

# **Integrated Long Term Planning and Fleet Asset Management At Exelon**

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# Purpose of LTP and LTAM



- Ensure Comprehensive Identification of Issues Requiring Incremental Investment.
  - Short Term (0 to 5 Years)
  - Long Term (6 Years to End-of-Plant Life, i.e., 60 years)
- Ensure that Asset will perform intended function for life of the plant or Identify needed projects throughout the remaining life of the plant.
- Ensure Optimal Project Selection Over a 10-year Rolling Period (i.e. Project Management 10-year plan)

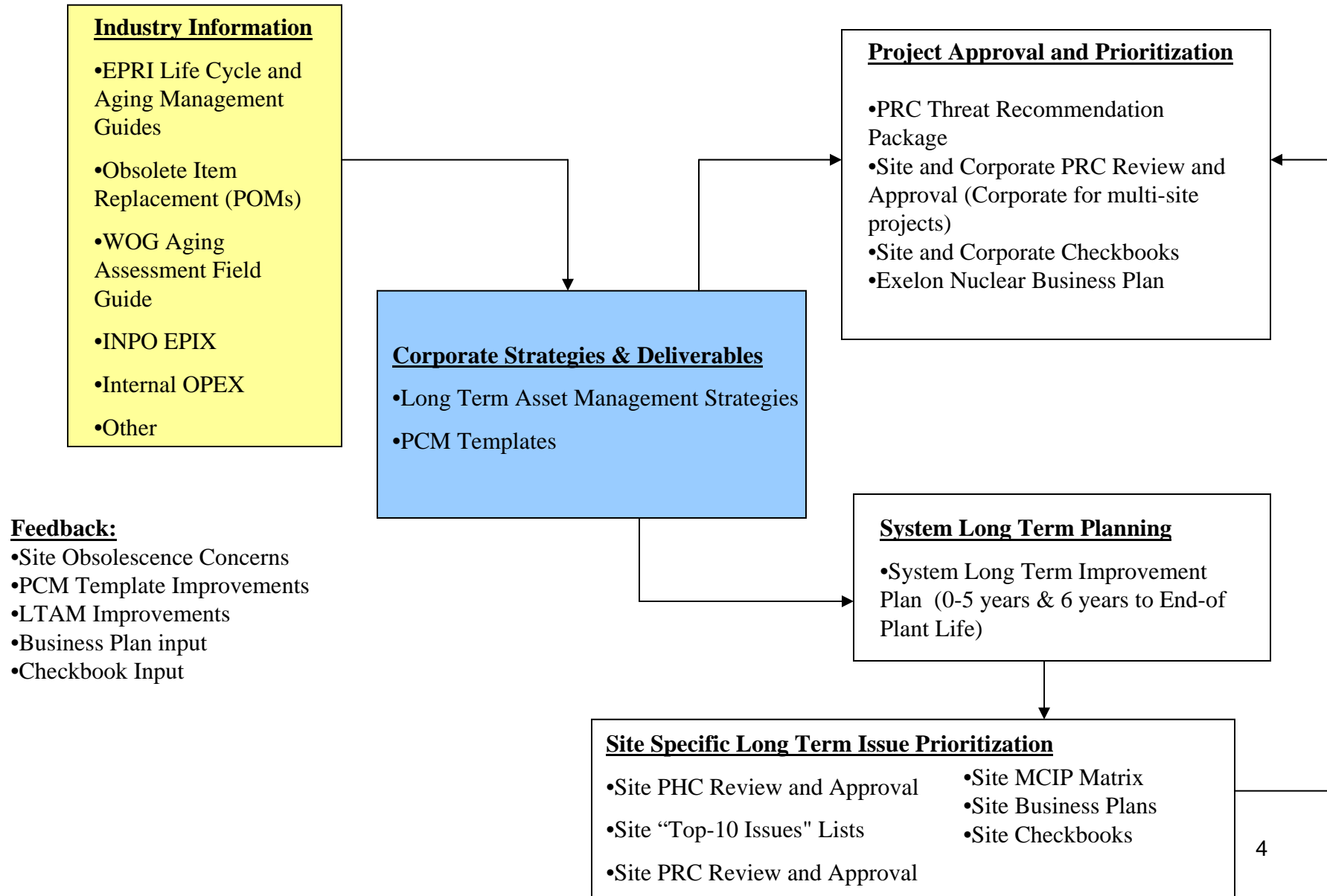
# Key Attributes of LTP/LTAM

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- Engineering Inputs/Sources:
  - *Plant System Long Term Plans*
  - *OPEX*
  - *EPRI (and Other Industry/Vender Information)*
- Integration of Both Site and Corporate Inputs.
- Maintaining A Living Pipeline for Project Planning, For the Life of the Plant (Projects > \$500K 5 year out and >\$1000K to 60 years) and For Project Management 10-Year Plan.
- Utilization of a Central Information Repository (Portfolio Director Database)

# LTP and LTAM Process Flow



# Long Term Asset Management Strategies

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- Overall Purpose: A *Strategic Evaluation* Performed Yearly, by Corporate Subject Matter Experts (SMEs) to Identify *Degradation or Aging Mechanisms*.
  - Identify Actions to Maintain or Upgrade Significant Assets to *Maximize Equipment Reliability, Plant Availability & Cost Optimization.*
  - Be An Input to Fleetwide or Site Plans to *Monitor, Mitigate or Correct Identified Vulnerabilities*

# LTAM Strategies (cont'd)

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- Evaluation Performed Yearly, typically in 1<sup>st</sup> Quarter.
  - Results reviewed by key stakeholders.
- LTAM Strategies Apply to Significant Plant Assets
  - *Steam Generators, Large Motors, Large Pumps, Main Condensers, Large Transformers, etc.*
- Currently Have Twenty-Seven (27) LTAM Strategies.

# LTAM Format and Content

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- *Scope Statement*
  - *Identifies applicable site*
  - *References PCM Templates*
  - *Clearly states that asset is good for life of plant or optimal replacement time*
- *Failure Mechanisms*
  - *Includes Aging and Obsolescence*
- *Mitigation Strategies*
  - *Provides Basis for 60-Year Life*
- *Issue Summary*
  - *Risk Mitigation*
  - *Long Term Recommendation*

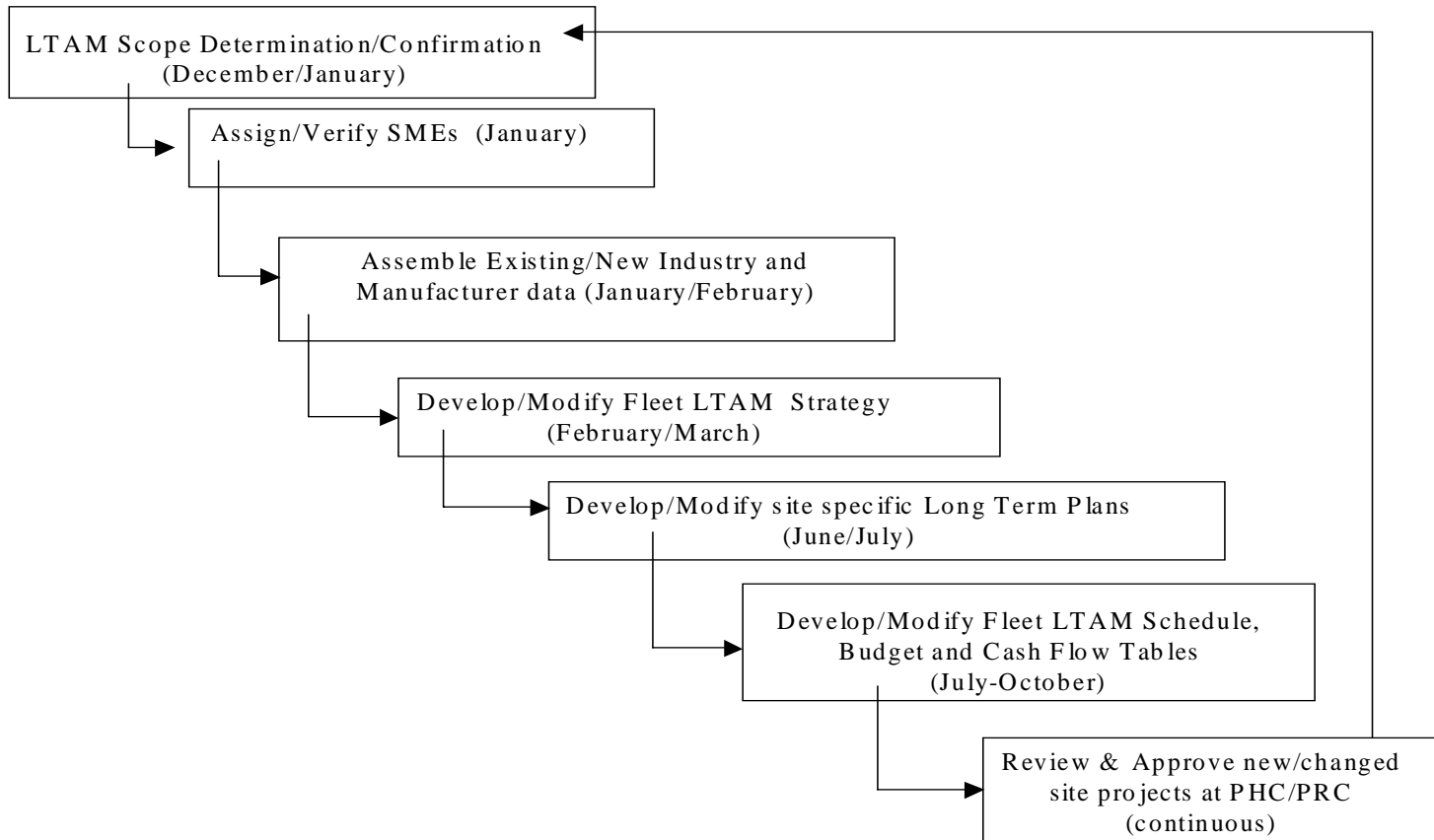
# 2007 LTAM Strategies



- Buried Pipe
- BWR Reactor Internals
- Containment Liners
- Cooling Towers
- EHC Hydraulics
- Emergency Diesel Generators (Engine)
- Emergency Diesel Generators (Generator/Exciter)
- Feedwater Heaters
- Heat Exchangers
- Instrumentation & Controls
- Large Cranes
- Large Motors
- Large Pumps
- Large Transformers (Main, Aux, SU)
- Main Condensers
- Main Generators
- Main Generator (Exciters and VRs)
- Main Turbine Rotors & Casings
- Major Structures
- NSSS Piping
- PWR Inconel
- Raw Water Systems
- Reactor Recirc.MG Sets
- Refueling Equipment
- Spent Fuel Storage
- Steam Generators
- Torus & Suppression Pools



# LTAM Strategy Process



# LTAM Strategy Results



Nuclear

The screenshot shows the Exelon Corporate Engineering website. The main navigation bar includes 'Organizations', 'Services', 'Topics', and 'News'. The left sidebar lists 'Engineering Departments' (Corporate Design, Corporate Plant Engineering, Corporate Programs) and 'Related Topics' (Asset Management, Component Programs, Equipment Reliability, Fleet Wide Equipment Issues, Non Component Programs). The main content area features a 'Corporate Engineering' header, a 'News' section with four bullet points, and a section titled 'Our mission' with a paragraph of text. Below this is 'Our Management Team' listing Craig Lambert and Roman Gesior. On the right, an 'Engineering Links' sidebar contains several links, with 'Long Term Asset Management (LTAM) Strategies' circled in red. The browser's address bar shows the URL: http://inside.exeloncorp.com/orgs/home/orgs/generation/orgs/nuclear/orgs/engineering/.

- Source: Internal and External OPEX
- System Managers Prepare/Update System Health Overview Report (SHOR)
- Long Term Plans Identify Problems or Improvements for Plant Systems (and Major Components Within Those Systems).
- SHOR Includes a Long Term Improvement Plan Section.
  - *Short-Term: 0 to 5 Year Period*
  - *Long-Term: 6 Years to End-Of-Plant Life Period*

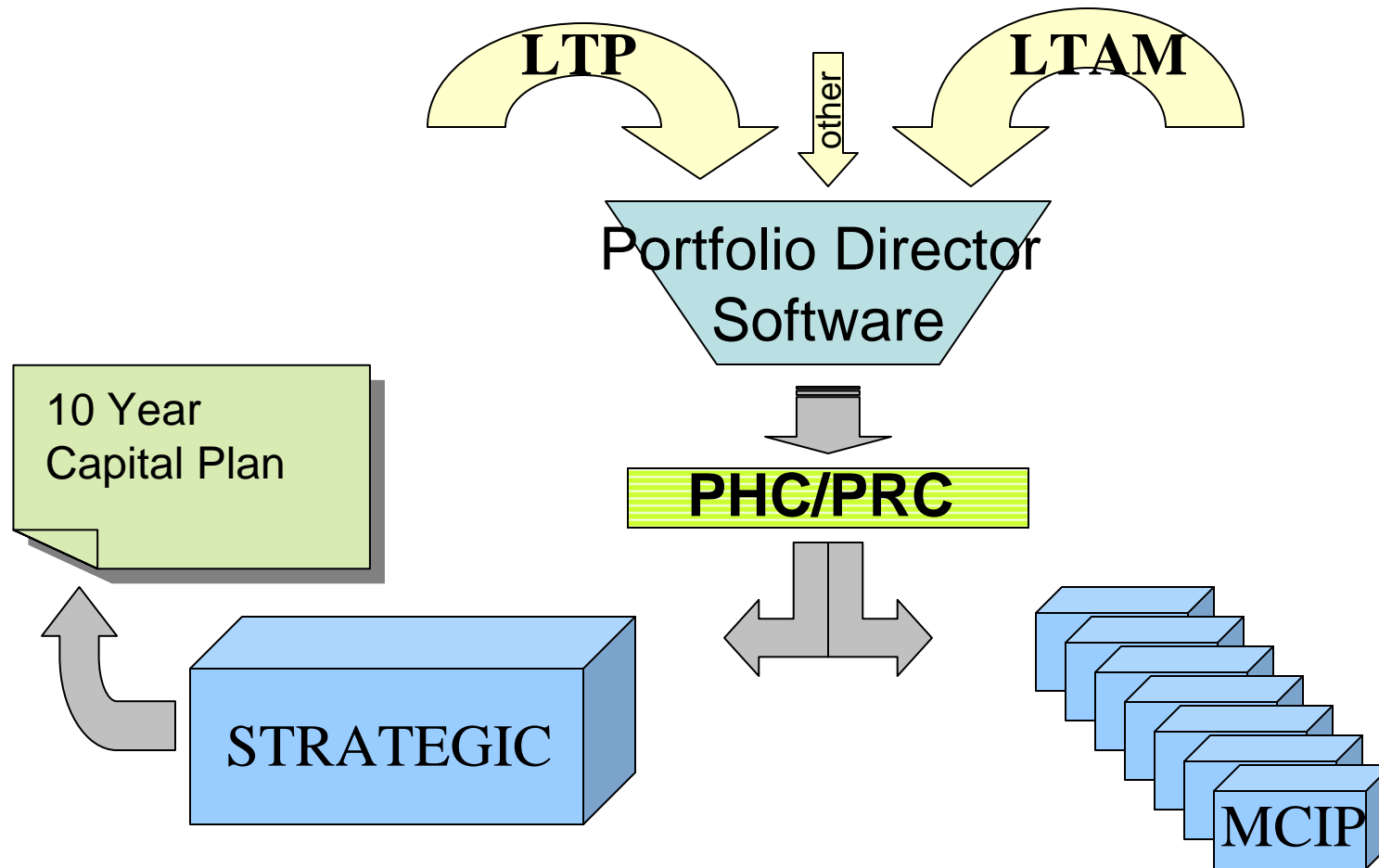
## Engineering LTP (cont'd)



- Long Term Plans are Maintained in the SHIP Database (eSHIP) Accessible From the Exelon Nuclear Equipment Reliability Website.
- Identified Long Term Plan Issues are Presented to Site Plant Health Committee and Project Review Committee for Review and Approval
  - *Issues Maintained in Portfolio Director Database*

- LTAM Strategy Items and Long Term Plan Issues Are Integrated and Prioritized to Identify Those Items That Need Action *Over the Life of the Plant*
- Prioritization is Accomplished Through:
  - *PHC Plant Health Issue Priority Ranking Score*
  - *Project Prioritization Ranking Score*
  - *LTAM Consequence of Failure Rating*
  - *LTAM Probability of Failure Rating*

# LTP/LTAM interface w/ Business Plan



- Fleet Prioritization
- Controlled by Corp Sr. Mgmt

- Nominal budget ~\$9 -\$18M/site
- Site Prioritization
- Controlled by Site VP

# Benefits of Good Long Term Planning



- Identifies and Solves Problems In a Significant Period Before They Impact Plant Operation.
  - Minimizes Emergent/Crisis Projects by Executing Steps Before the Plant Is Impacted.
  - Provides Time for Alternate Approaches or Contingency Actions, When Necessary.
- Optimizes the Use of Site & Corporate Resources (Internal and External).
- Optimizes Outage Durations
- Supports Meeting Budget and Generating Commitments to the Corporation
- Overall, Improves Equipment Reliability.