



TRANSMISSION & DISTRIBUTION
ENGINEERING AND CONSULTING

WECC REGION

WESTERN ELECTRICITY COORDINATING COUNCIL
DEVELOPER & UTILITY GRID SOLUTIONS

RELIABLE PLANNING · ADVANCED STUDIES · INTERCONNECTION EXPERTISE

WECC OVERVIEW

THE WESTERN INTERCONNECTION

The Western Electricity Coordinating Council (WECC) represents one of the largest and most technically diverse power systems in the world, spanning:

- ▶ Western United States
- ▶ Western Canada
- ▶ Northern Baja California (Mexico)

The WECC footprint includes:

- ▶ Long-distance transmission corridors
- ▶ High renewable penetration regions
- ▶ Hydro-dominated systems
- ▶ Remote resource interconnections
- ▶ Rapid large-load growth zones
- ▶ Increasing inverter-based resource (IBR) presence

WHY WECC IS UNIQUE

Unlike single-market ISOs/RTOs, the Western Interconnection operates across multiple utilities, balancing authorities, and regulatory frameworks.

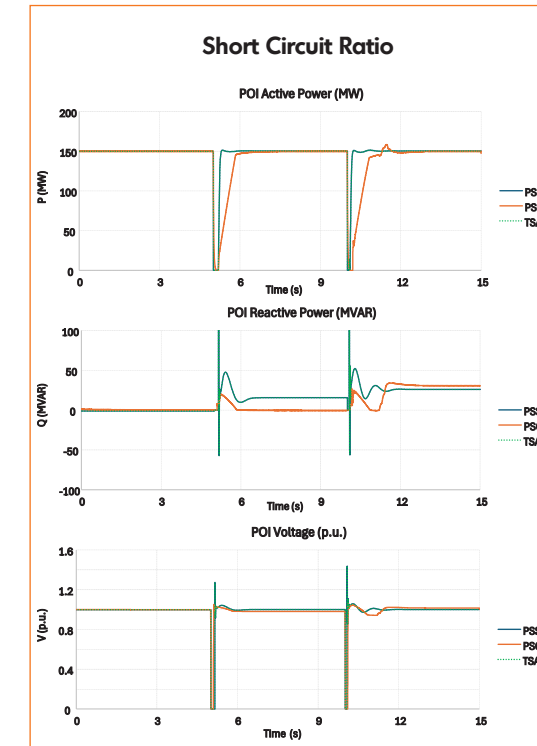
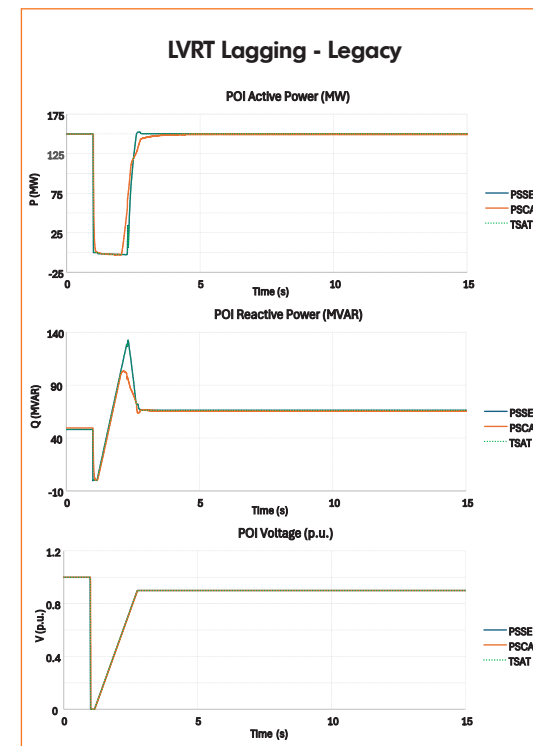
Projects must navigate:

- ▶ Utility-specific interconnection requirements
- ▶ WECC regional reliability criteria
- ▶ NERC reliability standards
- ▶ State & provincial regulations
- ▶ Transmission deliverability constraints
- ▶ Stability-limited transfers
- ▶ System strength & voltage control challenges

RMS ENERGY IN THE WECC REGION

RMS Energy supports developers, utilities, EPCs, and OEMs by delivering:

- ▶ Utility-specific interconnection requirements
- ▶ Interconnection & feasibility studies
- ▶ System impact & deliverability analysis
- ▶ Transmission planning & reliability assessments
- ▶ Dynamic & stability studies
- ▶ EMT/PSCAD modeling & validation
- ▶ Short circuit & protection analysis
- ▶ Renewable, storage, and large-load integration



CORE SERVICES & TECHNICAL CAPABILITIES

INTERCONNECTION & GRID INTEGRATION

Technical support for:

- ▶ Solar, Wind, and Hybrid Resources
- ▶ Battery Energy Storage Systems (BESS)
- ▶ Synchronous Generation
- ▶ Large Industrial & Data Center Loads
- ▶ FACTS & HVDC Solutions

Capabilities include:

- ▶ Feasibility & screening studies
- ▶ System impact studies
- ▶ Deliverability assessments
- ▶ Network upgrade evaluation
- ▶ Interconnection strategy optimization
- ▶ Power quality & harmonic analysis
- ▶ Utility & WECC compliance alignment

POWER SYSTEM STUDIES & MODELING

Steady-State Analysis

- ▶ Power Flow & Contingency Analysis
- ▶ Voltage Stability & Transfer Capability
- ▶ Reactive Power & Voltage Control

Dynamic Performance

- ▶ Transient Stability
- ▶ Small-Signal Stability
- ▶ Oscillation & Control Interaction Analysis
- ▶ IBR Stability Assessments

EMT/PSCAD Studies

- ▶ Inverter-Based Resource Modeling
- ▶ Grid-Forming & Grid-Following Performance
- ▶ Control Interaction & Stability Analysis
- ▶ Sub-Synchronous Interaction (SSCI/SSR)
- ▶ Model Validation & Benchmarking

Short Circuit & Protection

- ▶ Fault Analysis
- ▶ Breaker Duty Evaluation
- ▶ Protection Coordination
- ▶ Remedial Action Scheme (RAS)/Special Protection System (SPS)

TRANSMISSION PLANNING & RELIABILITY

- ▶ Long-term planning studies
- ▶ Renewable integration assessments
- ▶ Stability-limited transfer evaluations
- ▶ Congestion & constraint analysis
- ▶ Reliability & resiliency evaluations

WECC TECHNICAL LANDSCAPE & VALUE PROPOSITION

KEY WECC CHALLENGES

The Western Interconnection continues to evolve rapidly:

High Renewable Penetration

- ▶ Voltage regulation complexity
- ▶ Reduced system inertia
- ▶ Curtailment & congestion exposure

IBR-Dominated Networks

- ▶ EMT-driven phenomena
- ▶ Control interaction risks
- ▶ Protection coordination challenges

Remote Resource Integration

- ▶ Long transmission paths
- ▶ Stability-limited transfers
- ▶ Reactive support needs

Large-Load Growth

- ▶ Load modeling uncertainty
- ▶ System strength impacts
- ▶ Dynamic performance considerations

HOW RMS ENERGY ADDS VALUE

- ▶ Reduce interconnection & study risk
- ▶ Identify upgrade exposure early
- ▶ Improve engineering defensibility
- ▶ Align designs with WECC & utility criteria
- ▶ Mitigate stability & control interaction issues
- ▶ Accelerate project development timelines

TECHNICAL TOOLKIT

RMS Energy leverages industry-leading platforms:

- ▶ PSLF
- ▶ ASPEN OneLiner
- ▶ PSCAD™
- ▶ TSAT
- ▶ TARA
- ▶ Custom analytical & automation tools
- ▶ PSS®E

SUPPORTING THE WESTERN INTERCONNECTION

Whether developing new resources, integrating large loads, or navigating WECC technical requirements, RMS Energy provides the technical depth and practical expertise required for successful project execution.



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