

# TSAT Update

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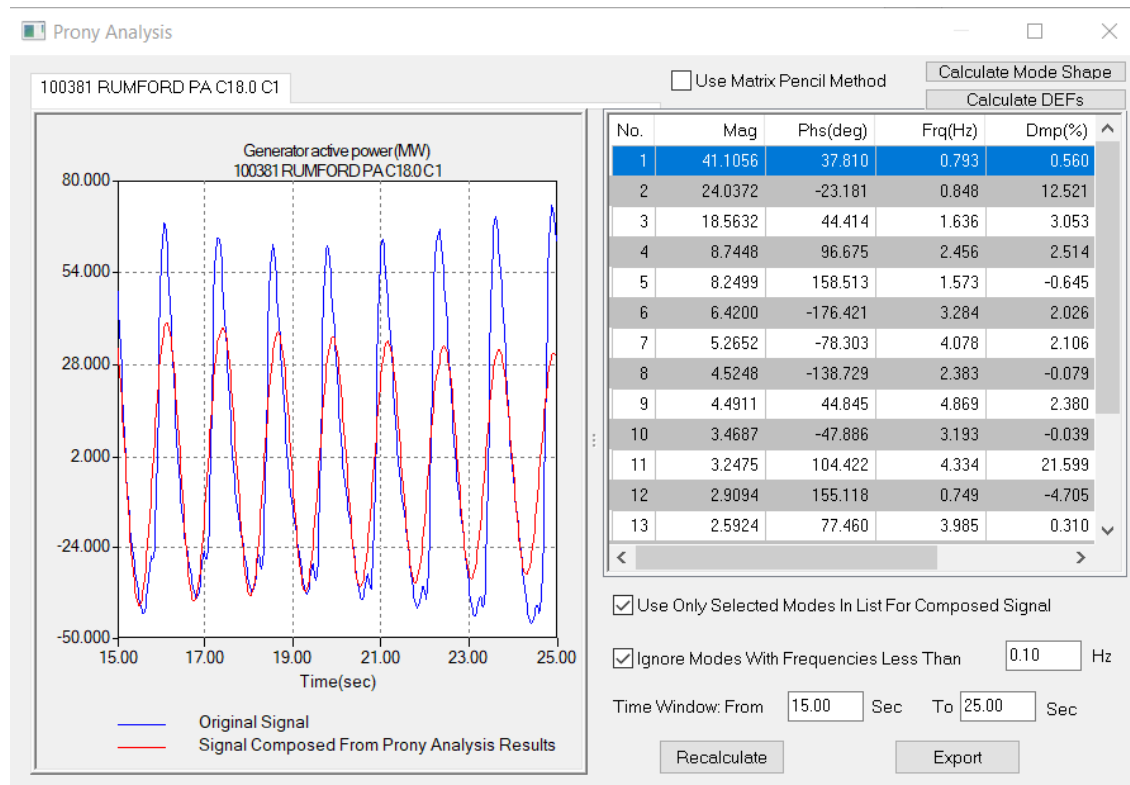
## Work In Progress

- Continuously participating in the model development efforts
- Following models are under development
  - IEEE 421.5 Standard Models (mainly PPS models left)
  - WGO module
  - Power plant modeling in powerflow and dynamic data



# V20 Enhancements

- DSAOA is the output analysis and plotting module of TSAT/VSAT
- DSAOA can perform Prony analysis on selected curves

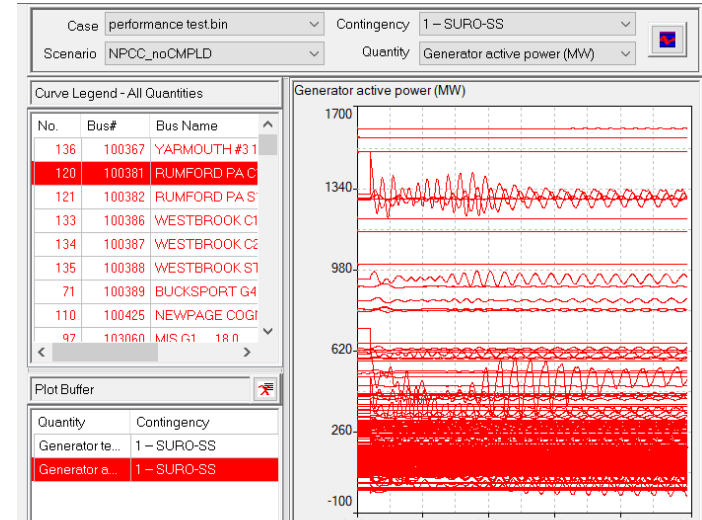





# V20 Enhancements

- A few recent enhancements:
  - Dissipating Energy Factor (DEF) [1]
    - Identifying oscillation modes sources
  - Mode Shape Calculation
  - Modal analysis for large number of curves

[1] S. Maslennikov, B. Wang, and E. Litvinov, “Dissipating energy flow method for locating the source of sustained oscillations”, *Electrical Power and Energy Systems* 88, pp. 55-62, 2017.



 Dissipating Energy Factor Results

File

Bus	ID	DEF	Contingency
100381	RUMFO... C1	28.7400	1 - SURO-SS
103060	MIS G1 ... C1	16.2065	1 - SURO-SS
103061	MIS G2 ... C2	16.1851	1 - SURO-SS
190465	C.BYG3 ... 1	12.5189	1 - SURO-SS
103062	MIS ST ... S1	12.1073	1 - SURO-SS
100382	RUMFO... S1	11.9696	1 - SURO-SS
100389	BUCKSP... 4	9.4201	1 - SURO-SS
179910	RIVMOU... 1	5.9482	1 - SURO-SS
190472	BLLDNG... 1	5.3905	1 - SURO-SS
190473	BAYSID... 1	5.3304	1 - SURO-SS
179500	SCRBR3 1	2.5076	1 - SURO-SS