENDERSON_RENEWABLE_IG1	1.60	1.70
BIOGAS01	1.57	1.40
SKYFRM_MTBARKER_WF1	1.03	1.04
NORTHAM_SF_PV1	0.99	0.63
DCWL_DENMARK_WF1	0.83	0.86
BLAIRFOX_KARAKIN_WF1	0.40	0.27
KALBARRI_WF1	0.30	0.18
BREMER_BAY_WF1	0.30	0.32
AMBRISOLAR_PV1	0.10	0.06

## **RCP's reasons to discount the ERA's proposed allocation method were not reasonable**

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- RCP may consider:
  - The application of Delta method at facility class level (to possibly improve the calculation of class ELCCs). The ERA's proposed method relies on First-in ELCC for facility groups. There might be merits in using Last-in ELCC information as well.
  - The effectiveness of the sampling method and consider alternative samples having regards for representativeness of the sample and sensitivity of results.

## Advantage of the ERA's proposed allocation method

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- Better alignment with capacity valuation principles
  - Uses the average performance during system stress periods as the basis of allocation.
  - Delta method ignores this important information.
- Acceptability to stakeholders is provided:
  - The ERA's allocation method ensures that facilities within the same facility class receive the same fraction of their average output during stress periods.
  - Facilities with higher average output during stress periods receive a higher capacity value (this accounts for different physical factors – such as location, size and engineering factors - that differentiate IGs' performance during system stress periods).

## Adjustment of capacities in the COPT

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### The RCP stated:

The Rule Change Panel considers that, while the Planning Criterion does not specify a target LOLE, the following can be implied:

- (1) if AEMO was to procure the exact amount of Capacity Credits set by the Reserve Capacity Requirement from only Scheduled Generators, the resulting system reliability would be acceptable; and
- (2) if AEMO was to instead procure the exact amount of Capacity Credits set by the Reserve Capacity Target with a proportion coming from Intermittent Generators, the resulting system reliability would not be acceptable because the resulting system reliability would be lower than that implied under (1).

Therefore, the Rule Change Panel considers that, instead of scaling the demand to a target LOLE, it is more appropriate to adjust the COPT so that the total number of Capacity Credits of all Facilities in the COPT equals the Reserve Capacity Requirement.

## Adjustment of capacities in the COPT

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The RCP's explanation in the previous slide is inconsistent with the WEM rules:

- All generators have Availability Class 1, including IGs
- WEM rules require a minimum amount of the RCT to be covered by AC1.
- Standalone ESR and DSPs have AC2.
- The proposed adjustment to the calculation of the COPT can result in distorting the capacity value of IGs.
  - Scaled facilities in the COPT do not exist in the SWIS.
  - Outage probability values calculated will be distorted.
- The adjusted COPT method proposed by RCP is not suitable:
  - This measures the capacity value of IGs beyond the target reliability risk level specified in the planning criterion.
  - This is because it measures IGs' contribution at the LOLE level provided by all facilities' contribution (effectively at RCT+IG's capacity which is greater than RCT)

## Possible solution

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- The ERA relied on EPWA's assessment of the depth of loss of load events likely to happen in the SWIS and proposed a target LOLE of 4 hours (that was the best available information).
- **A possible solution:** AEMO will soon develop system adequacy models for short and medium term adequacy assessments. AEMO would be able to determine the expected duration of shortfall events in the SWIS at the target level of adequacy risk specified in the planning criterion. AEMO can set the target LOLE to be used in the RLM.
- Otherwise in the future EPWA might introduce an explicit target LOLE.