



Studies Subcommittee Update

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StS Update

- **2020–2021 Study Program (Approved and Published):**
 - Extreme Natural Events
 - Variability in Loads and Resources
 - Impact of High Distributed Energy Resources
 - Changes in System Inertia
 - 2040 Clean Energy Scenarios

Extreme Natural Events

What is the study about?

- Low-probability, high-impact weather event (two weeks in the summer)
 - Heat wave
 - Reduced solar output
 - Drought

Findings

- Unserved energy
- Ancillary service requirements
- Voltage fluctuations

Recommendation

- Study and plan for the impacts of various extreme natural events; collect datasets from extreme events

Variability in Loads and Resources

What is the study about?

- Unforeseen changes in system load

Findings

- Heat wave weather event
- Potential benefits of battery energy storage systems near load centers

Recommendation

- Study the variability in electric load and generation
- Assess potential uses of battery energy storage systems

Impact of High DER

What is the study about?

- High amounts of DER

Findings

- Decrease in thermal generation
- Some thermal units remained online
- Increase in combustion turbine natural gas
- Too much generation caused curtailment of commercial solar and wind
- Localized voltage profiles tend to shift (usually upward)

Recommendation

- Entities monitor DER penetration, and to collect DER data

Changes in System Inertia

What is the study about?

- Impacts of changing system inertia

Findings

- Underfrequency load-shedding
- Rate of change of frequency
- Localized voltage instability

Recommendation

- Monitor system inertia under all conditions

2040 Clean Energy Scenarios

What is the study about?

- Reliability implications of reaching various levels of clean energy

Findings

- Growth in electrical demand will increase
- Resource mix will need to maintain a certain amount of flexibility
- Clean flexible technologies may be needed

Recommendation

- Clean energy technology will have to make significant advances above 90% clean

Resources

For more information about the 2020-2021 Study Program Assessments (reports, podcasts, and one-pagers), please see the following materials:

- 2020-2021 Study Program accordion on the WECC StS page—
 - <https://www.wecc.org/RAC/Pages/StS.aspx#2020-2021studyprogram>



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