

MVS Update to RAC

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MVS Chair

**Electric Reliability
& Security for the West**

- Committee Purpose
 - Review, recommend, develop, and validate system models used to support reliability assessments and other modeling tools that advance the mission of WECC
 - Work with industry experts, academia, and stakeholders to incorporate the latest research and technological advancements into our models
 - Provide guidance and support to the broader community to enhance the understanding and application of power system models
- Items for Approval and Discussion
 - None

Purpose of this Update

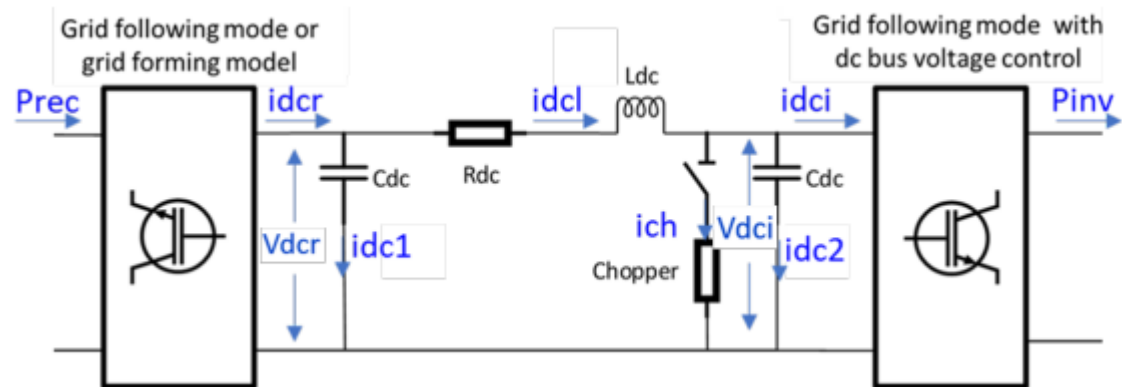
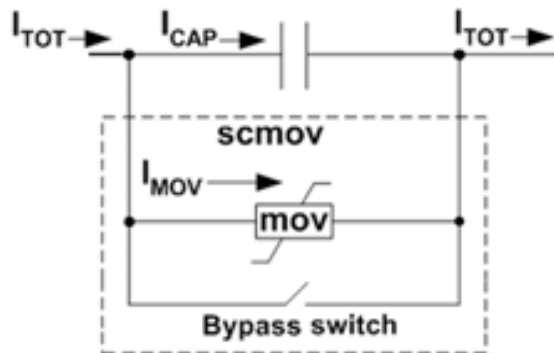
- Share key outcomes of the May 2025 MVS meeting
- Inform RAC of approved models and upcoming priorities
- Coordinate on related planning and standards implications

MVS Meeting Overview

- Hybrid meeting, three days (May 7–9, 2025)
- Topics covered:
 - Model approvals
 - Renewable and load modeling
 - Active transmission system modeling
 - Generator model validation workshop

Model Approvals This Cycle

- ✓ SCMOV Model (Series Capacitor MOV)
- ✓ VHVDC3 Model Specification
 - Both added to the WECC Approved Model development roadmap
 - SCMOV is already on the action item to update the Approved Models List by September



Prioritizing Model Development Queue

- SCMOV(approved)
- VHVDC2
- IBR Controls—REEC_E
- Grid-forming Inverter Model—Hybrid
- Large Load
 - EV Charging Model
 - Data Center
 - Electrolyzer Model
- VHVDC3—Offshore Wind (specification approved)
- Advanced Pump Storage Model
- SVSMO4 Model
- Multi-terminal VSC-HVDC

Renewable Energy Modeling Highlights

- Grid-forming Hybrid Inverter Model
 - Control changes introduced
 - Targeting approval September 2025
- Updated IBR Model & Validation Guidelines
 - New industry feedback cycles
- BPA presented on emerging GFM requirements
 - Inertia, voltage response, short-term current metrics

Active Transmission System Modeling

- VHVDC2 and VHVDC3 updates
- VHVDC3 spec approved
- SVSM04 progress
- Standard Library HVDC/MTDC model development introduced

Load Modeling Highlights

- Modular Composite Load Model progress
 - PSLF modular model validation
 - Scheduled for approval September 2025
- Presentations on:
 - Data center modeling
 - Motor D component stalling sensitivities
 - Three-phase motor dynamic behavior
- New MVS guidance document in development:
 - Practical approaches for data collection and parameter calibration
 - Regional coordination emphasis

Generation Modeling Workshop

- Focus on improving validation practices
- Topics:
 - NERC model validation guideline review
 - Field testing and study procedures
 - Hands-on tool demo (GENQEC Kw tool)
 - Transmission Planner's role in verification

Key Action Items Through September

- Composite Load Modeling Guidance Document
- Small hydro representation data collection
- Presentations for approval at next MVS meeting:
 - REGFM_C1 & REPCGFM_C1
 - APSH specification
 - MHVDC2 & REEC_E
- GENQEC Kw tool posting on MVS site

Observations for RAC Coordination

- Need for clear TPL-001-CRT-4 criteria improvement process
 - Action item to consult the WECC Standards Development Team
- Emphasis on:
 - Consistent naming for generic models
 - Coordinated parameter calibration efforts
 - Planning for emerging load types (EVs, data centers, electrolyzers)



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