



2021 Reserve Requirement Study Results

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- Study results will re-set the FPR and IRM for 2022/23, 2023/24, 2024/25 and establish initial IRM and FPR for 2025/26.
- Capacity model built with GADS data from 2016-2020 time period for all weeks of the year except the winter peak week.
 - For the winter peak week, the capacity model is created using historical actual RTO-aggregate outage data from time period DY 2007/08 – DY 2020/21 (in addition, data from DY 2013/14 was dropped and replaced with data from DY 2014/15)
- PJM and World load models based on 2001-2013 time period and 2021 PJM Load Forecast (released in January).
- Study assumptions were endorsed at June, 2021 PC meeting.
- Load Model selection was endorsed at August, 2021 PC meeting.

2021 RRS Results vs 2020 RRS Results

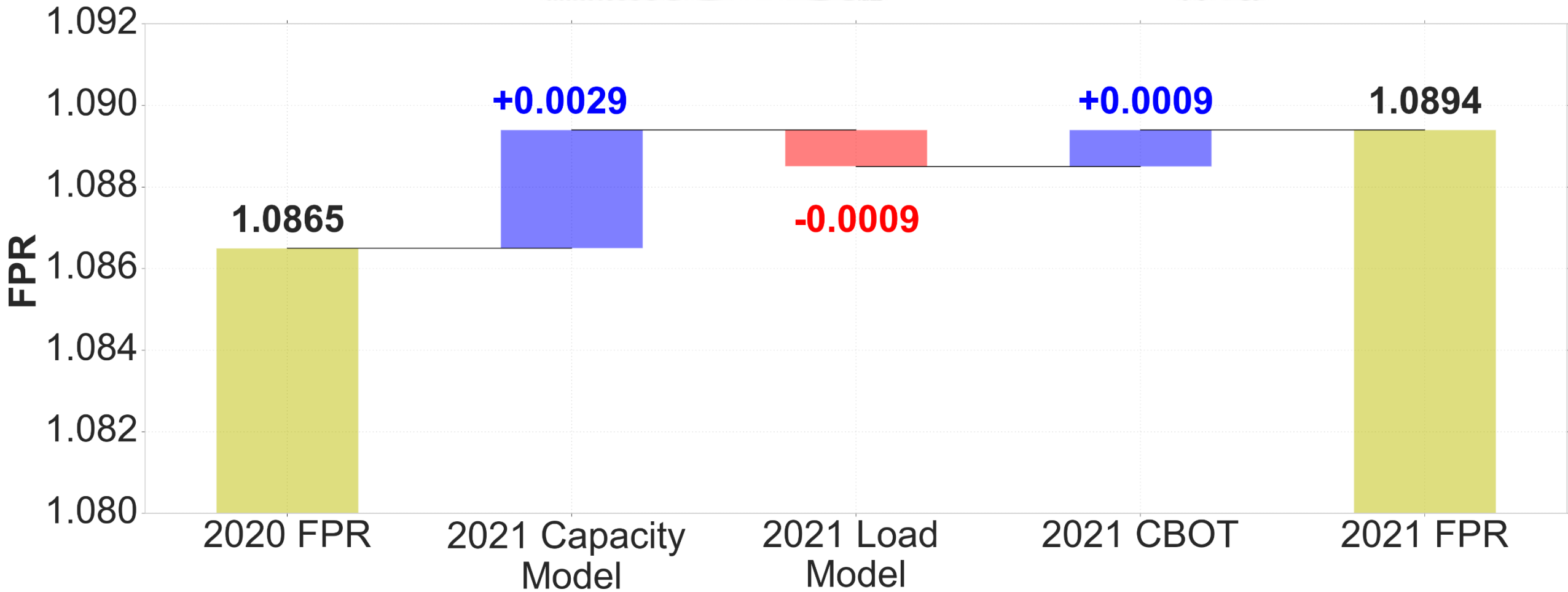
2021 RRS Study results:

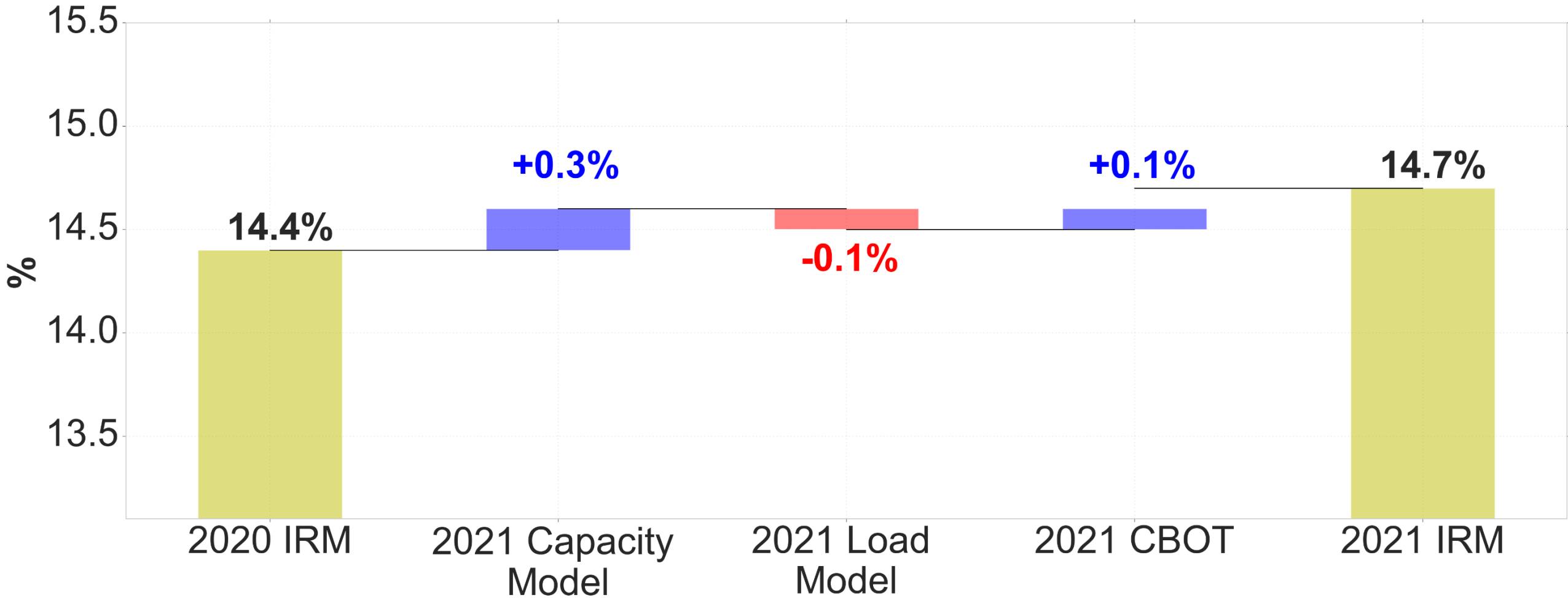
| RRS Year | Delivery Year Period | Calculated IRM | Recommended IRM | Average EFORD | Recommended FPR* |
|----------|----------------------|----------------|-----------------|---------------|------------------|
| 2021 | 2022 / 2023 | 14.93% | 14.9% | 5.08% | 1.0906 |
| 2021 | 2023 / 2024 | 14.76% | 14.8% | 5.04% | 1.0901 |
| 2021 | 2024 / 2025 | 14.68% | 14.7% | 5.02% | 1.0894 |
| 2021 | 2025 / 2026 | 14.66% | 14.7% | 5.02% | 1.0894 |

2020 RRS Study results:

| RRS Year | Delivery Year Period | Calculated IRM | Recommended IRM | Average EFORD | Recommended FPR* |
|----------|----------------------|----------------|-----------------|---------------|------------------|
| 2020 | 2021 / 2022 | 14.73% | 14.7% | 5.22% | 1.0871 |
| 2020 | 2022 / 2023 | 14.51% | 14.5% | 5.08% | 1.0868 |
| 2020 | 2023 / 2024 | 14.42% | 14.4% | 5.04% | 1.0863 |
| 2020 | 2024 / 2025 | 14.39% | 14.4% | 5.03% | 1.0865 |

* FPR = (1 + IRM)*(1 - Average EFORD)





- The 2021 Load Model puts downward pressure on both the FPR and the IRM
- The 2021 Capacity Benefit of Ties (CBOT) puts upward pressure on both the FPR and the IRM
 - The CBOT decreased to 1.47% (2021 RRS) from 1.54% (2020 RRS)
- The 2021 Capacity Model is driving the increase in the IRM and FPR.
 - Specifically, the removal of ELCC Resources from the model which had two impacts:
 - The 2,500 MW ambient derating in the summer now represents a larger share of the total summer ICAP (1.41% in the 2021 RRS vs 1.28% in the 2020 RRS). Therefore, the effective forced outage rate in the summer peak period is greater in the 2021 RRS.
 - The PJM average unit size increased to 175 MW (in 2021 RRS) from 159 MW (in 2020 RRS)

- Based on the previous slide, it can be concluded that, **relative to the 2020 RRS**, the removal of ELCC Resources from the 2021 RRS is playing a key role in the FPR's mild increase.
- Regarding the above conclusion, the following clarification is important to note:
 - **The removal of the ELCC Resources from the 2021 RRS is an improvement in the way the RRS is run.** This should be taken into consideration when interpreting the comparison to last year's study results.



2021/22 Winter Weekly Reserve Targets

| Month | % Available Reserves | Max % Available Reserves (by Month) |
|----------|----------------------|-------------------------------------|
| December | 18.29% | 24% |
| | 23.52% | |
| | 21.61% | |
| | 10.86% | |
| January | 23.73% | 27% |
| | 10.44% | |
| | 18.72% | |
| | 26.25% | |
| February | 18.13% | 21% |
| | 20.69% | |
| | 17.31% | |
| | 13.14% | |

- Oct, PC: review and vote on FPR and IRM
- Oct-Nov, MRC and MC: review and vote on FPR and IRM
- Dec, PJM Board: final approval

- Endorsement of the Recommended IRM and FPR values in the table below

| RRS Year | Delivery Year Period | Calculated IRM | Recommended IRM | Average EFORd | Recommended FPR* |
|----------|----------------------|----------------|-----------------|---------------|------------------|
| 2021 | 2022 / 2023 | 14.93% | 14.9% | 5.08% | 1.0906 |
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| 2021 | 2025 / 2026 | 14.66% | 14.7% | 5.02% | 1.0894 |

- Endorsement of the Winter Weekly Reserve Target (WWRT) Values for 2021/22 as shown below

| Month | WWRT |
|---------------|------|
| December 2021 | 24% |
| January 2022 | 27% |
| February 2022 | 21% |

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2021 Reserve Requirement Study



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