

20 years APPMV at ISO-NE

A fully automated PPMV

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SENIOR ANALYST

Batch Power Plant Model Verification (BPPMV)

- Verify 19 generators/plants with 1 click
 - A MATLAB tool that calls TSAT playback function

Main_Window_GUI		
File		يد د
All Generator List Requested Generator List	PMU & SCADA Raw Data Curves	Curve Viewer Selection
Request Selected Gener Cancel Selected Generat		Event Start Date & All Generator List PMU Data List YYYY-MM-DD All Generator List
Request All Generators Cancel All Generators	8.0 \$	HH:MM:SS
All Generator List	0.7 - 0.6 - 0.6 - 0.5 - 0.5 - 0.3 - 0.3 - 0.1 -	Event End Date & YYYY-MM-DD HH:MM:SS Input Time Time Format _ Event Time Time Zone _ Draw Curves
	0 0.2 0.4 0.6 0.8 1 Time (s)	Clear Curves
	File Path Selection	Parameter Settings Execute Separate Functions
	TSAT.EXE Path: Select Path for TSAT_BATCH.EXE Browse Load	Set User Parameters 1. Load DYR File 2. Load PFB Files
	T L DVD Calest Dath for Za Ella of DCCE, the Ella	Set Program Param 3 Load Mapping T 4 Pull PMIL Data
	Zipped "DYR Select Path for Zip File of PSSE .oyr File Drowse Load	Run & Report
	Zipped .PFB Select Path for Zip File of Initial Purged .pfb F Browse Load	Run Full Process 5. Pull SCADA Data 6. Run Initialization
	Mapping Table Select Path for Mapping Table File Browse Load Output Path: Select Path for Output Files Browse Load	Curves & Reports 7. Run Model Vali 8. Save Results
	Program Running Status	
	SUCCESS: Default configuration loaded.	▲ ▼

Major Functions

- Specify generators/plants to verify
- Specify event start/end time
- Optional: view PMU data in advance
- Set Initial Condition
 - Pull PMU/SCADA data
 - Run power flow in PSAT
- Run Playback Function
 - Time-domain Simulation in TSAT, driving by PMU data at POI

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- Automated Result Analysis
 - Key engineering quantities comparison



Results

• Visually view the differences







- Automated engineering analysis
 - Graph and data table

WHAT'S NEW

APPMV



APPMV – Fully Automated PPMV

- Major constraints about PPMV
 - Time and effort
- BPPMV already automated most of the processes
 - Prepare the case, run the simulation, analyze the results
- APPMV puts another wrapper around BPPMV



APPMV Flow Chart

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APPMV Results

- Email with PPMV results attached
 - Only from sizable events and online generators

From:	DoNotReply@iso-ne.com		
To:	Zhang, Qiang		
Cc:			
Subject:	APPMV		
🖂 Message	Eigure2017	01.zip (788 KB)	
Generator Model Validation starts at 2017-			:01
Generator	r Model Validation end	ls at 2017-	:31
Please o	open zipped results of a	generator model valid	ation or BPPMV to further investigate

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- All TSAT playback cases are stored on a server
 - User can modify the case and investigate in further detail

GREAT INTERN WORK!

Meng Wu, Ph.D. student from TAMU, now faculty at ASU Weihong Huang, Ph.D. student from UTK



Questions

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