

MOD-026-1 and MOD-027-1 Review

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MOD-026-1 and MOD-027-1 Background

Need to ensure that generator models accurately reflect the generator's capabilities and operating characteristics



SAR dated June 14, 2007



Developed MOD-026-1 and MOD-027-1



Effective Date: 7/1/2014

MOD-026-1, MOD-027-1 Implementation Plan Dates

R1, R3, R4, R5, R6		Compliant by	12 months following regulatory approval		7/1/2014
R2					
30% Compliant by		50% Compliant by		100% Compliant by	
4 years	7/1/2018	6 years	7/1/2020	10 years	7/1/2024

Implementation Plan Links

https://www.nerc.com/pa/Stand/MOD0261RD/Project_2007-09_GV_MOD-026_Implementation_Plan-clean_2012Dec10.pdf

https://www.nerc.com/pa/Stand/MOD0271RD/Project_2007-09_GV_MOD-027_Implementation_Plan-clean_2012Dec10.pdf

MOD-026-1, MOD-027-1 Applicability

- **Generator Owner (GO)**
 - Individual generating unit greater than 50 MVA (gross nameplate rating)
 - Individual generating plant consisting of multiple generating units that are directly connected at a common BES bus with total generation greater than 75 MVA (gross aggregate nameplate rating)
- **Transmission Planner (TP)**

MOD-026-1 and MOD-027-1 Requirements Summary

- **GOs provide verified model and model verification data to their TPs**
 - MOD-026-1: Data should verify that the model response matches the generator response for a **voltage excursion**
 - MOD-027-1: Data should verify that the model response matches the generator response for a **frequency excursion**
- **TPs should have processes for (Expectation):**
 - Reviewing verified model data provided by the GO
 - Responding to the GO if the model and generator responses do not match
- **GOs shall respond within 90 calendar days of receiving evidence from their TPs indicating that the responses do not match**
- **TPs shall provide a model usability response to GOs within 90 calendar days of receiving the verified model**

The Issues

- **GOs should be submitting model verification data to their TPs per MOD-026-1 and MOD-027-1, R2**
 - 7 self-identified issues of MOD-026-1 R2
 - 7 self-identified issues of MOD-027-1 R2
- **TPs should be providing model usability responses to GOs per MOD-026-1, R6 and MOD-027-1, R5**
 - 1 self-identified issue of MOD-026-1 R6
 - 1 self-identified issue of MOD-027-1 R5

Model Verification Data Submission Issue

**GOs submit
MOD-026-1 and
MOD-027-1
model
verification data
to their TPs**

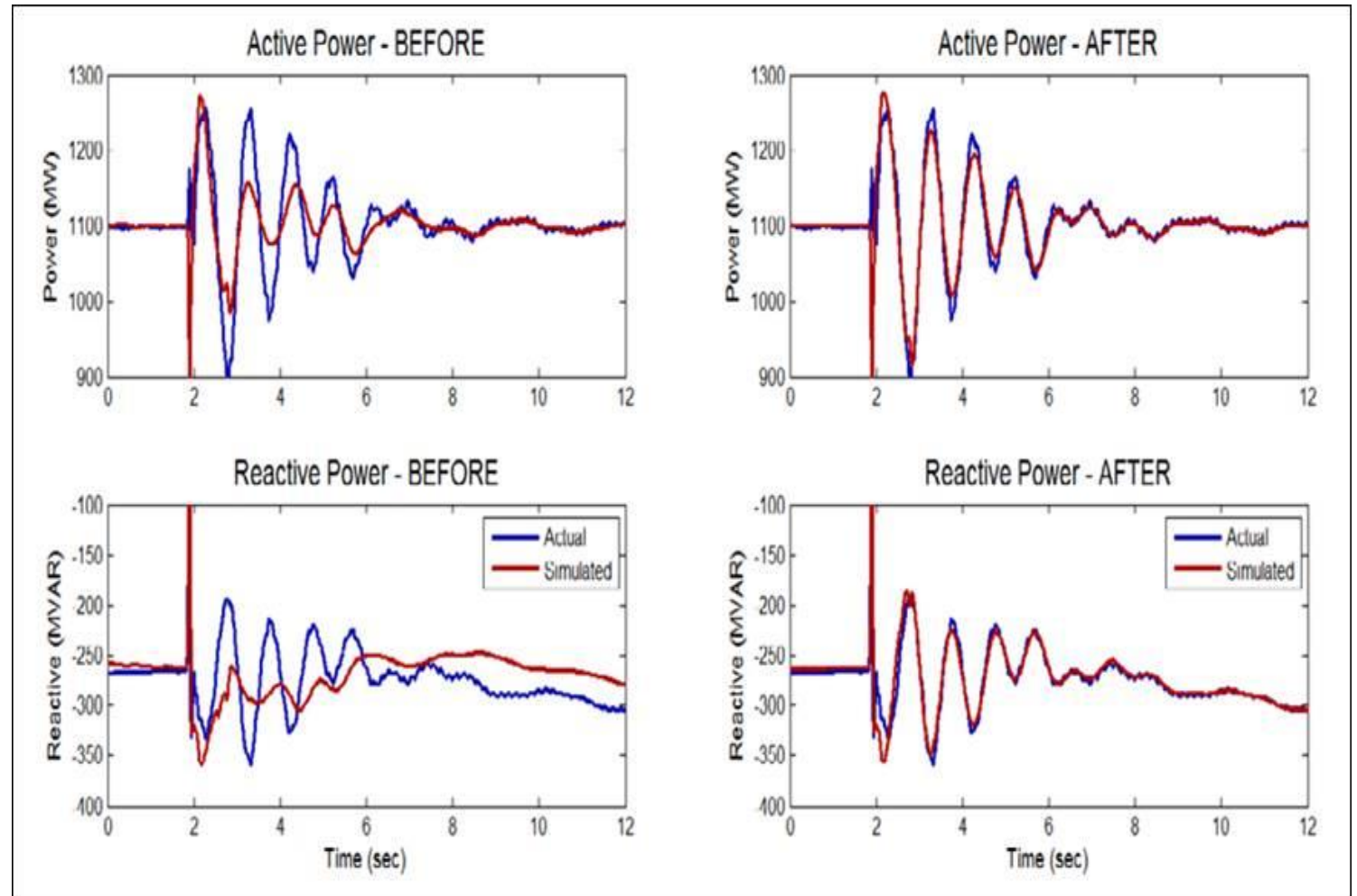
~~**GOs submit
MOD-026-1 and
MOD-027-1
model
verification
data to ERCOT**~~

Reliability Risk

- **Model verification data submitted with your Resource Asset Registration Form (RARF) may not be reviewed since ERCOT is not a TP**
 - RARF does not include a request for model verification data
- **Inaccurate models may not be identified and revised**
- **Inaccurate models may be used by operators and planners to make critical decisions**
 - Changing Resource Mix
 - Stability Limits

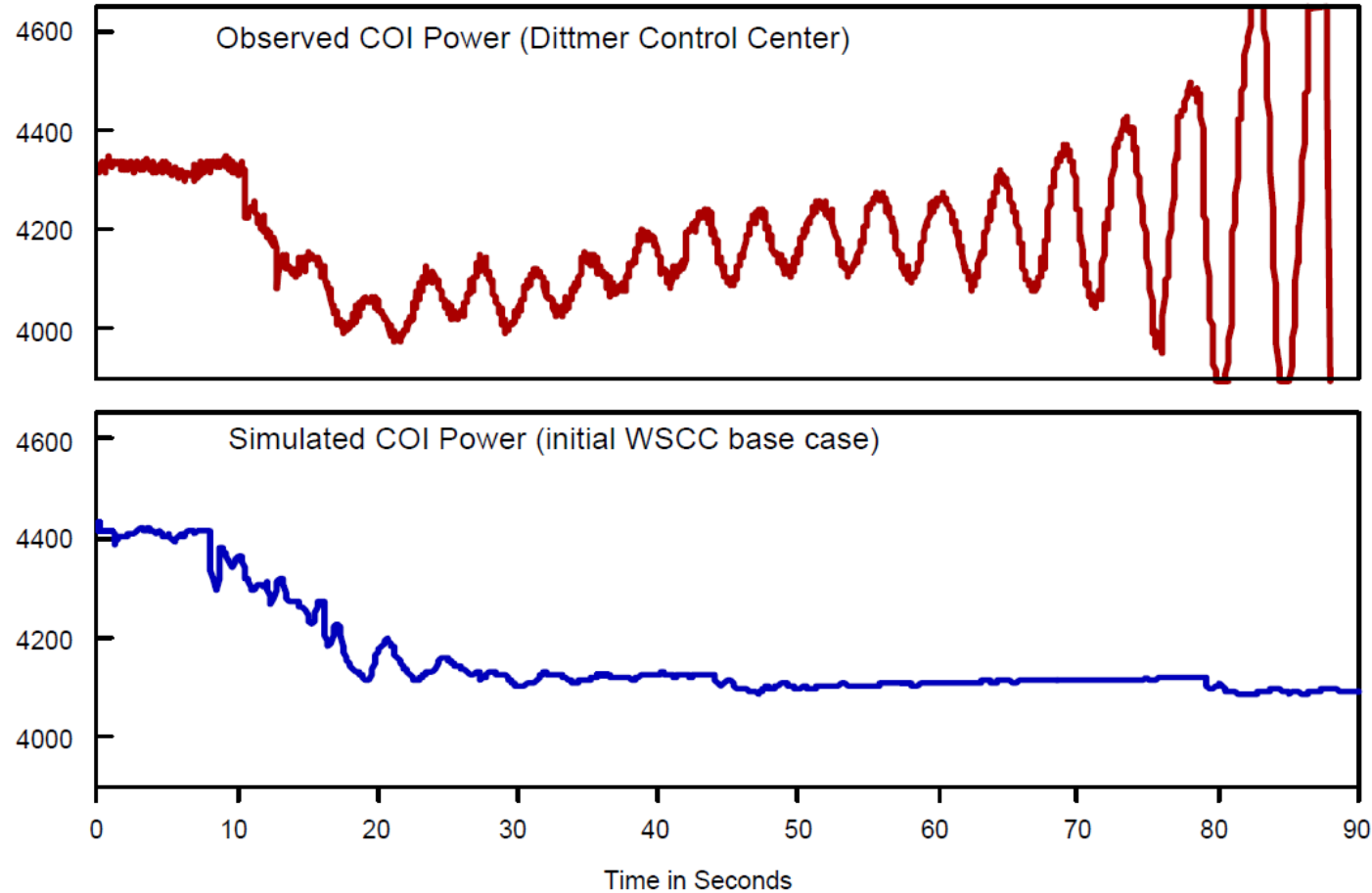
Model Verification Data Submission and Review (R2 and R3)

- GOs verify their models by comparing generator and model responses
- GOs provide the model verification data to TPs
- TPs determine if the responses match
- TPs request model revisions, if needed



What can happen if Operators use inaccurate models?

- August 1996 Event – Simulated vs. Observed System Response



Submit Verified Models to TPs AND ERCOT

MOD-026
and
MOD-027

GO



TP

Planning
Guide
6.2(8)

RE



ERCOT

What does this mean for entities?

- **GOs submit model verification data to their TPs**
- **TPs have process for reviewing the model verification data**
- **GOs submit verified models to TPs and ERCOT**
- **TPs determine model usability and provide response to GOs**
- **Texas RE Risk Team beginning to consider these standards for GOs and TPs**
- **Texas RE Risk Team will determine whether or not there is a risk as part of the Inherent Risk Assessment (IRA) process**

Questions?

