

WECC

Year 20 Foundational Case and Extreme Cold Update to StS

June 26, 2023

WECC Staff

Year 20 Foundational Case (2042)



Contributors

- WECC staff and the Year 20 Advisory Groups:
 - Extreme cold
 - Extreme heat
 - Compounded loads
- National labs, DOE, E3, and many more



Purpose

- Purpose
 - Built on the 2032 ADS
 - Act as a BAU Year 20 case
 - Starting point for the Year 20 assessments in the study program



Status

- Current Status
 - Tuning the Y20FC; almost done!



Assumptions

- Linear load growth 2026-2032, carried forward to 2042
- Grew resources to keep same Planning Reserve Margins as 2032 ADS, adjusted for California curtailment
- Benchmark NREL, EIA AEO, LDES cases
- Updates from 2032 ADS
 - Loads, resources
- Not updated from 2032 ADS
 - Transmission topology, fuel prices, emissions, nomograms

Preliminary Energy

Annual Generation by Category (GWh)

■ 2032 ADS v2.4.1 ■ 2042 FC Total Increase = 262,968 GWh **Conventional Hydro Energy Storage** Steam - Coal Steam - Other Nuclear **Combined Cycle Combustion Turbine** IC Other DG/DR/EE **Biomass RPS** Geothermal Small Hydro RPS Solar Wind 100,000 150,000 200,000 0 50,000 250,000 300,000



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Preliminary Energy

Energy By Subregion (MWh)



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Preliminary Capacity

Capacity By Subregion (MWh)



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Y20FC Timeline

- Research and gather data: January—March
- Build Year 20 case: February—May
- Analyze, identify findings and conclusions: June
- Draft report: July
- Publish report: August 21, 2023



Y20 Extreme Cold



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Contributors

- WECC staff along with the Year 10 and 20 Extreme Cold Advisory Groups
- National labs, DOE, E3, and many more



Purpose—Key Reliability Concerns

- How does Year 10 compare to year 20?
- When do we start seeing reliability issues such as unserved load?
- What hours of the day are most susceptible to unserved load?
- How long is there unserved load?
- Where do we see transmission/path differences?



Status

- Current Status
 - Tuning the Y20FC
 - Most assumptions are decided for the Y20 Extreme Cold study
- Next Steps
 - Apply Y20 cold assumptions to Y20 FC



Y20 Extreme Cold Assumptions

- Use Y20FC as starting point
- Build off December 22, 2022, Cold Snap (Run for December)
- 2xFOR
- Decrease wind/solar output profiles
- Increase load beyond the cold snap by 10%
- Extended cold days
- Gas derates up to 35%



Extreme Cold Study Timeline

- Research and gather data: February–April
- Build and run case: February–July
- Analyze, identify findings and conclusions: July–August
- Draft report, one-pager, and podcast: September–December
- Publish report: January 15, 2024





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