



2022 RTP Off-Peak Sensitivity Analysis

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RPG Meeting

Introduction

- ❑ NERC Reliability Standard TPL-001 requires sensitivity analysis to be performed
 - ❑ The 2022 RTP on-peak sensitivity was presented at the May RPG meeting¹
- ❑ The focus of the 2022 RTP off-peak sensitivity analysis is to evaluate the impact of renewables on the ERCOT grid given the rapid development of renewable resources and increased penetration levels
- ❑ Both historical and 2022 RTP Economic Analysis data are used to aid in the development of this sensitivity
- ❑ Historical data from more recent years (2021, 2022) is used to reflect technology advancements and increased solar development

Overview

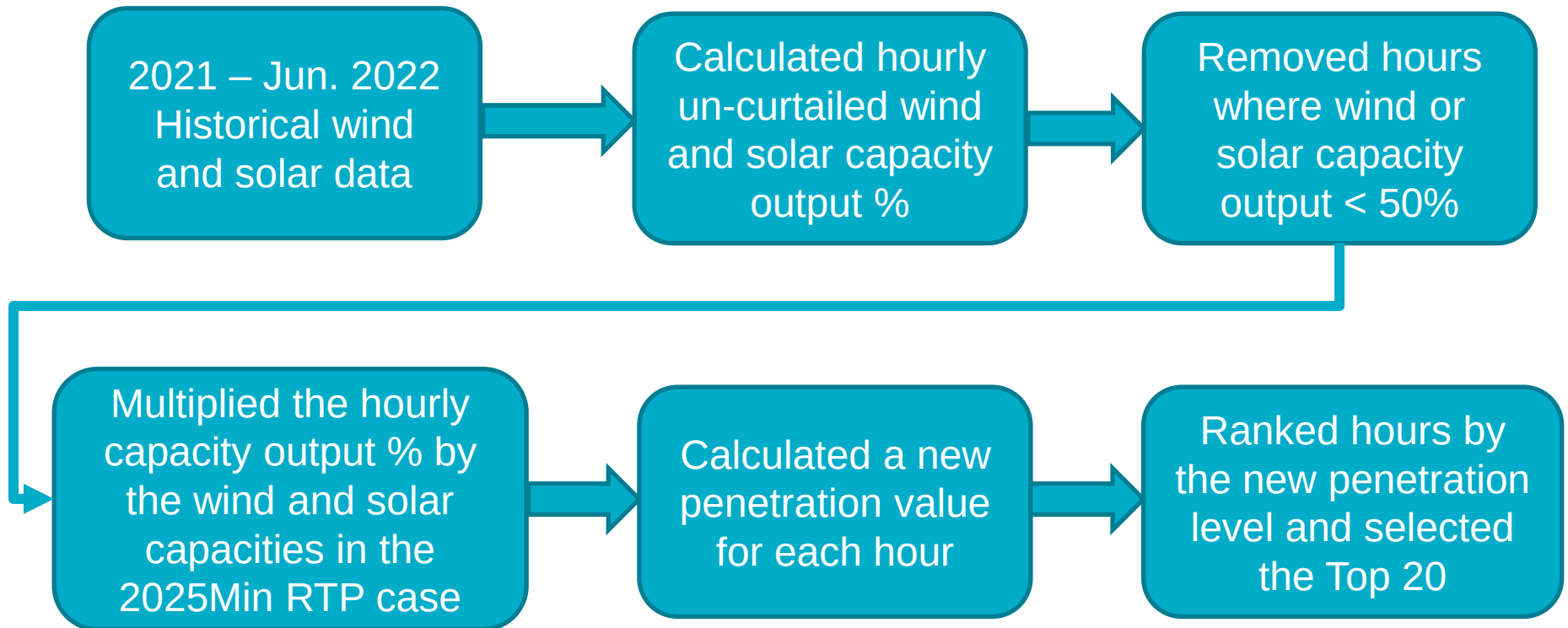
- ❑ High Renewable Light Load (HRLL) off-peak sensitivity
 - ❑ Study Year: 2025
- ❑ All stability limits used in the 2022 RTP will be respected¹
 - ❑ Wind and solar generation may be scaled to accomplish this
- ❑ ERCOT critical inertia levels will be respected²
 - ❑ Wind and solar generation may be scaled to accomplish this
- ❑ Wind and solar generation will not be curtailed to resolve thermal and voltage violations
 - ❑ This is to identify potential needs to accommodate the assumed level of renewable generation

1: https://www.ercot.com/files/docs/2022/04/08/2022_RTP_Economic_Assumptions_Update.pdf

2: <https://www.ferc.gov/media/inertia-basic-concepts-and-impacts-ercot-grid>

High Renewable Light Load Off-Peak Sensitivity Case

□ Top 20 Hour Selection



Solar and Wind Dispatch Levels

☐ Solar and Wind Dispatch:

- Utilized the average hourly capacity output % of the Top 20 hours
 - Wind evaluated by region: Coastal, Panhandle, Other
- Results in 18,032 MW of solar generation
- Results in 30,468 MW of wind generation
- Output may be scaled lower to maintain 2022 RTP stability limits and critical inertia

Resource - Region	Capacity Output %
Coastal Wind	68.46%
Panhandle Wind	87.29%
Other Wind	75.94%
Solar	78.05%

Hydro Dispatch and DC Tie Import/Export

□ Hydro Dispatch:

- Reviewed historical output during the Top 20 hours
- Results in 29 MW of Hydro generation

□ DC Tie Import/Export:

- Reviewed historical output during the Top 20 hours
- DC East: 0 MW
- DC North: 0 MW
- DC Laredo: 100 MW Export
- DC Railroad: 0 MW

Load Level

□ Based on 2022 RTP Economic Analysis data

- Pulled 8760 data from the 2024 Economic Analysis case
- Removed hours with an un-curtailed wind or solar capacity output of less than 50%
- Ranked all remaining hours by un-curtailed renewable penetration
- Calculated the average load of the resulting top 20 hours
- Results in 52,452 MW of load

Questions?

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