

Update to the Calculation of the Adequacy Reserve Margin

7th Plan: SAAC Webinar

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Emergency Resource Dispatch Methodology

- Load in the raw Curtailment file from Genesys.
- Dispatch Emergency Resources (DR, DSG, etc.) consecutively for each hour there is a shortage. Only count energy needed to alleviate shortage.
 - Capacity Limited:
623 MW (Winter) and 833 MW (Summer)
 - Energy Limited:
40,800 MWh, annually.

Calculate ARM_E and ARM_C

- Determine minimum energy and capacity amounts, after ER dispatch, that would suffice to limit shortages to only 5% of the games.
- Independently apply those energy and capacity amounts respectively to the ARM_E and ARM_C calculations.
 - *In other words, do not assume anything about the characteristics of the resource(s) that will meet the shortages.*

ARM_E and ARM_C Formulae

$$ARM_E = \frac{\text{Total Resource Energy} - \text{Average Load}}{\text{Average Load}}$$

$$ARM_C = \frac{\text{Total Resource Peak Capacity} - \text{Peak Load}}{\text{Peak Load}}$$

Recall: An ARM > 0 means that RPM must plan for more load than in the forecast to be reliable, whereas an ARM < 0 means RPM must plan for less load than in the forecast to be reliable.

Average ARM_E/ARM_C over Load Range in RPM

- Calculate the ARM_E and ARM_C for Low, Medium and High loads.
- Then, average the ARM_E and ARM_C results over the load range in the RPM. Consider the example below.

Case	Q1 ARM_E	Q1 ARM_C
2026 Low	1.1	-0.2
2026 Med	-3.1	1.8
2026 High	-7.3	3.8
Average	-3.1	1.8

Which Test Year to Use?

- When updating the calculations for the ARMs, 2021, 2026, and 2035 ARMs were considered.

Considerations

- Currently, only one ARM_E and ARM_C are used to convey the adequacy requirements in Genesys to RPM.
- 2021 is at the end of the Action Plan, and 2035 is at the end of the study. Both probably have study boundary effects.
- Forecasts are less accurate further out in time.

ARMs in Different Year/Load Levels

Case	Q1 ARM _E	Q1 ARM _C
2021 Low	3.2	-1.8
2021 Med	0.3	-2.7
2021 High	-2.7	-1.0
2021 Average	0.3	-1.8
2026 Low	1.1	-0.2
2026 Med	-3.1	1.8
2026 High	-7.3	3.8
2026 Average	-3.1	1.8
2035 Low	-3.6	2.7
2035 Med	-10.4	-2.5
2035 High	-14.0	4.0
2035 Average	-9.3	1.4