

# Network Model Guidelines

## NPRR 776

## Voltage Set Point Communications



NDSWG & VPWG

Jan 23, 2018

*Stephen Solis*

System Operations Improvement Manager

*Mario De LaGarza*

Modeling Maintenance Supervisor

*Mark Lucas*

IT Project Manager

ERCOT Public

# Modeling Guidelines

- The following guidelines are provided for TDSOs to create observation (kVM) and target Set Point (kVT) tags in ERCOT's network model, using the model template

# KV POI SGEM Template

This Template creates the KV\_POI and Terminal under the following location:

Choose Template: **KV\_POI** [Enter wildcard search string] [Save] [Restore]

This Template creates the KV\_POI and Terminal under the following location:  
 Network/ERCOT\_Texas\_Network/ERCOT Substations/WZ\_SCADA\_ONLY/KV\_POI

The attributes should be filled with the following data:

ERCOT Substation Name[Text] - Type the ERCOT substation name where the generator is modeled  
 Synchronous Machine Name[Text] - Type the name of synchronous machine.  
 If there are multiple units associated to one POI a different name can be used (examples: ALL, POIA, POIB, etc)

\*\*\* The fields 'ERCOT Substation Name' and 'Synchronous Machine Name' will be used to create the name of the Generic Equipment \*\*\*  
 \*\*\* The total length of the concatenation of the two fields and the character '\_' should not be longer than 14 characters \*\*\*

GeneratingUnit[Link] - Drag and drop Generating Unit instance to this field. The Generating Unit location is: Substation->Resource Controller->Generating Unit  
 Operator[Link] - Drag and drop your Company's Operatorship instance  
 Owner[Link] - Drag and drop your Company's Ownership instance  
 MeasurementValueSource[Link] - Drag and drop your Company's Measurement Value Source instance  
 KVT ICCP name[Text] - Type the ICCP name of KV target at POI  
 KVM ICCP name[Text] - Type the ICCP name of KV measurement at POI

Parameter	Value
ERCOT Substation Name[Text]	
Synchronous Machine Name[Text]	
GeneratingUnit[Link]	
Operator[Link]	
Owner[Link]	
MeasurementValueSource[Link]	
KVT ICCP name[Text]	
KVM ICCP name[Text]	

Object

- Instances :
  - Parent: Network/ERCOT\_Texas\_Network/ERCOT Substations/WZ\_SCADA\_ONLY/KV\_POI
    - GenericEquipment : \_
      - GeneratingUnit ->
      - Ownership ->
      - Operatorship ->
      - MeasurementLocation : ML1
        - PermissionArea -> List\_Information/PermissionAreas/ERCOT
        - DeviceTypeName -> List\_Information/DeviceTypeNames/BUS
        - MeasurementGroup : ANLG
      - PseudoTerminal : PT1
      - Analog : KVT

Duplicate object names are errors  Allow apply with warnings [Validate] [Apply] [Cancel]

Network Model (RO)

- .General
- .other Data
- Contingencies\_and\_RASs
- List\_Information
- Model\_Version\_Information
- Network
  - BaseVoltage
  - BranchGroup
  - Companies
  - Contacts
  - DCTies
  - EPS\_Meter\_Groups
  - ERCOT\_Counties
  - ERCOT\_Settlement\_Hubs
  - ERCOT\_Settlement\_Load\_Zones
  - ERCOT\_Texas\_Network
    - ERCOT Substations
      - WZ\_COAST
      - WZ\_EAST
      - WZ\_FAR\_WEST
      - WZ\_NORTH
      - WZ\_NORTH\_CENTRAL
      - WZ\_SCADA\_ONLY
        - AVG5MIN
        - AVG15MIN
        - DCTIE
        - DUMMY1
        - FREQ1
        - GENLDA
        - GENMISC
        - GENQSE
        - KV\_POI**
        - WXZFLOW
        - WXZLOAD
        - OOLDASTN
        - OOLDATSP
        - OOMKTHUB
        - OOMKTLZ
        - OORTTMP
        - OOSPS\_GF



# KV POI SGEM Template Fields, Part 1

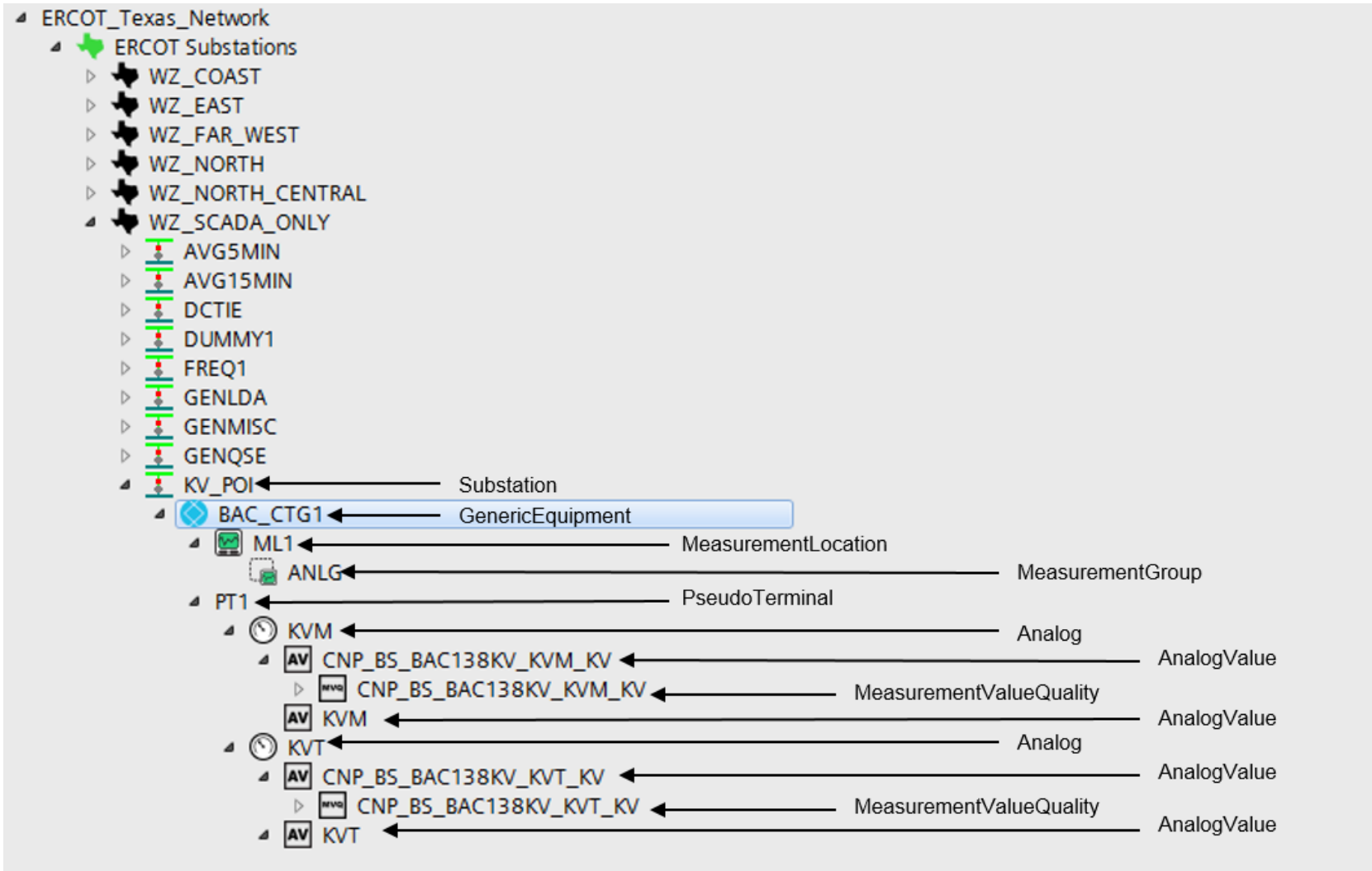
- **ERCOT Substation Name[Text]** - Type the ERCOT substation name where the generator is modeled.
- **Synchronous Machine Name[Text]** - Type the name of synchronous machine.
  - If there are multiple units associated to one POI, a different name can be used (examples: ALL, POIA, POIB, etc.).
- **GenericEquipment Name** = ERCOT Substation Name[Text]  
+ ‘\_’ +  
Synchronous Machine Name[Text]
  - Example: Substation Name = ‘SUB1’ and Synchronous Machine Name = ‘W1’,  
GenericEquipment Name = ‘SUB1\_W1’
- **GenericEquipment Name** <= 14 Characters
  - Example: Substation Name = ‘SUBSTATION’ (10 chars) and SM Name = ‘SUBG1’ (5 chars)  
Possible GenericEquipment Name = ‘SUBSTATION\_G1’



## KV POI SGEM Template Fields, Part 2

- **GeneratingUnit[Link]** - Drag and drop Generating Unit instance to this field. The Generating Unit location is: Substation->Resource Controller->Generating Unit.
  - If multiple units are associated to one POI, after applying the template with one instance the user should go back to the GenericEquipment and manually add the rest of the units.
- **Operator[Link]** - Drag and drop your Company's Operator-ship instance.
- **Owner[Link]** - Drag and drop your Company's Ownership instance.
- **MeasurementValueSource[Link]** - Drag and drop your Company's Measurement Value Source instance.
- **KVT ICCP name[Text]** - Type the ICCP name of kV target at POI.
- **KVM ICCP name[Text]** - Type the ICCP name of kV measurement at POI.

# KV POI SGEM Template Structure



# Telemetry Guidelines

- TDSPs will need to engage their EMS support teams to modify their ICCP systems as needed to transmit the kVM and kVT values to ERCOT starting April 6.
- QSEs will need to engage their EMS support teams to modify their ICCP systems as needed to receive the kVM and kVT values from ERCOT starting April 6.

## Telemetry Guidelines, 2

- When planned or unplanned de-energization occurs, TDSPPs must telemeter the kVM and kVT values to ERCOT for the active POI.
- TDSPPs should also contact ERCOT Operators to notify them of the conditions and verbally confirm the Set Point value.



# Discussion / Q&A

