Use Case 3: Extension Planning

Summary:

Extension planning deals with the evaluation and the definition of projects for all structural changes to the supply system and its optimisation, except for the changes resulting from unexpected outages and from routine maintenance works.

Actor(s):

Name	Role description
Network Extension Planning	• Prepares the five year plan, including renewal and voltage conversion plans. • Designs all extensions and optimises the supply system. • Performs "What-if" analysis and defines the protection concept.
Financial department	• Manage the financial resources
Management	• Sets the utility's objectives and strategy • Defines the utility's organisation • Supervises and controls the actions of company personnel so as to bring about the desired objectives

Participating Systems:

System	Services or information provided
Geographic Information System (GIS)	• manages the records • provides knowledge of where the equipment is and possibly what it is • provides customer/network connectivity relationship
Facility Management System or Asset Register, Materials Management	• manages the assets • provides knowledge of what the equipment is (if not done by the GIS)
SCADA-NMS	• manages real-time process information and control; • provides historical data about outages, operation, supply quality and system loading; • services:
Power System Analysis	• Power Application Software for network simulation and contingency analysis
Trouble Call Management System	• manages customer calls • provides records about customers' trouble calls
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Utility Accounting and Administration System	• provides purchasing and financial information; • services: support for budget set-up.
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Customer Information	• Allocation of work, staff and initiation of updating

System	the Asset Register

Pre-conditions:

- New building development results in a request for electricity supply (by a municipality, or by a building promoter, or by an industry, or by a private organisation, etc.),
  or
- Analysis of outages' statistics and customers' trouble call records shows weaknesses in the system (systematic faults and supply quality problems)
  or
- Analysis of the voltage's profile and the feeders' loading highlights critical areas
  or
- The maintenance department raises a request for equipment renewal

Normal Sequence:

No.	Use Case Step	Description
1.	Gather the internal and external requests	Collect new requests and summarise with the pending requests
2.	Collect Information	Query archives, facilities data base, measurements and statistics Consult the states' development plans
3.	Set-up the Mid-term Plans	Extrapolate the consumption, anticipate power increase, evaluate the new customers
4.	Elaborate Projects	Design the system's changes, evaluate the possible solutions, simulate the system's behaviour (in steady and disturbed state), choose the solution.
5.	Set-up the Orientation Budget	List the known projects according to their priority, observe the "trace", consult material catalogues, internal and external suppliers' catalogues, price lists for civil work and internal / external construction, summarise the costs
6.	Get approval	Present the budget to the management for approval and funding

Alternate Sequence:

Completion of steps 1 and 2 may result in the definition of a new normal schema. Implementation of this project does not require external work/material nor management's approval.
Thus the project is passed directly to the operation (see Use Case – UC11 Operational Planning)

Post-conditions:

Projects are approved and enter into an implementation phase.

References:

Use Case – UC14 Extension Implementation
Use Case – UC11 Operational Planning