

WESTERN ENERGY IMBALANCE MARKET

Market Monitoring Update: Resource Sufficiency Tests in the Energy Imbalance Market

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General Session

June 30, 2021



Background

- Two types of test performed as part of *resource sufficiency evaluation* each hour for each 15-minute interval:
 - Bid range capacity test (a.k.a. "*capacity test*")
 - Flexible ramping sufficiency test (a.k.a. "*sufficiency test*")
- If an EIM balancing area fails either of these tests, net EIM imports into the area cannot increase beyond level of net imports at that time.
 - When imports are limited, EIM areas much more likely to have power balance constraint violations.
 - Prices often hit \$1,000 bid cap during power balance constraint violations.
- Purpose of tests:
 - Ensure sufficient resources are scheduled/offered in EIM to cover load forecast and ramping needs (plus some uncertainty).
 - Deter excessive or intentional "leaning" by individual EIM areas for capacity needed to meet loads and uncertainty.
 - Viewed by FERC as a mechanism to help deter exercise of market power through physical withholding of resources.



Current issues

- Errors in capacity test calculations discovered during 2020 corrected in February 2021.
- High participant interest in increased transparency about details of tests.
- Uncertainty component added to bid range capacity test (June 16).
- Changes in calculation of available bid range capacity and flexible ramping sufficiency test being considered.
- Changes to consequence of failing tests?
 - e.g. instead of limiting imports, perhaps impose capacity charge?
- How to extend bid range capacity and flexible ramping sufficiency tests to a day-ahead market for EIM.

Incorrectly failing to exclude capacity on outages or de-rates lead to very few failure of the capacity test in 2020.

Number of capacity test failures (15-minute intervals)

California ISO	0	0	0	4	6	0	0	0	0	0	0	0
Arizona PS	0	0	4	0	0	1	0	0	0	0	0	9
BANC	0	0	0	0	0	0	1	1	0	2	1	0
Idaho Power	0	0	0	0	0	0	0	0	0	0	0	0
NV Energy	0	0	0	1	1	0	0	0	0	3	6	0
PacifiCorp East	0	0	0	0	0	0	0	0	0	0	4	0
PacifiCorp West	0	3	0	0	0	0	0	0	0	0	4	0
Portland GE	0	0	0	0	0	0	0	0	0	0	0	0
Powerex	12	6	8	6	10	0	0	0	2	2	3	0
Puget Sound En	0	2	0	0	0	0	0	0	0	0	0	0
Salt River Project				7	0	0	0	0	0	3	2	0
Seattle City Light				0	4	0	6	2	0	0	0	0
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2020											

See *Resource Sufficiency Tests in the Energy Imbalance Market*, DMM report, May 20,2021.

<http://www.caiso.com/Documents/Report-on-Resource-Sufficiency-Tests-in-the-Energy-Imbalance-Market-May-20-2021.pdf>

With capacity on outages or de-rates correctly excluded, a significant number of capacity test failures would have occurred.

Additional capacity test failures with errors fixed (15-minute intervals)

California ISO	0	0	0	0	0	0	0	10	1	0	0	0
Arizona PS	0	0	0	0	2	1	0	0	0	1	0	0
BANC	0	1	0	0	0	4	5	6	5	6	3	0
Idaho Power	0	0	0	0	0	0	2	0	0	0	0	0
NV Energy	0	0	1	1	27	16	76	138	56	48	20	8
PacifiCorp East	0	0	0	0	0	1	0	13	1	0	0	0
PacifiCorp West	0	1	0	0	0	3	2	0	0	7	1	2
Portland GE	0	0	0	0	0	0	13	2	7	9	1	0
Powerex	0	0	0	0	0	0	0	0	0	0	0	0
Puget Sound En	0	4	2	0	2	71	146	71	28	20	1	0
Salt River Project				5	2	1	7	29	39	47	40	0
Seattle City Light				0	1	0	0	7	5	2	2	0
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2020											

Results exclude intervals with flexible ramping sufficiency test failures, since failing either test triggers transfer limits.

With uncertainty added and capacity on outages or de-rates excluded, more capacity test failures would have occurred.

Additional capacity test failures with errors fixed plus adjustment in requirement for uncertainty (15-minute intervals)

California ISO	1	0	0	0	0	0	0	15	2	0	0	0
Arizona PS	0	2	3	0	11	2	5	1	1	17	6	30
BANC	0	1	0	0	0	7	13	12	14	10	3	1
Idaho Power	0	0	0	0	0	32	15	19	4	0	0	0
NV Energy	0	0	1	3	73	45	173	305	147	107	44	11
PacifiCorp East	0	0	1	0	0	7	16	61	10	7	0	0
PacifiCorp West	7	4	1	0	2	13	17	5	0	34	14	25
Portland GE	1	0	3	0	1	0	45	31	34	50	9	2
Powerex	10	3	3	5	9	1	0	0	7	4	2	0
Puget Sound En	5	8	27	0	7	126	275	123	61	45	11	0
Salt River Project				18	9	3	37	74	120	111	77	1
Seattle City Light				0	8	0	6	15	11	3	2	6
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2020											

Results exclude intervals with flexible ramping sufficiency test failures, since failing either test triggers transfer limits.

DMM Recommendations

- Provide all data needed for EIM areas to replicate tests.
- Closely monitor impact of adding uncertainty component.
- Consider eliminating some additional capacity from the bid range capacity test, which is unavailable because of various operating limitations:
 - Long start times beyond the horizon of the real-time market.
 - Units subject to maximum or fixed exceptional (or manual) dispatch issued by grid operators.
 - Ramp-constrained capacity immediately following an outage.
- Discuss/consider changes to consequence of failing tests.
 - e.g. instead of limiting imports, perhaps impose capacity charge.