Transient Security Assessment Tool (TSAT) Update
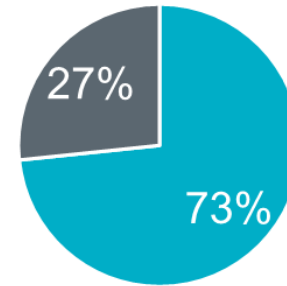
ERCOT Operation Stability Analysis

February 8, 2023
ROS Meeting

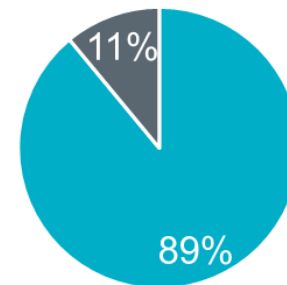# TSAT Model Submittal and Review Update

- Most Resources reported to PUCT in early 2022 have provided TSAT models

- New Resources are required to have accepted TSAT models to be included in QSA

Transmission Connected IBRs (Wind/Solar/Battery) Dynamic Model Category

27% — UDMs (user defined models)
73% — Generic Models

- Generic Models
- UDMs (user defined models)

Transmission Connected IBRs (Wind/Solar/Battery) TSAT Dynamic Model Availability

11% — Rejected or no submittal
89% — Accepted

- Accepted
- Rejected or no submittal

UDMs Model Summary and Update (as of January 2023)

GenModelName	OEM	Accepted by ERCOT
GMD042101b	Gamesa	Yes
GMD042101	Gamesa	Yes
GMD042103b	Gamesa	Yes
GMD042104B	Gamesa	Yes
GELV5G1	GE	Yes
PEGEN_HM1008_1b	PowerElectronics	Yes
PEGEN_HM1008_1A	PowerElectronics	Yes
VC200460602	Vestas	Yes
VS170960603	Vestas	Yes
VS170960602	Vestas	Yes
CP200660602	Vestas	Yes
CP200660603	Vestas	Yes
VS200460603	Vestas	Yes
GEWTG0705	GE	Yes

GenModelName	OEM	Accepted by ERCOT
VC200452101	Vestas	NO
CP200652300	Vestas	NO
CP200660000	Vestas	NO
VS170960501	Vestas	NO
VS200460500	Vestas	NO
VS200460602	Vestas	NO
CP200660501	Vestas	NO
FL200453400	Vestas	NO
CP200653400	Vestas	NO
CP200660400	Vestas	NO
VC200453400	Vestas	NO
VS200453400	Vestas	NO
PEGEN_HM1007A	PowerElectronics	NO
SMASC	SMA	NO
BESTESBL137	Tesla	NO
VC18084901	Vestas	NO
CP200652101	Vestas	NO
ING1BJ0	INGE	NO
VS3102	Vestas	NO

TSAT Dynamic Model Submittal and Expectation

- TSAT dynamic model is accepted if all the following are met,
  - PSSE model is accepted
  - Dynamic model type (generic or UDM), dyr file format and parameters are the same as PSSE models
  - TSAT model performance matches the PSSE model performance
  - TSAT model can accept equipment name which is needed for online application
  - Provide sufficient auxiliary files, e.g., .dll, .tudm, user manual, dyr file with equipment name, needed for TSAT UDM models and application

Status Update

#	Task	Notes	Progress and Tentative Schedule
1	TSAT Model Update and Availability	~89% of IBRs with accepted TSAT models	Ongoing
2	Offline TSAT Scenarios Set Up and Testing	Evaluate the existing GTCs and identify GTCs for online TSAT application based on the available models	Ongoing
3	EMS Testing Environment	Set up the TSAT scenarios for the potential GTCs and identify the adjustments/improvement needs	Ongoing
4	EMS Operational Environment		TBD
5	Online TSAT		TBD

- The schedule will be revised as needed, depends on the testing and finding at each stage
- May not have all the GTCs implemented initially

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