Use Case 1: Maintain SCADA Database

Summary:

SCADA technician updates the electrical connectivity model (topology model) and the monitoring and control equipment relationships to the electrical devices after receiving notification of a change in the characteristics of the electrical network.

Actor(s):

Name	Role description
SCADA technician	Maintains the SCADA database for topology and telemetry device relationships.

Participating Systems:

System	Services or information provided
SCADA System	Contains the real-time database that is being updated
GIS System (AM/FM)	Maintains maps containing electrical connectivity. Also contains electrical asset database defining characteristics of the electrical system devices and protective devices.

Pre-conditions:

A change has been made to the physical electrical network, i.e. facilities have been added or modified. The maps and the assets have been updated to reflect the new configuration.

Assumptions / Design Considerations:

- Assumption: The telemetry database (i.e. RTU definitions) are maintained in the SCADA database
- Assumption: The SCADA system contains a topology model

Normal Sequence:

Use Case Step	Description
Receive update notification	The SCADA technician receives notification that an electrical circuit has changed. Notification is typically as a result of a work order close out indicating the completion and approval of work.
Query for modifications	The work order or the GIS system must provide an indication of those circuits affected by the change. For each affected circuit, extract devices and connectivity info from the GIS. Also, for each of the affected circuits, query the SCADA topology model for devices and connectivity. [**Alternate** - The GIS system can provide list of transactions (adds, deletes, modifies) that would then be applied to the topology model].

Update topology model definitions	Compare the devices and connections from the GIS database and the SCADA topology model and note the additions, modifications, or deletions. Edit the SCADA database to apply the noted changes.
Update SCADA database	Update the telemetry information (RTU, IED, PLC, etc.) to associate with field device status or values.
Update real-time displays	For each of the affected circuits, extract graphical maps or displays. Edit the real-time displays to synchronize with the SCADA database and the modified GIS view.
Exercise control in test mode	
Provide displays to on-line users	

Exceptions / Alternate Sequences:

Post-conditions:

The SCADA database and the topology model reflect the new electrical network configuration and telemetry devices are configured for monitoring and control of the devices, if any.

References:

Use Case – UC6 Developer request for electric supply
Use Case – UC1 Draftsmen maintain maps

Issues:

ID	Description	Status
1.	Future consideration should be given to adding the telemetry database and its configuration to the asset database within the GIS system.	
2.	The topology model should be considered a separate 'component' rather than part of the global SCADA system	