Model Testing for NOGRR245
Initial Discussion

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ERCOT Transmission Planning

IBRWG Meeting
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Objectives

- Focus on VRT and the test profiles to be applied
  - Performance evaluation details to be discussed later
  - Not a final proposal – ERCOT is open to considering additions or subtractions
  - Assumes that there will be requirements aligned with the IEEE 2800-2022 curves (but NOGRR 245 is not finalized)
- Get stakeholder feedback and input

List of Applicable Tests (MQT)

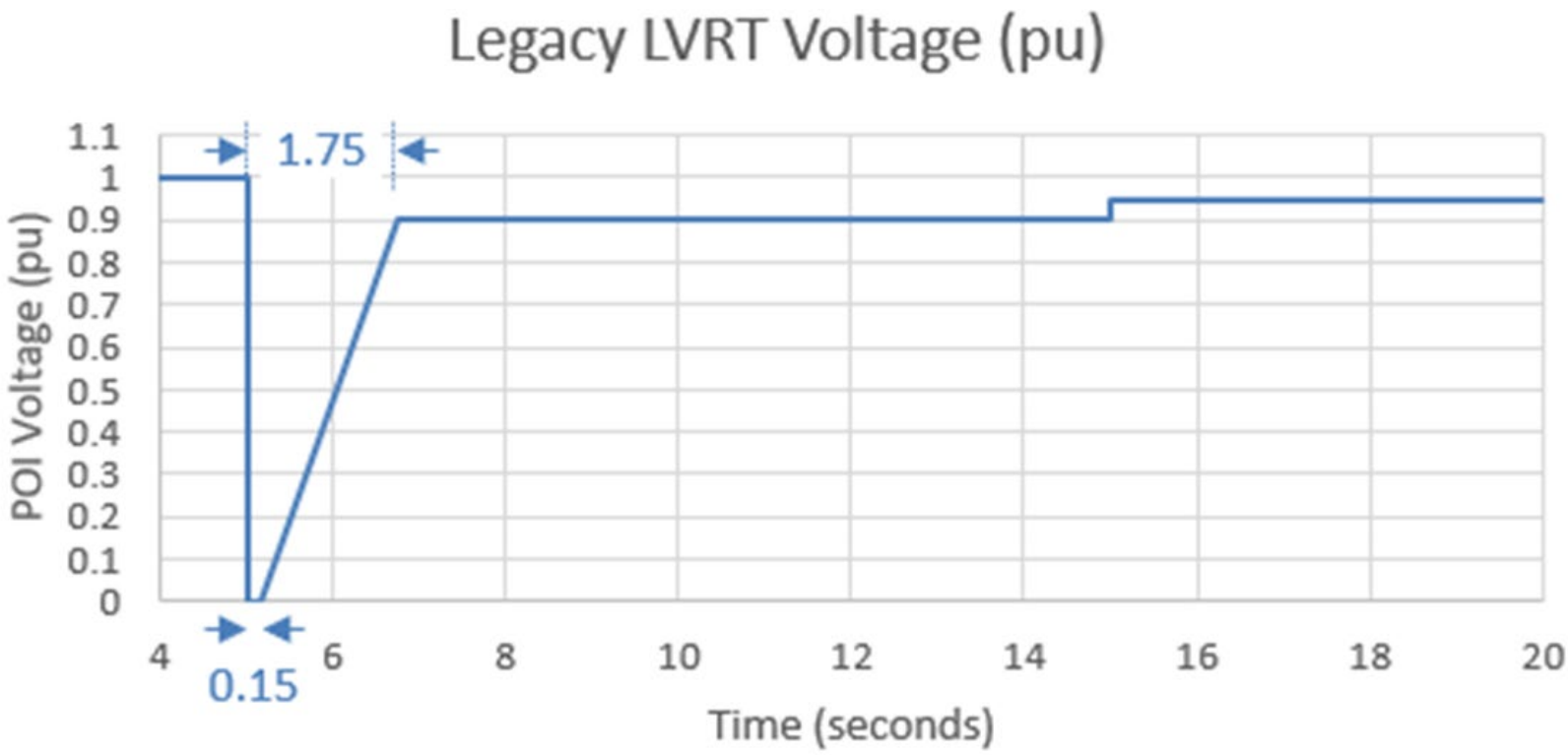
- This presentation will focus on the highlighted items below

Test	Applicable Models	Applicable Technologies	Notes
Flat Start	PSCAD PSS/E TSAT	ALL	
Small Voltage Disturbance			
Small Frequency Disturbance			
LVRT		IBRs WGRs	For LVRT, test both the new NOGRR245 "Preferred" curves and the "Legacy" curves. Of the "Preferred" curves, select the one corresponding to the technology. The "HVRT w/ Transient" can be run with the HVRT simulation (no need for two simulations when testing the PSCAD model).
HVRT			
HVRT w/Transient	PSCAD	IBRs	
Phase Angle Jump			
System Strength	PSCAD PSS/E TSAT	IBRs WGRs	
Large Disturbance (Fault Test)	PSS/E TSAT	Synchronous Machines	

Initial Conditions for VRT Tests

- Full real power output
  - ESR shall also run all tests at full charging condition
- 1.0 pu voltage at POI
- Run all tests for two initial power factor conditions
  - 0.95 leading power factor
  - 0.95 lagging power factor

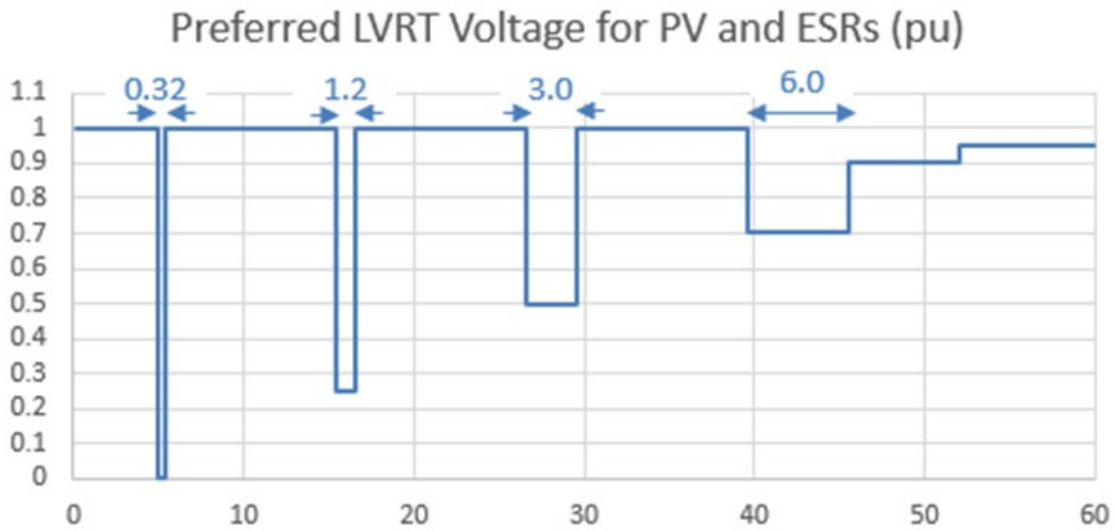
Legacy LVRT Curve



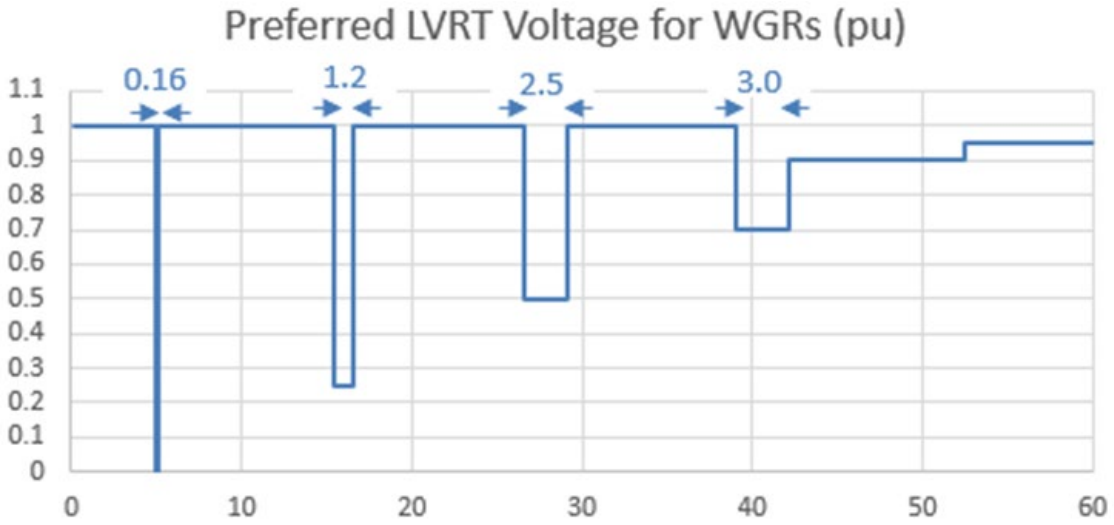
Preferred LVRT Curve for IBR

Proposal:

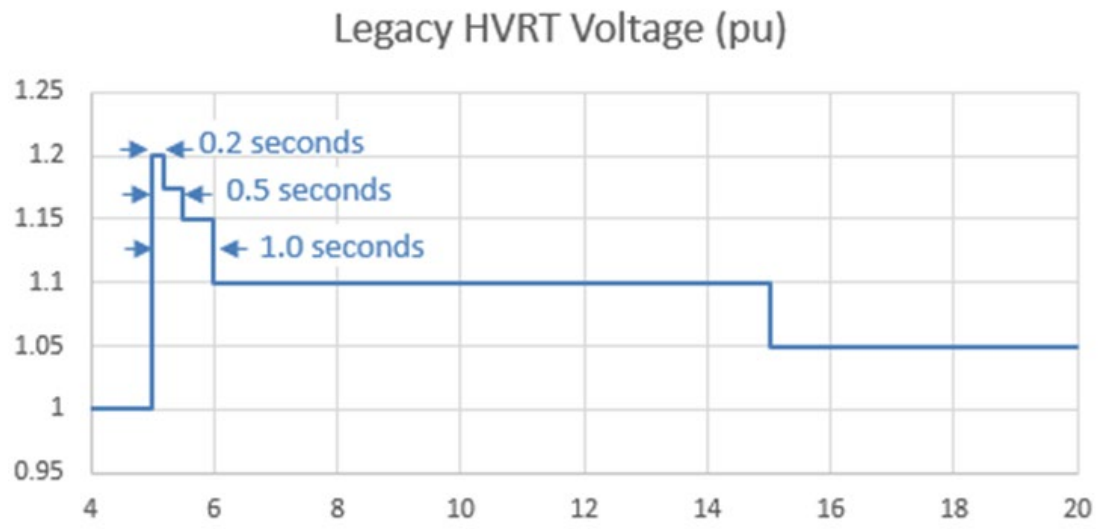
- Test the preferred LVRT curve as a series of voltage dips rather than single stair-step function.



OR



HVRT Curve



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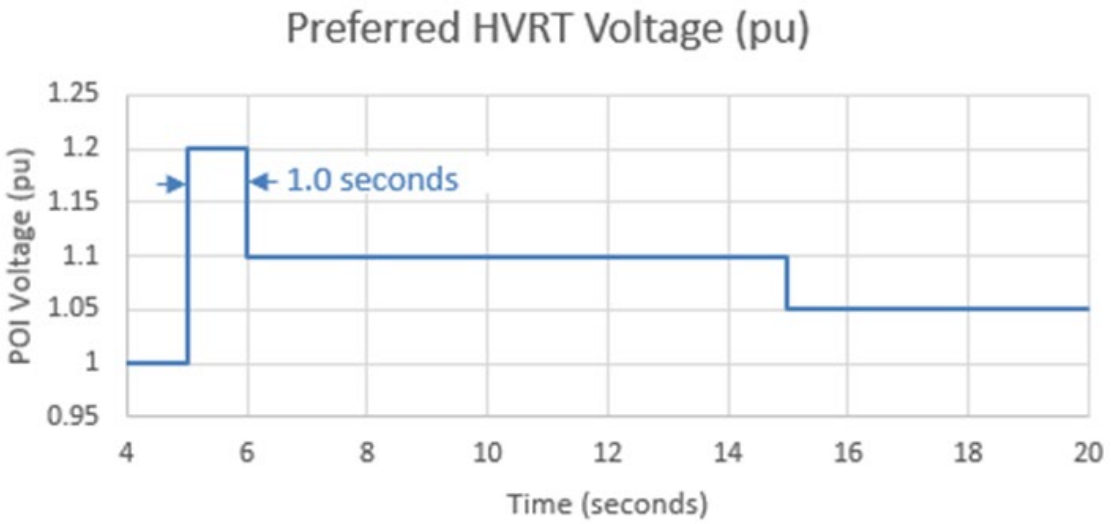
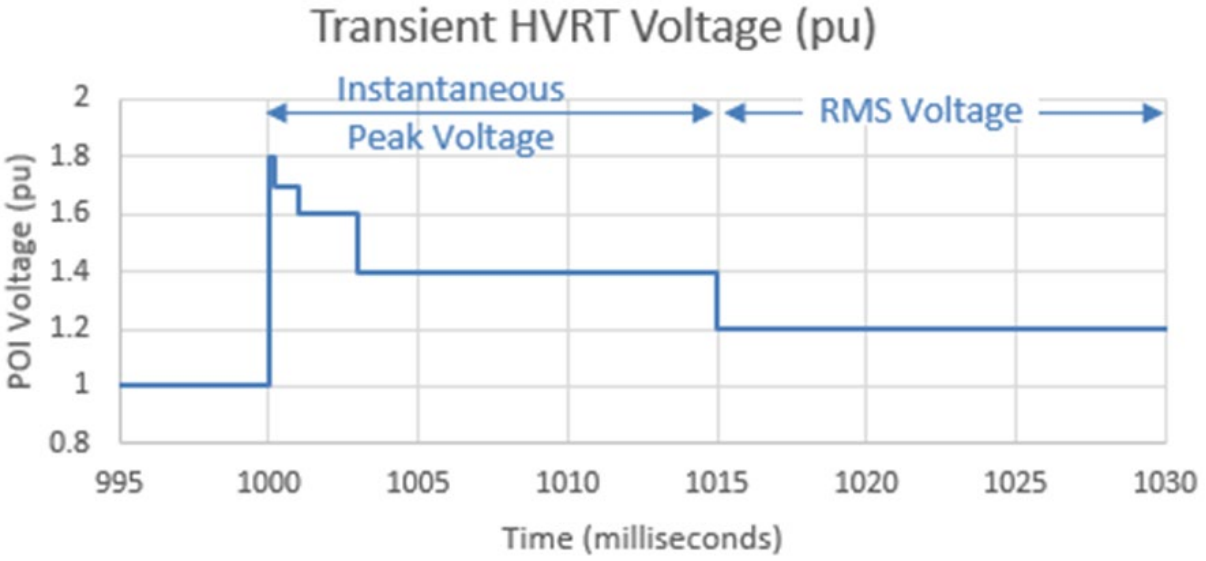
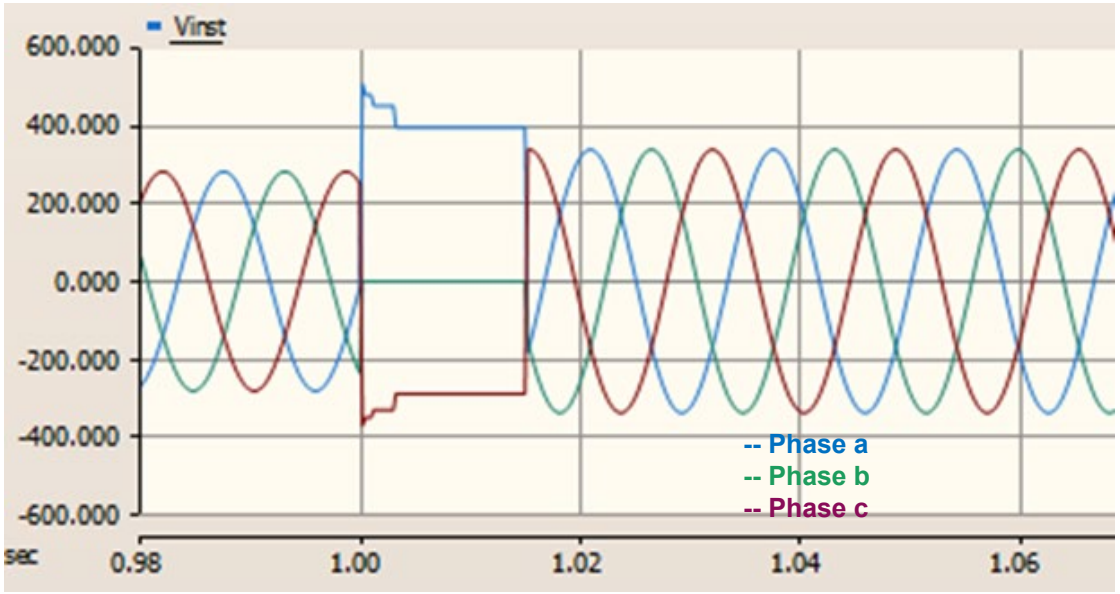


Transient HVRT Curve - PSCAD





Next Steps

- Stakeholder feedback/discussion on VRT tests
  - Open to stakeholder proposals/presentations at future IBRWG meetings
  - SLG fault test for PSCAD models?
- Performance Evaluation
- Other tests (beyond VRT)
- Draft DWG Procedure Manual language
  - Consider need for revision in higher level document(s) (e.g., Planning Guide)

Thank you!

Stakeholder comments also welcomed through:

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