Utility Network Properties

- Categories
  - The following categories were added
    - E: Power Transformer
    - E: High Voltage Cable
    - E: High to Medium Voltage Cable
    - E: Load
    - E: Low Voltage Cable
    - E: Medium Voltage Cable
    - E: Medium to Low Voltage Cable

- Network Attributes
  - The following network attributes were added
    - E: Power
    - Measured Length

- Terminal Configurations
  - The following terminal configurations were added
    - SCADA Devices

- Diagram Templates
  - Basic
    - Updated
  - CircuitSwitching_FromMediumCB
    - Updated
  - CollapseContainers
    - Updated
  - ExpandContainers
    - Updated
  - InterconnectedSubstations_FromSubstations
    - Added
  - Switches_FromDistribution
    - Updated

Classes

- All Relationship classes related to classes in the UtilityNetwork feature dataset moved into dataset
- Field aliases updated to following the following syntax. FieldName: Field Alias1, Field Alias2,...
- Attachments enabled on all classes
- ElectricAssembly
  - Fields
    - lifecyclestatus
      - Domain Lifecycle_Status set for Subtype: 20
    - maintby
      - Field added
      - Domain Asset_Manager set for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17,18, 19, 10, 20
      - Default Value set to 1 for Subtypes: 20, 1, 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17,18, 19, 10, 20
    - notes
      - Field added
    - ownedby
      - Domain Asset_Owner set for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17,18, 19, 10, 20
      - Default Value set to 1 for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17,18, 19, 10, 20

- ElectricAssembly_ElectricDeviceUnit
  - Relationship class added

- ElectricCrossarm
  - Fields
    - braced
      - Domain Yes_No set
    - faceheight
      - Domain Electric_Crossarm_Face_Height set
    - length
      - Domain Electric_Crossarm_Length set
    - material
      - Domain Electric_Crossarm_Length set
    - position
      - Domain Electric_Crossarm_Position set
    - usagetype
      - Domain Electric_Crossarm_Usage_Type set

- ElectricDevice
Fields

- addpowerrating
  - Domain `Electric_High_Voltage_Arrester_Discharge_Voltage` set for Subtype: 2
- alternatevoltagelinetoground
  - Domain `Electric_Low_Nominal_Voltage_L` set for Subtype: 38
- alternatevoltagelinetoline
  - Domain `Electric_Low_Voltage_Nominal_Voltage` set for Subtype: 38
- directional
  - Domain `Electric_Transformer_Cooling` set for Subtype: 11, 24, 38
- equipmentconfiguration1
  - Domain `Electric_Medium_Voltage_Fuse_Type` set for Subtype: 14, 29
- manufacturer
  - Domain `Electric_Device_Switch_Manufacturer` set for Subtype: 10, 23, 37
- numphasesconstructed
  - Default Value set to 3 for Subtypes: 2, 4, 5, 6, 7, 8, 9, 10
- phasesplan
  - Domain `Electric_Distribution_Phase_Attribution` set for Subtype: 26
- powermeasure
  - Domain `Electric_Light_Watts` set for Subtype: 16
  - Domain `Electric_Low_Voltage_Generate_Watts` set for Subtype: 15
- powerrating
  - Domain `Electric_Medium_Voltage_Fuse_Continuous_Amps` set for Subtype: 14, 23, 26, 37
  - Domain `Electric_Medium_Voltage_Service_Load` set for Subtype: 26, 36
  - Domain `Electric_Low_Voltage_VAR` set for Subtype: 24
  - Domain `Electric_Low_Voltage_Service_Load` set for Subtype: 22
• Domain **Electric_High_Voltage_Maximum_Continuous_Current** set for Subtype: 10
• Domain **Electric_High_Voltage_Service_Load** set for Subtype: 9
• Domain **Electric_High_Voltage_Regulator_VA** set for Subtype: 8
  - powerrating2
    - Domain **Electric_Medium_Voltage_Fuse_Interrupting_Amps** set for Subtype: 10, 14, 23, 26, 37
    - Domain **Electric_Medium_Voltage_Arrester_Discharge_Voltage** set for Subtype: 25
  - remotecontrol
    - Domain **Electric_Remoted_Controlled** set for Subtype: 6, 7, 8, 9, 10, 15, 16, 19, 20, 21, 22, 23, 30, 32, 34, 35, 36, 37, 38
    - Default Value set to 0 for Subtypes: 9, 10, 15, 16, 19, 20, 21, 22, 23, 30, 32, 34, 35, 36, 37, 38
  - tapsandpoles
    - Domain **Electric_Ground Material** set for Subtype: 1
  • ElectricDeviceUnit
    - Table was rebuilt to mirror the Electric Device with the following changes:
      - Fields removed:
        - associationstatus
        - issubnetworkcontroller
        - isconnected
        - subnetworkcontrollername
        - tiername
        - tierrank
        - terminalconfiguration
        - subnetworkname
        - spatialsource
        - spatialconfidence
        - symbolrotation
      - Asset Type Attribute Domains copied and renamed to include Unit in their name
  • ElectricJunction
    - Fields
- **maintby**
  - Field added
  - Domain **Asset_Manager** set for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
  - Default Value set to 1 for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

- **nominalvoltage_lg**
  - Domain **Electric_Medium_Nominal_Voltage_L-G** set for Subtypes: 4, 5, 6, 7, 8, 9

- **ownenby**
  - Field added

- **numphasesconstructed**
  - Default Value set to 3 for Subtypes: 1, 2

- **ElectricLine**
  - Fields
    - **commonconductortype**
      - Domain **Electric_Wire_Type** set on field
      - Domain **Electric_High_Voltage_Conductor_Type** set for Subtypes: 3

- **isvalidloop**
  - Domain **Yes_No** set for Subtypes: 9
  - Default Value set to 1 for Subtypes: 9

- **maintby**
  - Domain **Asset_Manager** set for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
  - Default Value set to 1 for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

- **notes**
  - Field added

- **numphasesconstructed**
  - Default Value set to 3 for Subtypes: 1, 2, 3, 8

- **ownedby**
  - Domain **Asset_Owner** set for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
  - Default Value set to 1 for Subtypes: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

- **StructureBoundary**
  - Fields
- **maintby**
  - Field added
  - Domain **Asset_Manager** set for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107, 108
  - Default Value set to 1 for Subtypes: 101, 102, 103, 104, 105, 106, 107, 108

- **ownedby**
  - Domain **Asset_Owner** set for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107, 108
  - Default Value set to 1 for Subtypes: 101, 102, 103, 104, 105, 106, 107, 108

- **StructureJunction**
  - Fields
    - **diameter**
      - Field added
      - Domain **Electric_Structure_Guy_Diameter_in** set for Subtypes: 102
    - **dimensions**
      - Domain **Structure_Junction_Electric_Medium_Voltage_Foundation** set for Subtypes: 120, 121, 122, 123
    - **equipmenttypeorclass**
      - Domain **Electric_Structure_Medium_Voltage_Pole_Class** set for Subtypes: 121
    - **height**
      - Domain **Electric_Structure_Junction_Guy_Strand_Diameter** set for Subtypes: 102
    - **maintby**
      - Field added
      - Domain **Asset_Manager** set for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107, 108, 110, 112, 120, 121, 122, 123, 124
      - Default Value set to 1 for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107, 108, 110, 112, 120, 121, 122, 123, 124
    - **material**
      - Domain **Electric_Structure_Junction_Junction_Box_Material** set for Subtypes: 104
      - Domain **Electric_Structure_Junction_Guy_Material** set for Subtypes: 102
• **ownedby**
  - Domain **Asset_Owner** set for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107, 108, 110, 112, 120, 121, 122, 123, 124
  - Default Value set to 1 for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107, 108, 110, 112, 120, 121, 122, 123, 124

• **treatment**
  - Domain **Electric_Structure_Junction_Pole_Treatment_Type** set for Subtypes: 120, 121, 122, 123
  - Default Value set to 0 for Subtypes: 120, 121, 122, 123

• **StructureJunction_ElectricJunction**
  - Relationship class removed

• **StructureLine**
  - **Fields**
    - **maintby**
      - Domain **Asset_Manager** set for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107
      - Default Value set to 1 for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107

• **ownedby**
  - Domain **Asset_Owner** set for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107
  - Default Value set to 1 for Subtypes: 0, 101, 102, 103, 104, 105, 106, 107

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**Asset Groups, Asset Types and assignments**

• **ElectricAssembly**
  - **Asset Groups**
    - Low Voltage Fuse Bank
      - Added with code 9
    - **Asset Types**
      - AC Fuse
        - Added with code 121
      - DC Fuse
        - Added with code 122
    - Low Voltage Power Factor Correcting Bank
- Removed
  - Low Voltage Service Bank
    - Added with code 10
  - Asset Types
    - Industrial Customer
      - Added with code 41
    - Utility Customer
      - Added with code 42
    - Commercial
      - Added with code 42
    - Residential
      - Code change to 284
- Low Voltage Switch Bank
  - Asset Types
    - Overhead AC Disconnect
      - Categories added
        - E:Disconnect
        - E:Switching
    - Overhead AC Load Break
      - Categories added
        - E:Load Break
        - E:Switching
    - Overhead DC Disconnect
      - Categories added
        - E:Disconnect
        - E:Switching
    - Overhead DC Load Break
      - Categories added
        - E:Load Break
        - E:Switching
    - Underground AC Disconnect
      - Categories added
        - E:Disconnect
        - E:Switching
    - Underground AC Load Break
      - Categories added
        - E:Load Break
- E:Switching
  - Underground DC Disconnect
    - Categories added
      - E:Disconnect
      - E:Switching
  - Underground DC Load Break
    - Categories added
      - E:Load Break
      - E:Switching
  - Indoor AC Disconnect
    - Categories added
      - E:Disconnect
      - E:Switching
  - Indoor AC Load Break
    - Categories added
      - E:Switching
  - Indoor DC Disconnect
    - Categories added
      - E:Disconnect
      - E:Switching
  - Indoor DC Load Break
    - Categories added
      - E:Switching
  - Medium Voltage Fuse Bank
    - Asset Types
      - Overhead Disconnect Fuse Holder
        - Categories added
          - E:Disconnect
          - E:Switching
      - Overhead Load Break Fuse Holder
        - Categories added
          - E:Load Break
          - E:Switching
      - Pad Mounted Disconnect
        - Categories added
          - E:Disconnect
          - E:Switching
- Pad Mounted Load Break
  - Categories added
    - E:Load Break
    - E:Switching

- Medium Voltage Fuse Bank
  - Asset Types
    - Overhead Disconnect Switch
      - Categories added
        - E:Disconnect
    - Overhead Load Break Switch
      - Categories added
        - E:Load Break
    - Overhead Recloser
      - Categories added
        - E:Load Break
        - E:Reclosing
    - Pad Mounted Recloser
      - Categories added
        - E:Load Break
        - E:Reclosing
    - Pad Mounted Switch
      - Categories added
        - E:Disconnect
    - Station Disconnect Switch
      - Categories added
        - E:Disconnect
    - Station Load Break Switch
      - Categories added
        - E:Load Break
    - Underground Switch
      - Categories added
        - E:Disconnect
        - E:Switching

- High Voltage Switch Bank
  - Asset Types
    - AC Circuit Breaker
      - Categories added
        - E:Reclosing
• Low Voltage Generation
  ▪ Asset Types
    ▪ Unknown
      ▪ Categories removed
        ▪ E:Generation

• Medium Voltage Switch Bank
  ▪ Asset Types
    ▪ Underground Switch
      ▪ Added with code of 311

• Medium Voltage Transformer Bank
  ▪ Asset Types
    ▪ Network
      ▪ Added with code of 345

• ElectricJunction
  ▪ Asset Groups
    ▪ Low Voltage Connection Point
      ▪ Asset Types
        ▪ Busbar Tap
          ▪ Added with code of 80

• High Voltage Connection Point
  ▪ Asset Types
    ▪ DC Busbar Tap
      ▪ Added with code of 25
    ▪ AC Busbar Tap
      ▪ Added with code of 24
      ▪ Categories added
        ▪ Subnetwork Tap

• High Voltage Line End
  ▪ Asset Types
    ▪ DC Busbar Terminator
      ▪ Added with code of 46
    ▪ AC Busbar Terminator
      ▪ Added with code of 45

• ElectricDevice
  ▪ Asset Groups
    ▪ High Voltage Controller
      ▪ Renamed to High Voltage Control Unit
      ▪ Asset Types
- HV Capacitor
  - Terminal_configuration set to SCADA Devices
- Switch and Breaker
  - Terminal_configuration set to SCADA Devices
- Voltage Regulator
  - Terminal_configuration set to SCADA Devices
- High Voltage Switch
  - Asset Types
    - AC Bus Tie Breaker
      - Added with code 187
      - Terminal_configuration set to Circuit Breaker
      - Categories added
        - Subnetwork Controller
    - DC Bus Tie Breaker
      - Added with code 188
      - Terminal_configuration set to Circuit Breaker
      - Categories added
        - Subnetwork Controller
- High Voltage Transformer
  - Asset Types
    - AC Single Phase Power
      - Categories added
        - E:Power Transformer
    - AC Three Phase Power
      - Categories added
        - E:Power Transformer
    - DC Power
      - Categories added
        - E:Power Transformer
- Low Voltage Power Factor Correcting
  - Asset Types
    - Mobile Mobile Harmonic Filter
      - Renamed to LV Mobile Harmonic Filter
    - Mobile Reactor
      - Renamed to LV Mobile Reactor
    - Overhead Capacitor
      - Renamed to LV Overhead Capacitor
- Overhead Harmonic Filter
  - Renamed to LV Overhead Harmonic Filter
- Overhead Reactor
  - Renamed to LV Overhead Reactor
- Station Capacitor
  - Renamed to LV Station Capacitor
- Station Harmonic Filter
  - Renamed to LV Station Harmonic Filter
- Station Reactor
  - Renamed to LV Station Reactor

- Medium Voltage Circuit Breaker
  - Asset Types
    - Network Protector
      - Added with code 361
    - Single Phase Circuit Breaker
      - Categories added
        - E:Reclosing

- Medium Voltage Controller
  - Renamed to Medium Voltage Control Unit
  - Asset Types
    - MV Capacitor
      - Terminal_configuration set to SCADA Devices
    - MV Circuit Breaker
      - Terminal_configuration set to SCADA Devices
    - MV Recloser
      - Terminal_configuration set to SCADA Devices
    - MV Transfer Switch Controller
      - Terminal_configuration set to SCADA Devices
    - MV Regulator
      - Terminal_configuration set to SCADA Devices

- Medium Voltage Fuse
  - Asset Types
    - Overhead Cutout Fused Disconnect
      - Categories removed
        - E:Load Break

- Medium Voltage Generation
  - Asset Types
- Unknown
  - Categories removed
    - E:Generation
- Generator
  - Code changed to 283
- Hydro
  - Added with code of 66
- Medium Voltage Line Monitor and Relay
  - Asset Types
    - Fault Indicator
      - Renamed to MV Fault Indicator
    - Categories added
      - Subnetwork Tap
    - Instrument Transformer
      - Renamed to MV Instrument Transformer
  - Relay
    - Renamed to MV Relay
    - Terminal configuration set to Relay
- Medium Voltage Switch
  - Asset Types
    - Bus Tie Breaker
      - Added with code 765
    - Overhead Single Phase Recloser
      - Categories added
        - E: Recloser
    - Overhead Three Phase Recloser
      - Categories added
        - E: Recloser
    - Pad Mounted Single Phase Recloser
      - Categories added
        - E: Recloser
    - Pad Mounted Three Phase Recloser
      - Categories added
        - E: Recloser
    - Station Three Phase
      - Categories added
        - Subnetwork Controller
• Terminal_configuration set to Dual Terminal
  • Two Phase Sectionalizer
    • Added with code 764
  • Two Phase Switch
    • Added with code 762
  • Two Phase Recloser
    • Added with code 763
    • Categories added
      • E:Protective
      • E:Reclosing
      • E:Switching
  • Undeground Single Phase Disconnect
    • Renamed to Underground Single Phase Disconnect
    • Categories added
      • E:Protective
      • E:Reclosing
      • E:Switching
• Medium Voltage Transformer
  • Asset Types
    • Grounding Transformer
      • Added with code of 781
      • Terminal_configuration set to Transformer
    • Mobile Single Phase
      • Added with code of 782
    • Mobile Three Phase
      • Added with code of 783
    • Network
      • Added with code of 784
    • Overhead Three Phase
      • Categories added
        • Subnetwork Controller
    • Overhead Step Single Phase
      • Categories added
        • E:Power Transformer
    • Overhead Step Three Phase
      • Categories added
- E:Power Transformer
  - Overhead Step Three Phase
    - Categories added
    - Subnetwork Controller
  - Pad Mounted Step Two Phase
    - Added with code of 799
  - Subsurface Three Phase
    - Categories added
    - Subnetwork Controller
- Low Voltage Controller
  - Renamed to Low Voltage Control Unit
- Asset Types
  - Controller
    - Renamed to Control Unit
  - Terminal_configuration set to SCADA Devices
- ElectricLine
  - Network Attributes
    - Assigned
      - Measured Length to field measuredlength
  - Asset Groups
    - High Voltage Conductor
      - Asset Types
        - AC Overhead
          - Categories added
            - E:High Voltage Cable
        - AC Submersible
          - Categories added
            - E:High Voltage Cable
        - AC Underground
          - Categories added
            - E:High Voltage Cable
        - DC Overhead
          - Categories added
            - E:High Voltage Cable
        - DC Submersible
          - Categories added
            - E:High Voltage Cable
        - DC Underground
- Categories added
  - E:High Voltage Cable
- Medium Voltage Conductor
  - Asset Types
    - Overhead Single Phase
      - Categories added
        - E:Medium Voltage Cable
    - Overhead Three Phase
      - Categories added
        - E:Medium Voltage Cable
    - Overhead Two Phase
      - Categories added
        - E:Medium Voltage Cable
    - Submersible Single Phase
      - Categories added
        - E:Medium Voltage Cable
    - Submersible Three Phase
      - Categories added
        - E:Medium Voltage Cable
    - Underground Single Phase
      - Categories added
        - E:Medium Voltage Cable
    - Underground Three Phase
      - Categories added
        - E:Medium Voltage Cable
    - Underground Two Phase
      - Categories added
        - E:Medium Voltage Cable
- Low Voltage Conductor
  - Asset Types
    - Overhead:
      - Categories added
        - E:Low Voltage Cable
        - E:Medium to Low Voltage Cable
    - Submersible:
      - Categories added
        - E:Low Voltage Cable
        - E:Medium to Low Voltage Cable
▪ Underground:
  ▪ Categories added
    ▪ E:Low Voltage Cable
    ▪ E:Medium to Low Voltage Cable

▪ StructureJunction
  ▪ Asset Groups
    ▪ Electric Switchgear
      ▪ Removed

▪ StructureLine
  ▪ Network Attributes
    ▪ Assigned
      ▪ Measured Length to field measuredlength
  ▪ Asset Groups
    ▪ Electric Station
      ▪ Added with code 108
    ▪ Asset Types
      ▪ Station Fence
        ▪ Added with code 141
        ▪ Asset Types
      ▪ Station Gate
        ▪ Added with code 142

▪ StructureBoundary
  ▪ Asset Groups
    ▪ Electric Distributed Generation
      ▪ Battery
        ▪ Containment view scale set to 2500
    ▪ Electric Bay Boundary
      ▪ Substation Bay
        ▪ Association role set to Container
        ▪ Containment view scale set to 1500

**Tiers and Subnetworks**

▪ Electric Distribution
  ▪ Devices
    ▪ Added
      ▪ Ground/Stray Voltage Isolator
- Low Voltage Switch/LV Overhead Jumper
- Medium Voltage Transformer/Pad Mounted Step Two Phase
  - Controllers
    - Added
      - Medium Voltage Transformer/Overhead Step Three Phase
      - Medium Voltage Transformer/Pad Mounted Step Three Phase
      - Medium Voltage Transformer/Subsurface Three Phase
  - Conditional Barrier
    - Changed
      - Device Asset Group,IS_EQUAL_TO,True,1 to Category,IS_EQUAL_TO,True,E:Ground
  - Function Summaries
    - Changed
      - ADD,Power Rating,totalgenerationkw,NETWORKATTRIBUTE,Device Asset Group,IS_EQUAL_TO,True,30
        - ADD,Power Rating,totalgenerationkw,CATEGORY,Category,IS_EQUAL_TO, True,E:Generation
      - ADD,Shape length,circuitlength,NETWORKATTRIBUTE,Line Asset Group,IS_EQUAL_TO,True,9
        - ADD,Shape length,circuitlength,CATEGORY,Category,IS_EQUAL_TO,True,E:Medium to Low Voltage Cable
      - COUNT,Device Asset Group,totalservicepoint,NETWORKATTRIBUTE,Device Asset Group,IS_EQUAL_TO,True,22
        - COUNT,Device Asset Group,totalservicepoint,CATEGORY,Category,IS_EQUAL_TO, True,E:Customer Load
      - COUNT,Device Asset Group,totalswitchcount,NETWORKATTRIBUTE,Device Asset Group,IS_EQUAL_TO,True,37
        - COUNT,Device Asset Group,totalswitchcount,CATEGORY,Category,IS_EQUAL_TO,True,E:Switching
- COUNT, Device Asset
  Group, totaltransformercount, NETWORK_ATTRIBUTE, Device Asset Group, IS_EQUAL_TO, True, 38
  - COUNT, Device Asset
    Group, totaltransformercount, CATEGORY, Category, IS_EQUAL_TO, True, E: Distribution Transformer
  - Added
    - ADD, E: Power, totalkva, CATEGORY, Category, IS_EQUAL_TO, True, E: Distribution Transformer
    - ADD, E: Power, totalkvar, CATEGORY, Category, IS_EQUAL_TO, True, E: Reactive Power
- Electric Distribution Mesh
  - Devices
    - Added
      - Low Voltage Switch/LV Overhead Jumper, False
      - Medium Voltage Circuit Breaker/Network Protector, False
      - Medium Voltage Elbow/Single Phase Dead Break
      - Medium Voltage Elbow/Single Phase Load Break
      - Medium Voltage Elbow/Three Phase Dead Break
      - Medium Voltage Elbow/Three Phase Load Break
      - Medium Voltage Elbow/Two Phase Dead Break
      - Medium Voltage Fuse/Bayonet
      - Medium Voltage Fuse/Cabinet Fuse
      - Medium Voltage Switch/Cabinet Switch
      - Medium Voltage Switch/Station Single Phase
      - Medium Voltage Switch/Station Three Phase
      - Medium Voltage Switch/Underground Single Phase Disconnect
  - Controllers
    - Added
      - Medium Voltage Transformer/Overhead Step Three Phase
      - Medium Voltage Transformer/Overhead Three Phase
      - Medium Voltage Transformer/Pad Mounted Step Three Phase
      - Medium Voltage Transformer/Pad Mounted Three Phase
      - Medium Voltage Transformer/Subsurface Three Phase
- Aggregated Lines
  - Removed
    - Low Voltage Conductor/Overhead
    - Low Voltage Conductor/Submersible
    - Low Voltage Conductor/Underground
    - Medium Voltage Conductor/Overhead Single Phase
    - Medium Voltage Conductor/Overhead Two Phase
    - Medium Voltage Conductor/Submersible Single Phase
    - Medium Voltage Conductor/Underground Single Phase
    - Medium Voltage Conductor/Underground Two Phase

- Conditional Barrier
  - Changed
    - E:Device Status, DOES_NOT_EQUAL, True, 2, True
      - E:Device Status, IS_EQUAL_TO, True, 1, True
    - Device Asset Group, IS_EQUAL_TO, True, 1, False
      - Category, IS_EQUAL_TO, True, E:Ground, False

- Functional Summaries
  - Added
    - ADD, E:Power, totalkva, CATEGORY, Category, IS_EQUAL_TO, True, E:Distribution Transformer
    - ADD, E:Power, totalkvar, CATEGORY, Category, IS_EQUAL_TO, True, E:Reactive Power
    - COUNT, Device Asset Group, totalservicepoint, CATEGORY, Category, IS_EQUAL_TO, True, E:Customer Load
    - COUNT, Device Asset Group, totaltransformercount, CATEGORY, Category, IS_EQUAL_TO, True, E:Distribution Transformer
    - COUNT, Device Asset Group, totalswitchcount, CATEGORY, Category, IS_EQUAL_TO, True, E:Switching

- Electric Distribution Substation
  - Devices
    - Added
      - Medium Voltage Switch/Bus Tie Breaker
  - Controllers
    - Added
- Medium Voltage Switch/Station Three Phase
- Medium Voltage Transformer/Subsurface Three Phase

  - Supports Disjointed set to True
  - Conditional Barrier
    - Changed
      - E:Device Status, DOES_NOT_EQUAL, True, 2, True
      - E:Device Status, IS_EQUAL_TO, True, 1, True
      - Device Asset Group, IS_EQUAL_TO, True, 1, False
        - Category, IS_EQUAL_TO, True, E:Ground, False
  - Function Summaries
    - Added
      - ADD, E:Power, totalkva, NETWORK_ATTRIBUTE, Device Asset Group, INCLUDES_THE_VALUES, True, 11
      - ADD, Power Rating, totalgenerationkw, NETWORK_ATTRIBUTE, Device Asset Group, IS_EQUAL_TO, True, 30

- Electric Generation Station
  - Devices
    - Added
      - High Voltage Switch/AC Bus Tie Breaker
      - High Voltage Switch/DC Bus Tie Breaker
      - Medium Voltage Switch/Bus Tie Breaker
  - Conditional Barrier
    - Changed
      - E:Device Status, DOES_NOT_EQUAL, True, 2, True
      - E:Device Status, IS_EQUAL_TO, True, 1, True
      - Device Asset Group, IS_EQUAL_TO, True, 1, False
        - Category, IS_EQUAL_TO, True, E:Ground, False
  - Function Summaries
    - Added
      - ADD, Power Rating, totalgenerationkw, CATEGORY, Category, IS_EQUAL_TO, True, E:Generation

- Electric Secondary Mesh
  - Devices
    - Added
      - Low Voltage Switch/LV Overhead Jumper
- Medium Voltage Transformer/Overhead Three Phase
- Medium Voltage Transformer/Pad Mounted Three Phase
  - Controllers
  - Added
    - Medium Voltage Transformer/Overhead Three Phase
    - Medium Voltage Transformer/Pad Mounted Three Phase

  - Function Summaries
    - Added
      - COUNT, Device Asset Group, totalservicepoint, CATEGORY, Category IS_EQUAL_TO, True, E: Customer Load

  - Conditional Barrier
    - Changed
      - E: Device Status, DOES_NOT_EQUAL, True, 2, True
        - E: Device Status, IS_EQUAL_TO, True, 1, True
      - Device Asset Group, IS_EQUAL_TO, True, E: Ground, False

  - Function Summaries
    - Added
      - COUNT, Device Asset Group, totalservicepoint, CATEGORY, Category IS_EQUAL_TO, True, E: Customer Load

- Electric Secondary Radial
  - Devices
    - Added
      - Low Voltage Switch/LV Overhead Jumper
      - Medium Voltage Transformer/Overhead Three Phase
      - Medium Voltage Transformer/Pad Mounted Three Phase

  - Controllers
    - Added
      - Medium Voltage Transformer/Overhead Three Phase
      - Medium Voltage Transformer/Pad Mounted Three Phase

  - Conditional Barrier
    - Changed
      - E: Device Status, DOES_NOT_EQUAL, True, 2, True
        - E: Device Status, IS_EQUAL_TO, True, 1, True
      - Device Asset Group, IS_EQUAL_TO, True, E: Ground, False
- Category, IS_EQUAL_TO, True, E: Ground, False

- Function Summaries
  - Added
    - COUNT, Device Asset Group, totalservicepoint, CATEGORY, Category, IS_EQUAL_TO, True, E: Customer Load

- Electric Sub Transmission
  - Devices
    - Added
      - High Voltage Switch/AC Circuit Breaker
  - Controllers
    - Added
      - Medium Voltage Transformer/Subsurface Three Phase
      - High Voltage Switch/AC Circuit Breaker
    - Removed
      - High Voltage Switch/DC Disconnect
      - High Voltage Switch/AC Disconnect
  - Conditional Barrier
    - Changed
      - E: Device Status, DOES_NOT_EQUAL, True, 2, True
        - E: Device Status, IS_EQUAL_TO, True, 1, True
      - Device Asset Group, IS_EQUAL_TO, True, 1, False
        - Category, IS_EQUAL_TO, True, E: Ground, False

- Function Summaries
  - Added
    - ADD, Shape length, circuitlength, CATEGORY, Category, IS_EQUAL_TO, True, E: High to Medium Voltage Cable

- Electric Sub Transmission Station
  - Added to devices
    - High Voltage Switch/AC Bus Tie Breaker
    - High Voltage Switch/DC Bus Tie Breaker
  - Added to controllers
    - High Voltage Switch/AC Bus Tie Breaker
    - High Voltage Switch/DC Bus Tie Breaker
  - Conditional Barrier
    - Changed
- E:Device Status, DOES_NOT_EQUAL, True, 2, True
  - E:Device Status, IS_EQUAL_TO, True, 1, True
- Device Asset Group, IS_EQUAL_TO, True, 1, False
  - Category, IS_EQUAL_TO, True, E:Ground, False

  - Function Summaries
    - Added
      - ADD, E:Power, totalkva, CATEGORY, Category, IS_EQUAL_TO, True, E:Power Transformer
      - ADD, Power Rating, totalgenerationkw, CATEGORY, Category, IS_EQUAL_TO, True, E:Generation

  - Electric Transmission
  - Devices
    - Added
      - AC Circuit Breaker/AC Circuit Breaker
  - Controllers
    - Added
      - AC Circuit Breaker/AC Circuit Breaker

  - Conditional Barrier
    - Changed
      - E:Device Status, DOES_NOT_EQUAL, True, 2, True
        - E:Device Status, IS_EQUAL_TO, True, 1, True
      - Device Asset Group, IS_EQUAL_TO, True, 1, False
        - Category, IS_EQUAL_TO, True, E:Ground, False

  - Function Summaries
    - Added
      - ADD, Shape length, circuitlength, CATEGORY, Category, IS_EQUAL_TO, True, E:High Voltage Cable

- Electric Transmission Station
  - Devices
    - Added
      - High Voltage Switch/AC Bus Tie Breaker
      - High Voltage Switch/DC Bus Tie Breaker
  - Controllers
    - Added
      - High Voltage Switch/AC Bus Tie Breaker
      - High Voltage Switch/DC Bus Tie Breaker
Conditional Barrier
• Changed
  ▪ E:Device Status,DOES_NOT_EQUAL,True,2,True
  ▪ E:Device Status,IS_EQUAL_TO,True,1,True
  ▪ Device Asset Group,IS_EQUAL_TO,True,1,False
  ▪ Category,IS_EQUAL_TO,True,E:Ground,False

Function Summaries
• Added
  ▪ ADD,E:Power,totalkva,CATEGORY,Category,IS_EQUAL_TO,True,E:Power Transformer

Domains

• Changes to the asset type domains are listed in the Utility Network section
• Electric_Assembly_Configuration_Type
  ▪ Removed
• Electric_Combined_Nominal_Voltage_LG
  ▪ Added with the code
    ▪ 0: Unknown
    ▪ 120: 120 V
    ▪ 277: 277 V
    ▪ 2400: 2.4 kV
    ▪ 4800: 4.8 kV
    ▪ 6930: 6.9 kV
    ▪ 7200: 7.2 kV
    ▪ 7620: 7.62 kV
    ▪ 12000: 12 kV
    ▪ 13200: 13.2 kV
    ▪ 14400: 14.4 kV
    ▪ 19920: 20 kV
• Electric_Combined_Nominal_Voltage_LL
  ▪ Added with the code
    ▪ 0: Unknown
    ▪ 208: 208 V
    ▪ 240: 240 V
    ▪ 480: 480 V
- 600: 600 V
- 2400: 2.4 kV
- 4160: 4.16 kV
- 4800: 4.8 kV
- 6900: 6.9 kV
- 6930: 6.93 kV
- 7200: 7.2 kV
- 7620: 7.62 kV
- 7970: 7.97 kV
- 8320: 8.32 kV
- 12000: 12 kV
- 12470: 12.47 kV
- 13200: 13.2 kV
- 13800: 13.8 kV
- 14400: 14.4 kV
- 19920: 19.92 kV
- 20780: 20.78 kV
- 22860: 22.86 kV
- 23000: 23 kV
- 24940: 24.94 kV
- 34500: 34.5 kV
- 46000: 46 kV
- 69000: 69 kV
- 115000: 115 kV
- 138000: 138 kV
- 161000: 161 kV
- 230000: 230 kV
- 345000: 345 kV
- 500000: 500 kV
- 765000: 765 kV
- 1100000: 1100 kV

- Eletric_Crossarm_Face_Height
  - Renamed to Electric_Crossarm_Face_Height
- Electric_Crossarm_Count
- Removed
- Electric_High_Voltage_Busbar_Common_Conductor_Material
  - Removed
- Electric_High_Voltage_Conductor_Common_Conductor_Material
  - Removed
- Electric_High_Voltage_Conductors_in_Parallel
  - Removed
- Electric_High_Voltage_Connector_Common_Conductor_Material
  - Removed
- Electric_High_Voltage_Maximum_Voltage
  - Added the codes
    - 120000: 120 kV
    - 145000: 145 kV
    - 170000: 170 kV
    - 240000: 240 kV
- Electric_High_Voltage_Service_Load
  - Added with the ranges
    - 0 to 5000000
- Electric_Low_Voltage_Conductor_Material
  - Removed
- Electric_Low_Nominal_Voltage_L_G
  - Removed
  - 2400: 2.4 kV
  - 4800: 4.8 kV
  - 6930: 6.9 kV
  - 7200: 7.2 kV
  - 7620: 7.6 kV
  - 7970: 8 kV
  - 12000: 12 kV
  - 13200: 13.2 kV
  - 14400: 14.4 kV
  - 19920: 20 kV
- Electric_Low_Voltage_Phase_Attribution
  - Removed
- Electric_Low_Voltage_Phase_Substitution
  - Removed
- Electric_Low_Voltage_Phase_Attribution
  - Name changed to Electric_Secondary_Phase_Attribution
• Electric_Low_Voltage_Phase_Substitution
  - Name changed Electric_Secondary_Phase_Substitution
• Electric_Medium_Nominal_Voltage_L_G.yml
  - Added the codes
    - 7970: 7.97 kV
• Electric_Medium_Voltage_Busbar_Material
  - Removed
• Electric_Medium_Voltage_Conductor_Material
  - Removed
• Electric_Medium_Voltage_Nominal_Voltage
  - Removed codes:
    - 120: 120 V
    - 125: 125 V
    - 216: 216 V
    - 240: 240 V
    - 277: 277 V
    - 480: 480 V
    - 600: 600 V
    - 115000: 115 kV
    - 138000: 138 kV
    - 161000: 161 kV
    - 230000: 230 kV
    - 345000: 345 kV
    - 500000: 500 kV
    - 765000: 765 kV
    - 1100000: 1100 kV
• Electric_Ohms_per_KM
  - Added with codes
    - 0: 0
    - 0.16072: 0.16072
    - 0.202704: 0.202704
    - 0.255512: 0.255512
    - 0.322424: 0.322424
    - 0.406392: 0.406392
    - 0.512664: 0.512664
    - 0.64616: 0.64616
- 0.81508: 0.81508
- 1.027624: 1.027624
- 1.295928: 1.295928
- 1.634096: 1.634096
- 2.060496: 2.060496
- 2.598088: 2.598088
- 3.276392: 3.276392
- 4.1328: 4.1328
- 5.20864: 5.20864
- 6.56984: 6.56984
- 8.282: 8.282
- **Electric_Pole_Height_Combined**
  - Added with codes
    - 0: Unknown
    - 25: 25 Feet
    - 30: 30 Feet
    - 35: 35 Feet
    - 40: 40 Feet
    - 45: 45 Feet
    - 50: 50 Feet
    - 55: 55 Feet
    - 60: 60 Feet
    - 65: 65 Feet
    - 70: 70 Feet
    - 75: 75 Feet
    - 80: 80 Feet
    - 85: 85 Feet
    - 90: 90 Feet
    - 95: 95 Feet
    - 100: 100 Feet
    - 105: 105 Feet
    - 110: 110 Feet
    - 115: 115 Feet
    - 120: 120 Feet
- 125: 125 Feet
- Electric_Not_Applicable_Double
  - Removed
- Electric_Not_Applicable_Long
  - Removed
- Electric_Not_Applicable_Short
  - Removed
- Electric_SCTemperatureRating_C
  - Added with codes
    - 0: 0 °C
    - 210: 210 °C
    - 250: 250 °C
- Electric_Structure_Guy_Material
  - Removed
- Electric_Structure_High_Voltage_Pole_Height
  - Removed
- Electric_Structure_Junction_Anchor_Guy_Material
  - Removed
- Electric_Structure_Junction_Bay_Material
  - Removed
- Electric_Structure_Junction_Guy_Strand_Diameter
  - Removed
- Electric_Structure_Junction_Switchgear_Material
  - Removed
- Electric_Structure_Medium_Voltage_Pole_Height
  - Removed
- Electric_Structure_Junction_Pole_Treatment_Type
  - Added with codes
    - 0: Unknown
    - 1: Butt
    - 2: Natural
    - 3: Penta
    - 4: Creosote
    - 5: Chromated Copper Arsenates
    - 6: Chemonite
    - 7: Napthena
    - 8: Cellon
    - 9: Paint
- 10: Copper Naphthenate
- 11: Other
- Electric_Temperature_C
  - Added with codes
    - 0: 0 C
    - 75: 75 C
    - 90: 90 C
    - 150: 150 C
    - 190: 190 C
    - 210: 210 C
    - 230: 230 C
- Electric_Temperature_F
  - Added with codes
    - 0: 32 F
    - 75: 167 F
    - 90: 194 F
    - 150: 302 F
    - 180: 356 F
    - 210: 410 F
    - 230: 446 F
- Electric_Wire_Diameter_in
  - Added the codes
    - 0.666: '366'
    - 0.792: '477'
    - 0.811: '500'
- Electric_Wire_Insulation_Maximum_Voltage
  - Added the codes
    - 1000: 1 kV
    - 2000: 2 kV
    - 4000: 4 kV
    - 72500: 72.5 kV
    - 145000: 145 kV
    - 245000: 245 kV
    - 362000: 362 kV
    - 420000: 420 kV
    - 550000: 550 kV
- Electric_Wire_Type
  - Added the codes
    - 1: AAAC
    - 2: AAC
    - 3: AAC/TW
    - 4: ACAR
    - 5: ACCR
    - 6: ACSR
    - 7: ACSR/AW
    - 8: ACSR/TW
    - 9: ACSS
    - 10: ACSS/AW
    - 11: ACSS/TW
    - 12: AL
    - 13: AL EPR
    - 14: ALQPX
    - 15: ALX
    - 16: AX
    - 17: AXLC
    - 18: AXN
    - 19: AXNJ
    - 20: BCU
    - 21: CS
    - 22: CU
    - 23: CU EPR
    - 24: CU PILC
    - 25: CU TPX
    - 26: CUF
    - 27: CUWD
    - 28: CW
    - 29: CWC
    - 30: CXN
    - 31: CXNJ
    - 32: Duplex
- 33: EPR-PEJ
- 34: EPR-PEJ CU
- 35: HDCU
- 41: HSS
- 42: PECN AL
- 43: PECN CU
- 44: PELPE CU
- 45: PID AL
- 46: PID CU
- 47: PID-PEJ AL
- 48: PID-PEJ CU
- 49: PILC CU
- 50: PILC NJ CU
- 51: PILC-NJ
- 52: PILC-PEJ
- 53: PILC-PEJ CU
- 54: Quadruplex
- 55: RHH
- 56: RHW-2
- 57: Single
- 58: SSAC
- 59: STCU
- 60: STEL
- 61: THWW
- 62: Triplex
- 63: TRXLPECN-PEJ AL PID
- 64: TRXLPECN-PEJ CU
- 65: TRXLPECN-PEJ CU PID
- 66: UDA
- 67: UQA
- 68: USE-2
- 69: UTA
- 70: WP
- 71: WPAL
- 72: WPCU
- 73: XLPE AL
- 74: XLPE CU
- 75: XLPECN-PEJ
- 76: XLPECN-PEJ AL
- 77: XLPE-PEJ AL