



# 2020 Reserve Requirement Study (RRS) Assessment Results

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**IRM** – Installed Reserve Margin

**RRS** – Reliability Requirement Study

**EFORd** – Effective Forced Outage Rate on Demand

**DY** – Delivery Year

**BRA** – Base Residual Auction

**FPR** – Forecast Pool Requirement (IRM converted to units of unforced capacity for use in the RPM auctions)

**CBOT** – Capacity Benefit of Ties (reduction in IRM due to external capacity assistance)

- Study results will re-set the IRM and FPR for 2021/22, 2022/23, 2023/24 and establish initial IRM and FPR for 2024/25.
  - The Study results will be used in the 2022/23, 2023/24 and 2024/25 BRAs
- Capacity model based on GADS data from 2015-2019 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 2019/20.
- PJM and World load models based on 2002-2014 time period and 2020 PJM Load Forecast (released in January).
- Study assumptions were endorsed at June, 2020 PC meeting.
- Load Model selection was endorsed at July, 2020 PC meeting.

# 2020 RRS Results vs 2019 RRS Results

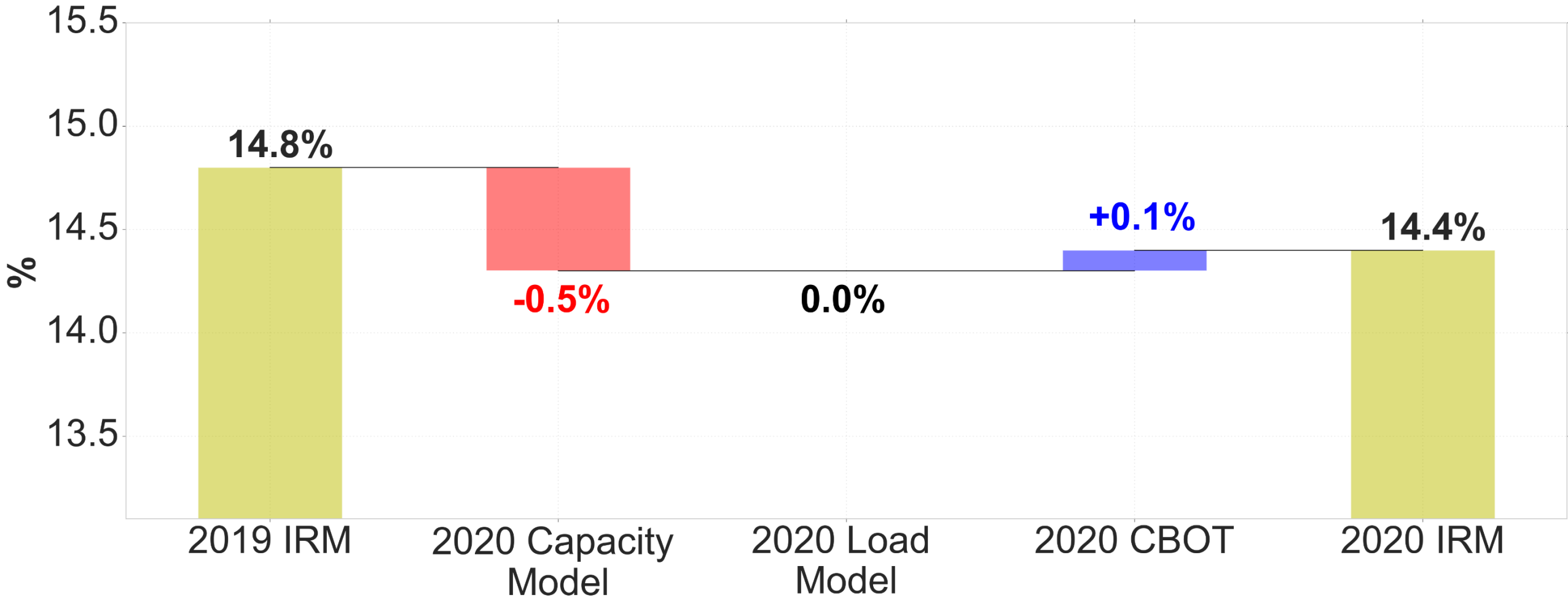
## 2020 RRS Study results:

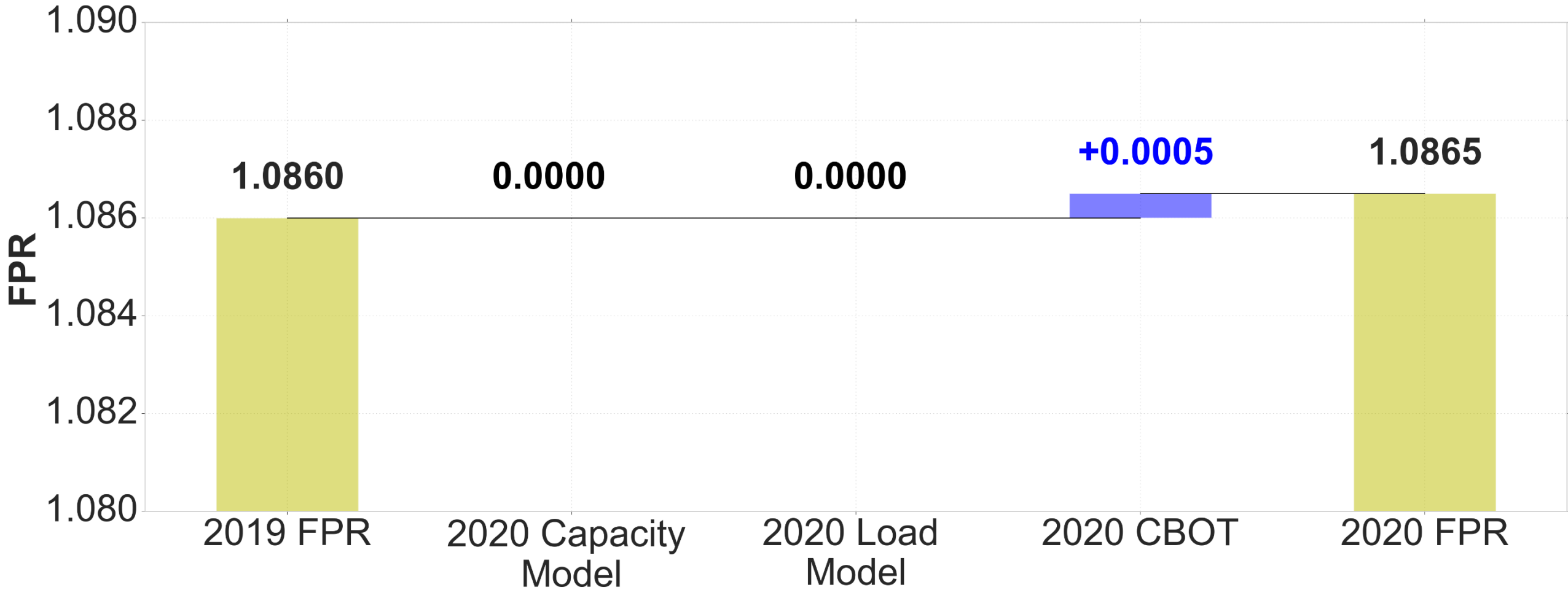
RRS Year	Delivery Year Period	Calculated IRM	Recommended IRM	Average EFORD	Recommended FPR*
2020	2021 / 2022	14.73%	<b>14.7%</b>	5.22%	<b>1.0871</b>
2020	2022 / 2023	14.51%	<b>14.5%</b>	5.08%	<b>1.0868</b>
2020	2023 / 2024	14.42%	<b>14.4%</b>	5.04%	<b>1.0863</b>
2020	2024 / 2025	14.39%	<b>14.4%</b>	5.03%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

## 2019 RRS Study results:

RRS Year	Delivery Year Period	Calculated IRM	Recommended IRM	Average EFORD	Recommended FPR*
2019	2020 / 2021	15.46%	<b>15.5%</b>	5.78%	<b>1.0882</b>
2019	2021 / 2022	15.14%	<b>15.1%</b>	5.56%	<b>1.0870</b>
2019	2022 / 2023	14.89%	<b>14.9%</b>	5.42%	<b>1.0867</b>
2019	2023 / 2024	14.84%	<b>14.8%</b>	5.40%	<b>1.0860</b>

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





- The 2020 Capacity Model is driving the decrease in the IRM.
  - The PJM Average EEFORd in the **2020 RRS (for DY 2024) is 5.78%**
  - The PJM Average EEFORd in the **2019 RRS (for DY 2023) was 6.03%**
  - The lower PJM Average EEFORd in the 2020 RRS is caused by a lower average EEFORd of the generation classes more heavily represented in the study (i.e. combined cycle units and gas turbines).
- The 2020 Capacity Benefit of Ties (CBOT) puts upward pressure on both the IRM and the FPR
  - The CBOT decreased from **1.6% (2019 RRS) to 1.5% (2020 RRS)**

- October - PC, MRC and MC: Distribution of final report and **request for endorsement of recommended IRM and FPR values on Slide 4.**
- December - PJM Board: Final Approval



- **Background**
  - WWRT is supplied to the PJM Operations Department which uses it to coordinate planned generator maintenance scheduling during the upcoming winter period
- **Objective**
  - Cover against uncertainties associated with load and forced outages during the winter months so that winter LOLE is practically zero



# 2020/21 Winter Weekly Reserve Targets

Month	% Available Reserves	Max % Available Reserves (by Month)
December	16.25%	23%
	22.99%	
	18.02%	
	11.02%	
January	24.91%	27%
	11.78%	
	18.87%	
	26.69%	
February	19.78%	23%
	22.03%	
	16.34%	
	11.75%	

Corresponding values last year were:

December: 22%  
 January: 28%  
 February: 24%

- No major changes or deletions
- Additions:
  - The report this year has multiple references to the main change in the assumptions for the 2020 RRS:
    - Wind and solar resources are now excluded from the 2020 RRS Capacity Model
    - Instead, their capacity value is calculated via the Effective Load Carrying Capability (ELCC) study
  - A new subsection was added to describe the relationship between the RRS and ELCC

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

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- Endorsement of the Winter Weekly Reserve Target (WWRT) values for 2020/21 as shown below

<b>Month</b>	<b>WWRT</b>
December 2020	23%
January 2021	27%
February 2021	23%

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Reserve Requirement Study



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