Indian Energy Minerals Forum 2022

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Tim Reynolds
Mgr, Event Analysis and Situational Awareness
Agenda

- Overview of WECC
- Regulatory Compliance
- WREGIS
- Common Challenges
How it All Began

1965

2003
Federal Power Act of 2005

- Federal Power Act, Section 215 calls for enforceable standards
- Industry develops standards, approved by FERC
- FERC certifies an Electric Reliability Organization—the ERO (NERC)
- NERC may delegate authority to Regional Entities e.g., WECC
The Western Interconnection includes all or part of 14 Western states in the United States, the Canadian provinces of British Columbia and Alberta, and a portion of Baja California Norte, Mexico.
Become a Member of WECC!

- Register on our website
- Benefits include
  - Partnership with other members and stakeholders
  - Participation in WECC committees
  - Awareness of the latest trends facing the industry

Our Why
Electricity is an integral part of the fabric of modern life
Regulatory Compliance

- Performed per the NERC [Rules of Procedure](#)
- Meet the Bulk Electric System [criteria](#)
- Registered with NERC to perform specific functions
  - Need to determine who performs the specific functions (ex., RC, BA, TOP)
  - Certification may be required before operation
  - New Entity [Information Packet](#)
- NERC [Reliability Standards](#)
WREGIS

Western Renewable Energy Generation Information System
What Does WREGIS Do?

WREGIS issues and tracks renewable energy certificates (REC) used to verify compliance with regulatory and voluntary market programs by—

• Remaining policy-neutral;
• Using independent, verifiable, and reliable data;
• Protecting against double-counting to increase credibility and consumer confidence; and
• Facilitating voluntary market participation with commercial trading of WREGIS Certificates.
What Qualifies as Renewable Energy?

- Biomass and biogas
- Black liquor biomass
- Co-generation electricity/thermal
- Fuel cells (biogas/biomass)
- Geothermal
- Hydroelectric

- Hydroelectric efficiency upgrades
- Ocean/wave
- Offshore wind
- Solar
- Solar thermal
- Wind

The definition of “renewable energy” varies for different regulatory and voluntary programs—always contact the program to verify fuel type eligibility.
Common Issues

- Resource adequacy
- Inverter-based resources
- Physical security and cybersecurity
- Wildfires
Resource Adequacy

- Retirement of fossil-based resources and replacement with renewables

- Meeting demand during peak hours requires balancing several resources
Inverter-Based Resources

- Inverter-based resources may cease to inject power
- Several recommendations to resolve the issue from WECC and NERC
  - Major Event Analysis Reports
Physical Security and Cybersecurity

- Threat landscape
  - Ransomware
  - Substation theft
  - Supply chain
  - Geopolitical
  - Drones
  - …and more!

OE-417 Reports by General Category

- Physical Attack
- Islanding
- Uncontrolled Loss of Firm Load for >=15 min
- Public Appeals
- Loss of Monitoring
- Evacuation from Control Center for >= 30 min
- Loss of Service to >= 50k Customers for >= 1 Hr
- Fuel Supply Emergency
- Cyber Event
- Unexpected Transmission loss >=3 BES Facilities contrary to design
E-ISAC

- Why you should participate in the E-ISAC
  - Trusted source of quality analyses and rapid sharing of security information for the electricity industry

- Who can participate?
  - All vetted electricity owners and operators in North America can participate in E-ISAC activities

- Membership is free
  - www.eisac.com
Wildfires

- Vegetation management
- Transmission congestion
  - Fire or smoke may cause lines to trip
- Public Safety Power Shutoff
- WECC’s wildfire series

![Wildfire—Total Count Western U.S., and British Columbia and Alberta Canada](chart.png)

- 2018
- 2019
- 2020
- 2021
WECC’s Wildfire Dashboard
Contact:

Tim Reynolds
Mgr, Event Analysis and Situational Awareness
treynolds@wecc.org