



# Western Heat Wave August 2020

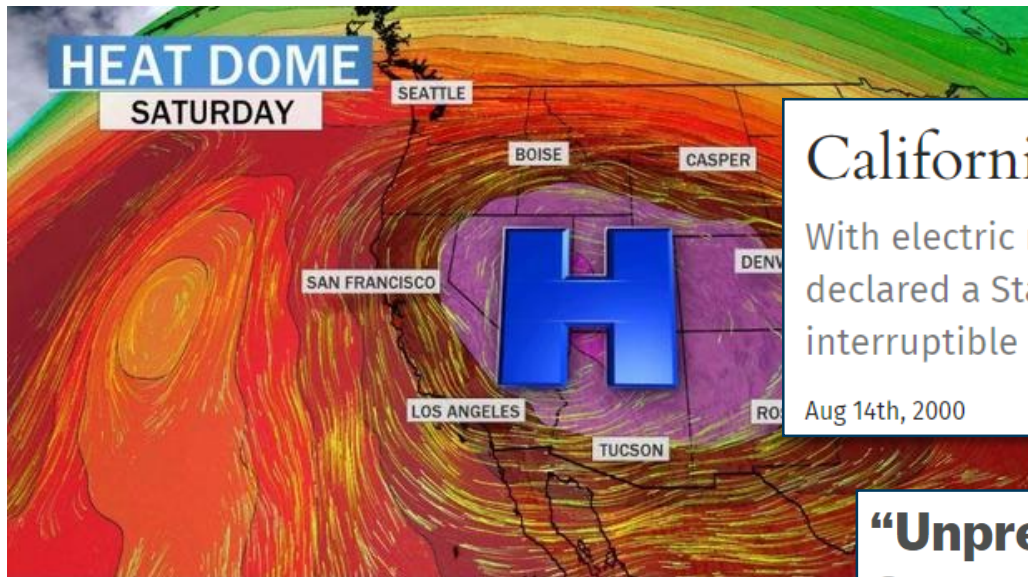
August 31, 2021

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# Western Heatwave

## August 2020 was the world's second-warmest August on record, NOAA reports

The year 2020 has more than a 99.9% chance to rank among the five warmest years since record keeping began.



## California ISO calls for load shedding

With electric reserves projected to fall below 5%, the California Independent System Operator declared a Stage 2 power emergency Monday afternoon and called upon utility companies to ask interruptible load customers to shed 740 Mw of electricity demand.

Aug 14th, 2020

## “Unprecedented”: What’s behind the California, Oregon, and Washington wildfires

The size, speed, and timing of the wildfires, coupled with the Covid-19 pandemic, have created a unique disaster.

# Overall Findings and Recommendations

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Extremely  
High Demand

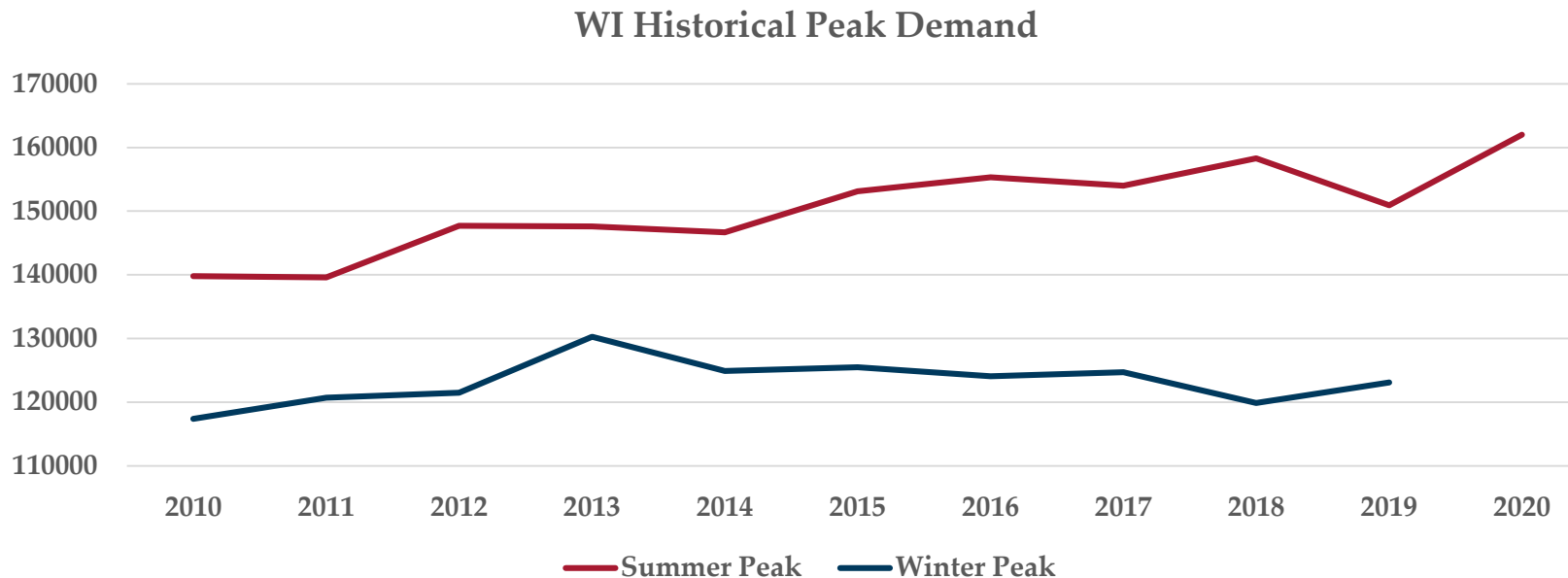
Inaccurate  
Forecasting

Resource  
Adequacy

Transmission  
Constraints

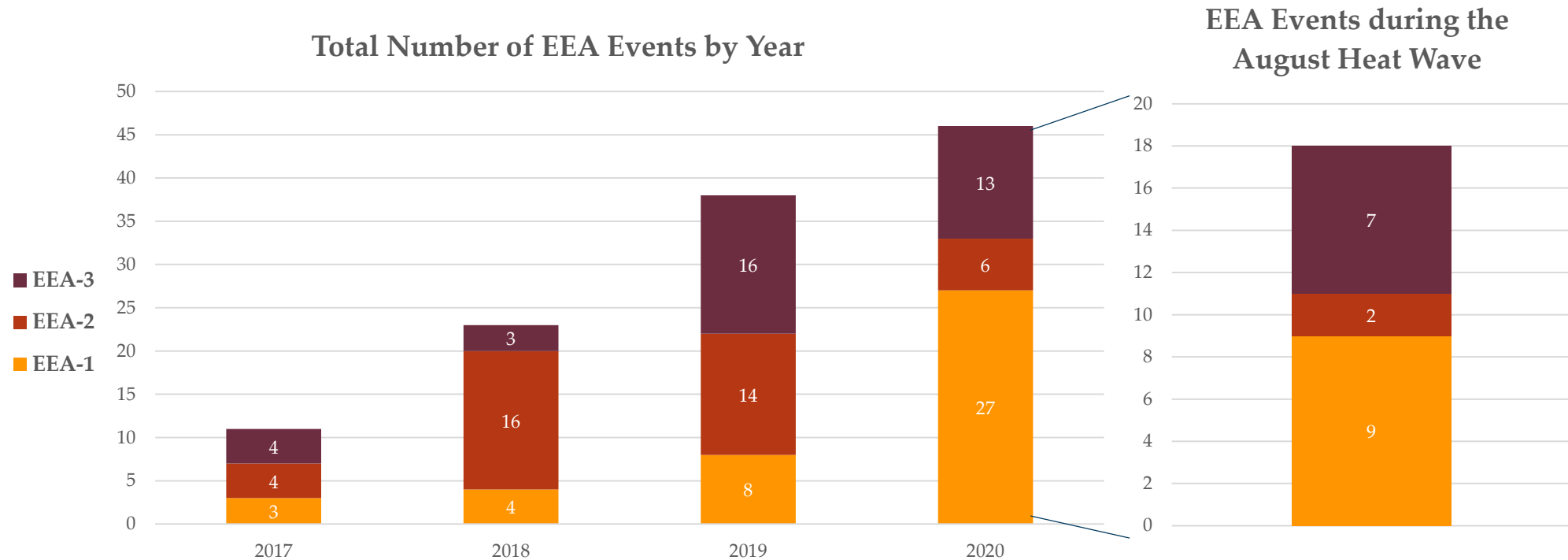
# Extremely High Demand: Findings

- Increased demand during summer months is creating more competition for available generation
  - New interconnection peak record of 162,017 MW on August 18



# Extremely High Demand: Findings

- Energy Emergency Alerts during the heat wave indicate generation availability challenges



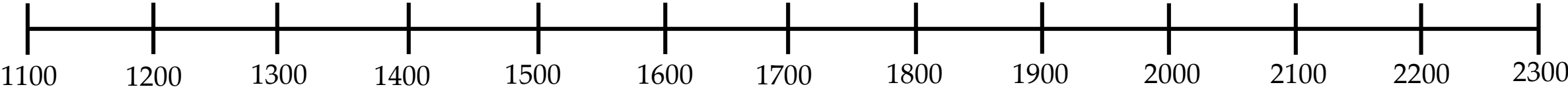
# EEA Observations

August 14, 2020

BA1

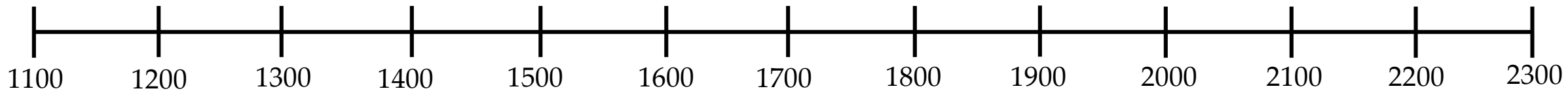


- EEA-3
- EEA-2
- EEA-1



# EEA Observations

August 15, 2020

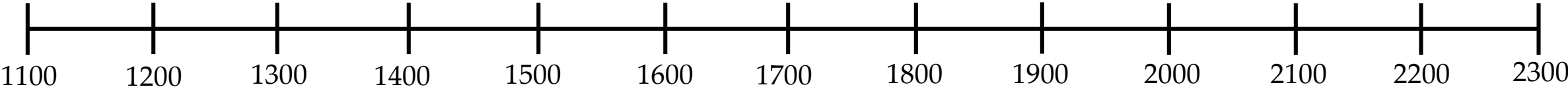


# EEA Observations

August 16, 2020

BA1 

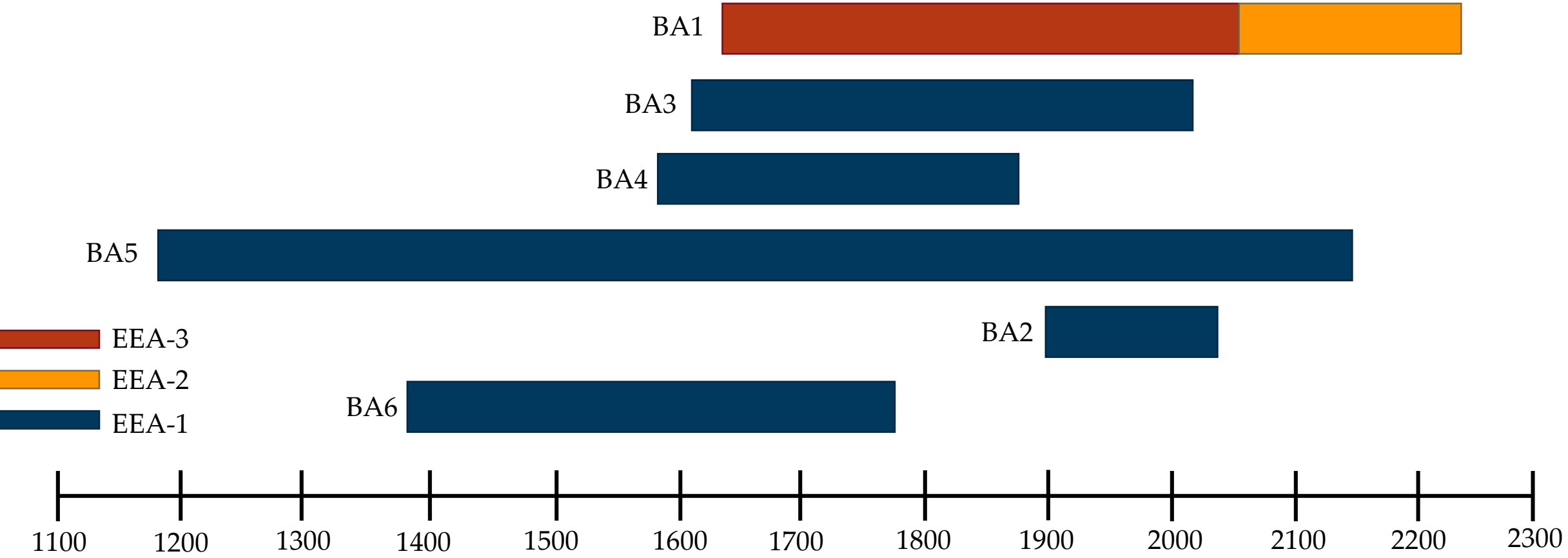
-  EEA-3
-  EEA-2
-  EEA-1





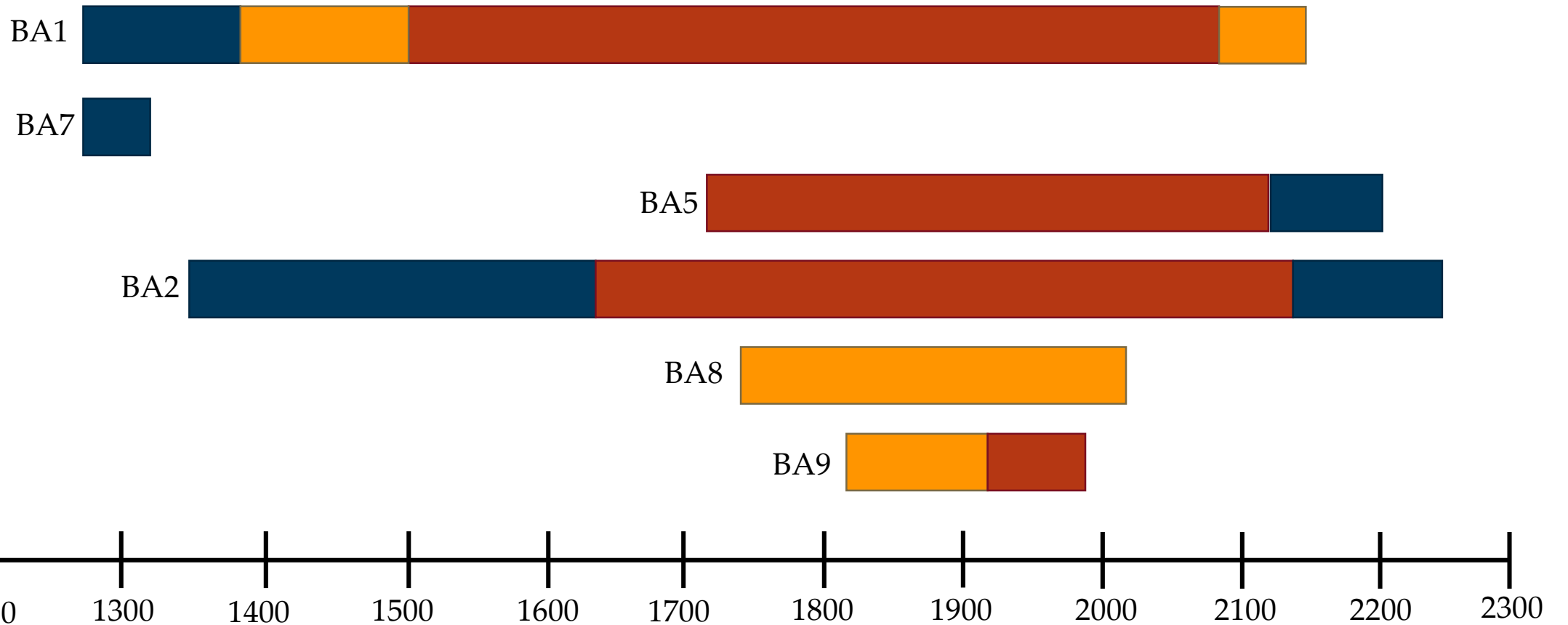
# EEA Observations

August 17, 2020



# EEA Observations

August 18, 2020

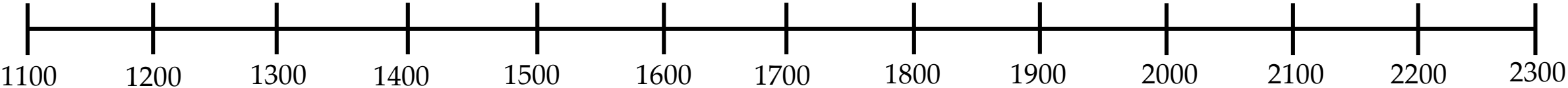


# EEA Observations

August 19, 2020

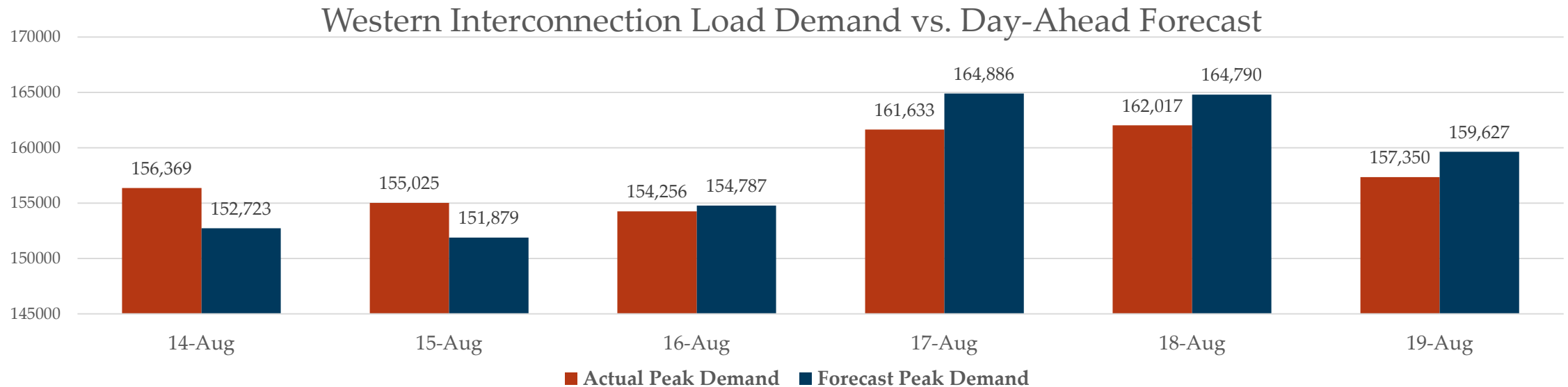


- EEA-3
- EEA-2
- EEA-1



# Inaccurate Forecasting: Findings

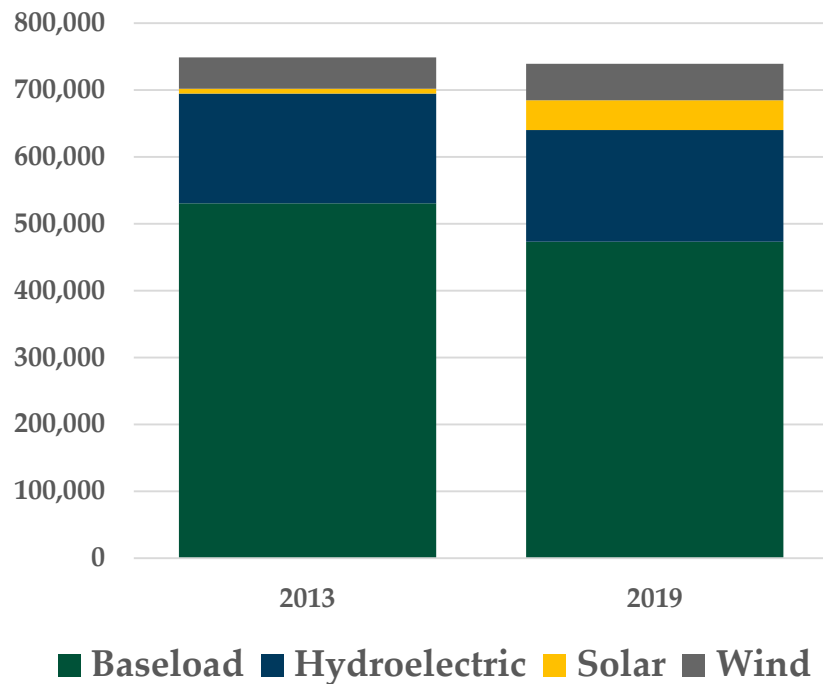
- Inaccurate day-ahead demand forecasts contributed to reduced generation availability
  - August 14–15 load forecasting was lower than actual peak demand
  - Deficit of wind and solar generation related to the day-ahead forecast



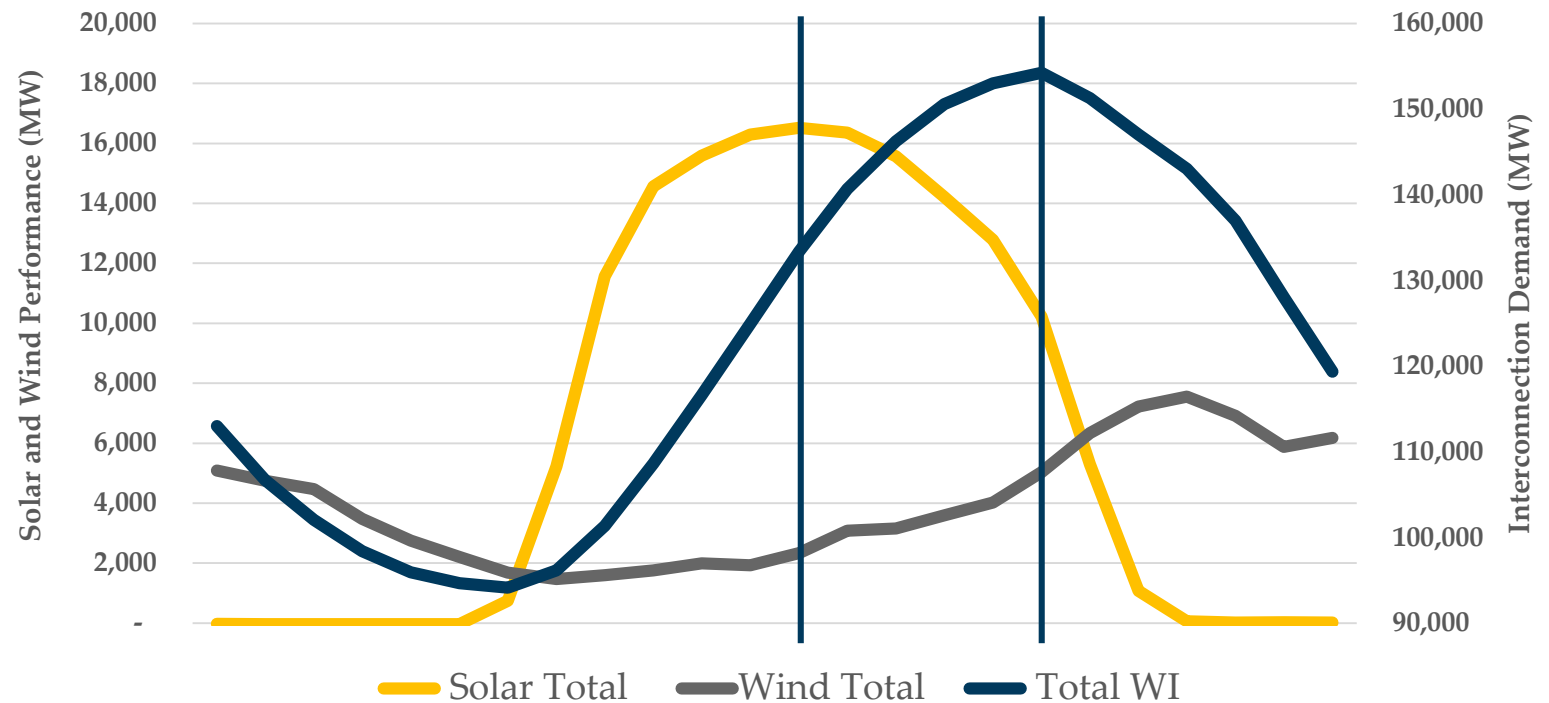
# Resource Adequacy: Findings

Variable generation contributed to the inability to meet peak demand

2013 to 2019 Net Generation by Fuel Type Comparison (US Only)



Variable generation with Interconnection Demand Western Interconnection – August 16, 2020

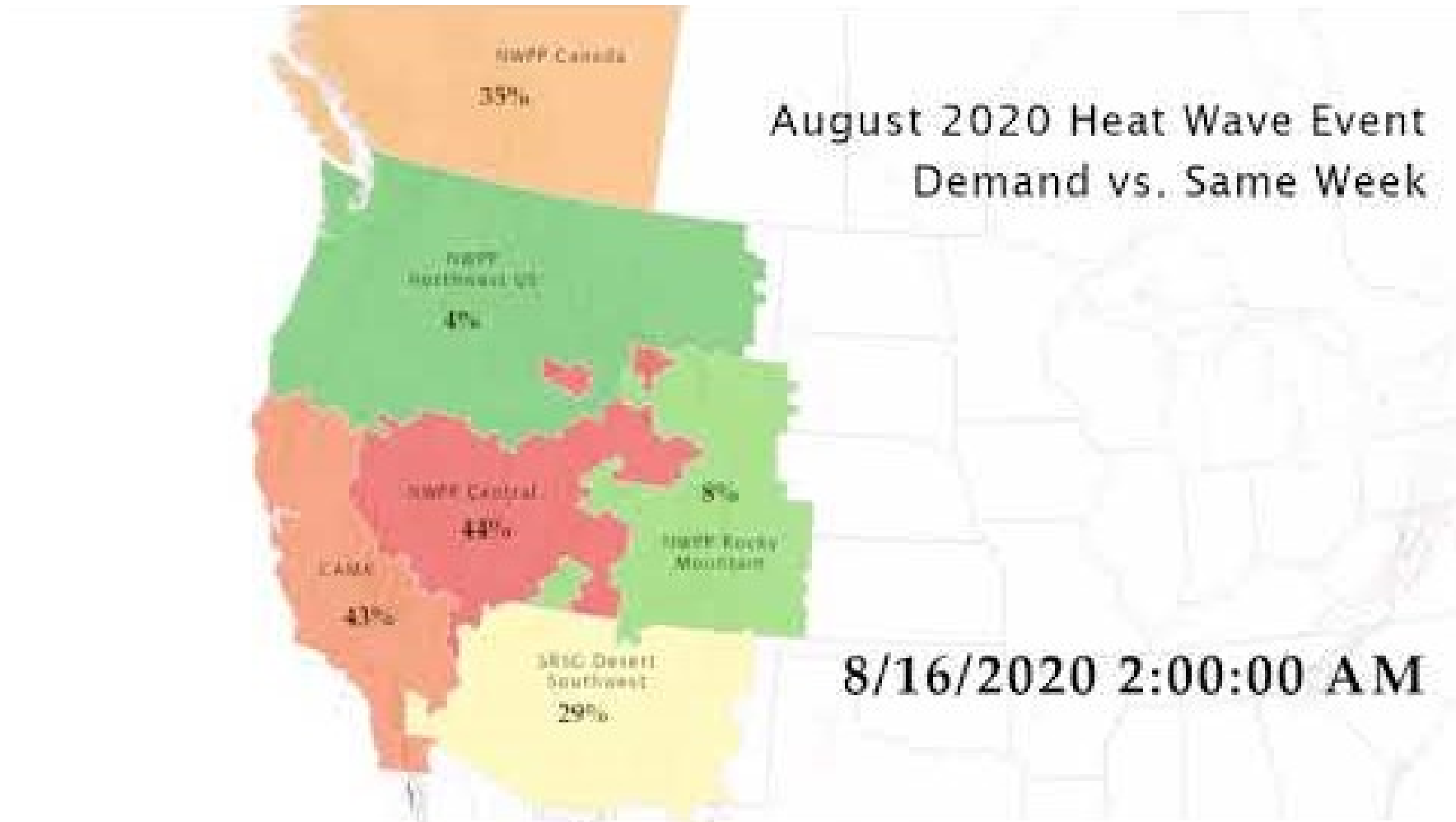


# Resource Adequacy: Findings

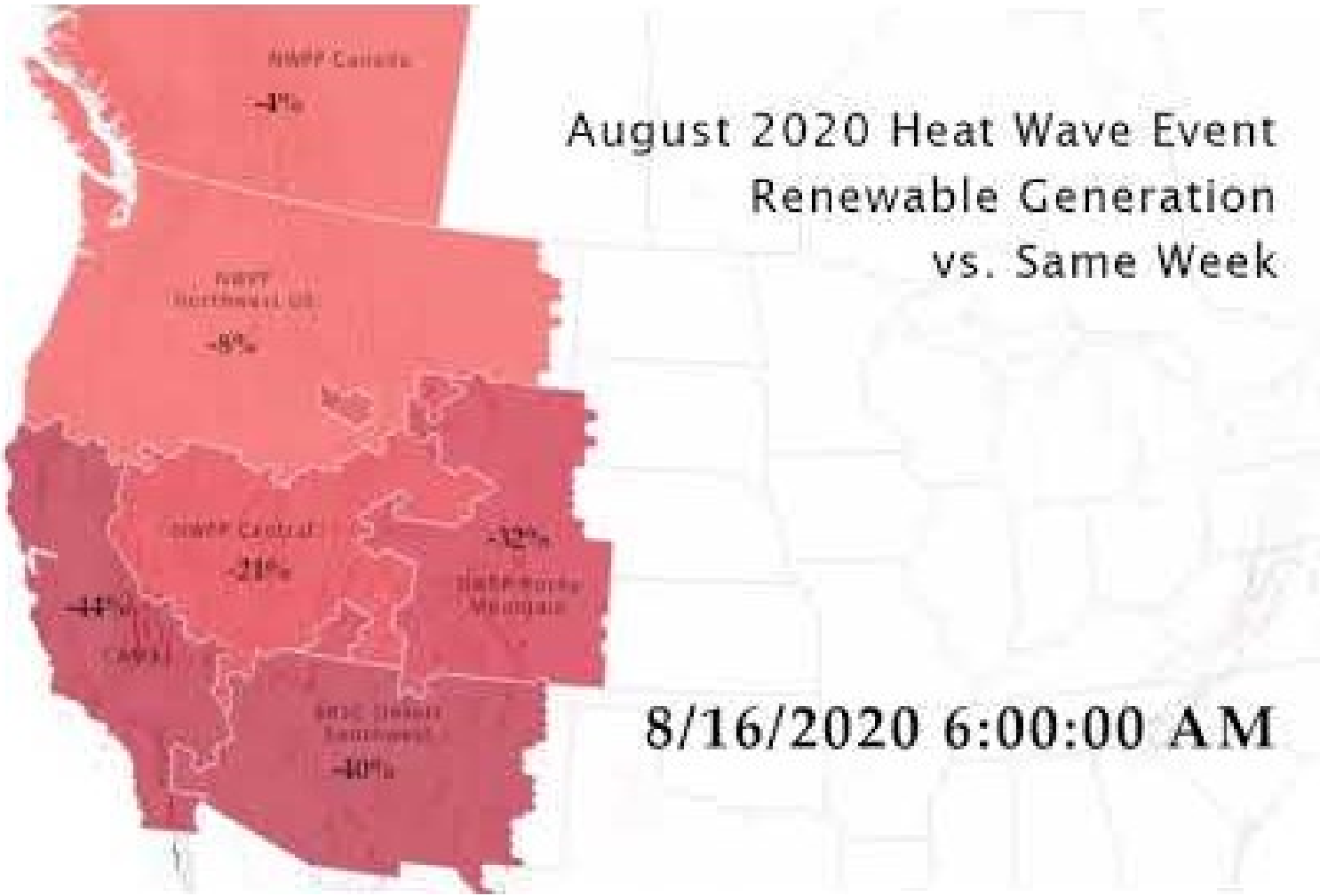
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Current methods for planning resource adequacy are not reliable for extreme weather events

# Demand Versus 50th Percentile of Peak Week



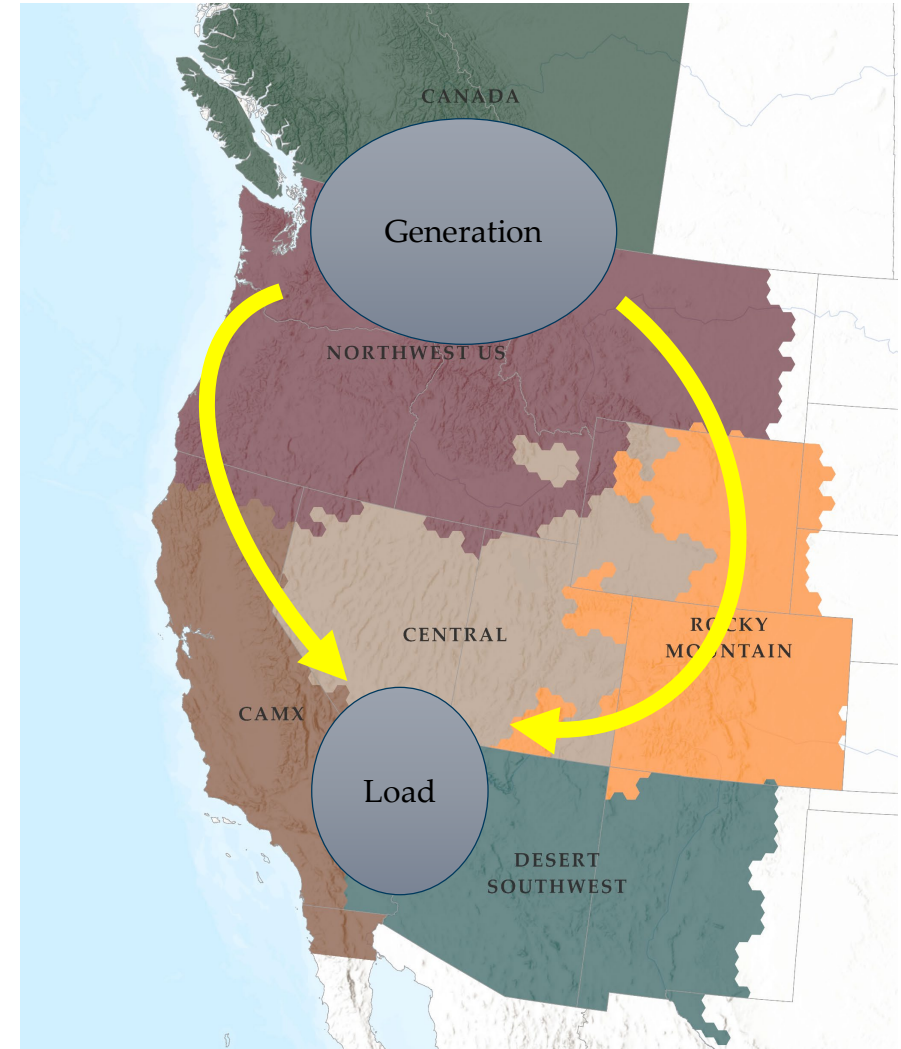
# Renewables Versus 50th Percentile





# Transmission Constraints: Findings

- Planned transmission outages limited north-to-south energy transfers
- Unscheduled flow contributed to transmission line congestion
- Phase shifting transformers (PST) were not used to mitigate unscheduled flow



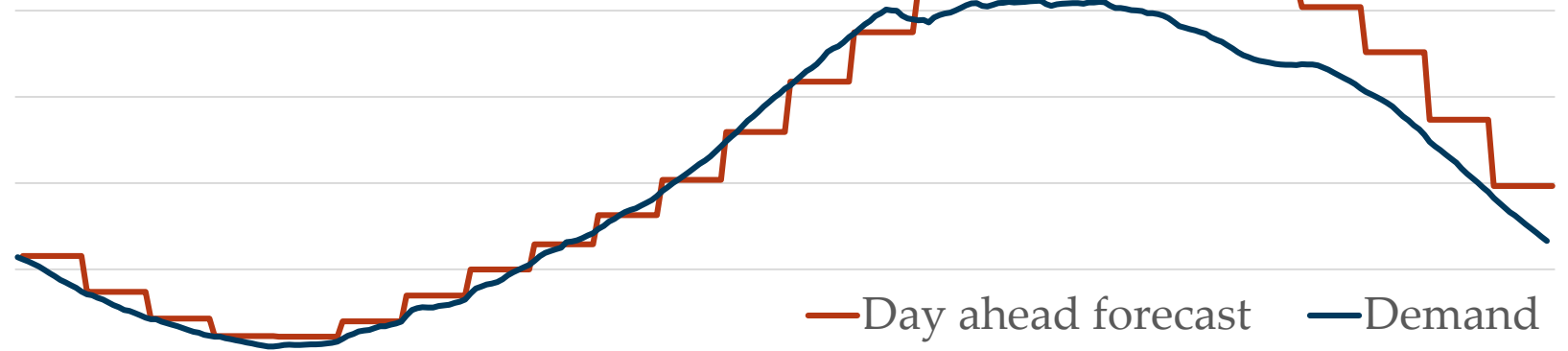
# Overview of Recommendations

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- WECC and industry subject matter experts need to address:
  - Guidance for BAs and RCs while in an EEA state
  - Potential modifications to regional standards
  - Coordinated use of phase shifters
  - Identify and implement best practices for generation and load forecasting
- Prepare now for next year by developing Operating Plans
- Investigate phase angle concerns with high flows and set proper stability limitations for real-time operations
- Become familiar with the WECC Western Assessment

# Positive Observations

1. Proactive coordination among Reliability Coordinator managers
2. Heat wave supports the findings from the WECC MAVRIC tool
3. Use of real-time synchrophasor data to monitor and act on phase angles
4. Effectiveness of outreach programs to reduce peak demand hours helped avoid continued rolling outages



# Additional Information

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- [WECC August 2020 Heat Wave Event Analysis Report](#)
- [Western Assessment of Resource Adequacy Report](#)
  - Recorded Webinars and Reports
    - [Report Overview](#)
    - [Desert Southwest Subregion](#)
    - [California-Mexico Subregion](#)
    - [Northwest Subregions](#)
- [January 2018 South Central Cold Weather Event](#)
- [1996 System Disturbance Report](#)



## Contact:

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