Decommissioning Planning for Nuclear Units at the Oskarshamn Site

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Agenda

• Introduction
• Decommissioning Process
• Present Activities at OKG
• Strategic Options for OKG
• Discussion
• Conclusions
• Near Term Future Works
Introduction

• Permanent shutdown
  – O1: 2032 → 2017
  – O2: 2034 → 2016
  – O3: 2045

<table>
<thead>
<tr>
<th>BWR Unit</th>
<th>Commissioned</th>
<th>Thermal power [MW]</th>
<th>Electrical power [MW]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oskarshamn 1</td>
<td>1972</td>
<td>1 375</td>
<td>491</td>
</tr>
<tr>
<td>Oskarshamn 2</td>
<td>1974</td>
<td>1 800</td>
<td>620</td>
</tr>
<tr>
<td>Oskarshamn 3</td>
<td>1985</td>
<td>3 900</td>
<td>1 450</td>
</tr>
</tbody>
</table>
Decommissioning Process

- **Regulatory:**
  - EIA for Defueling op.
  - SAR for Dismantling
  - EIA for Dismantling
  - EURATOM Article 37
  - Waste Management Plan

- **Economical**
  - SAR for Shutdown op.

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**POWER OPERATION**

**DEFUELING**

- Final shutdown
- Fuel removal
- Maintenance/supervision
- Partial dismantling
- Planning

**SHUTDOWN OPERATION**

- Plant cleared
- Equipment dismantling and waste processing

**DISMANTLING OPERATION**

- Building demolition

**SITE RESTORATION**

- Ground restoration
Present Activities at OKG

- Decommissioning Preparation Project (DPP) with subprojects
  - Strategy and Planning
  - Licensing – Nuclear Regulator
  - Licensing – Environmental Court
  - HR
  - Decommissioning preparation activities

- Development of decommissioning roadmap, licensing documents and identification of prioritized activities

- Will transit into line organisation as a new department in 3-5 months
Strategic Options for OKG

• The organizational model
  – Using utility personnel
    • Degree of self performance
  – Procurement strategy
  – Maintaining competence

• Timing between the decommissioning of unit 1 and 2
  – When to go into decommissioning
  – Length of defueling op., shutdown op.
Strategic Options for OKG

• The waste management strategy
  – Waste streams
  – Waste treatment options
  – Final/Interim storage options
Strategic Options for OKG

- Separation of systems and buildings between O1/O2 and O3
  - Systems necessary for continued power production at O3
  - Shared systems needed for both decommissioning and operation
  - Definition of decommissioning area
  - Physical separation of systems and buildings with a new physical protection

Not started
Strategic Options for OKG

- Decommissioning systems modification
  - Ventilation
  - Power supply
  - Waste treatment systems
  - Free release building/routes
  - Handling systems
  - Fire protection
  - Transport routes

- Stakeholder engagement
  - Stakeholder communications plan
Discussion

- Prioritized activities, order of planning activities
- Regulatory review time and approval
- Partial dismantling
- Dependency on final repository
- Physical separation of site
- Maintaining personnel, morale and critical skills
Conclusions

• O1 and O2 as one decommissioning project
• Defueling O1 finished 2018
• Defueling O2 finished mid 2017
• Nuclear dismantling start 2019
• Plant cleared 2025
• Target end date 2027 → brown field
• Partial dismantling (flexibility) crucial for short schedule
• Prioritized activities:
  – Personnel change of mindset and critical skills
  – Licensing documentation
  – Procurement strategy
  – Waste management strategy
• Frequent and open communication with regulators and stakeholders critical to success
Near Term Future Works

- Finalizing prioritized activities
- Decommissioning planning
- Dismantling sequences
- Radiological characterization
- Separation activities
- Physical protection
- Plant modifications for decommissioning
Thank you for your attention!