Human Resources points of attention for the nuclear decommissioning industry: Ignalina NPP experience
Ignalina NPP
Design and operation

**Location:** Far north-east corner of Lithuania. Immediately bordering Latvia and Belarus

**Design:** Unique, 2 × RBMK-1500 water-cooled, graphite-moderated channel-type power reactors. Designed and staffed for fully autonomous operation

**Capacity:** Intended to supply NW region of former USSR (not Lithuania). After independence, one unit could produce 80% of Lithuanian electricity demand

**Operation:**
- Unit 1 commissioned Dec 1983 / closed Dec 2004
- Unit 2 commissioned Aug 1987 / closed Dec 2009

**Early closure:** Required to facilitate EU accession. First decommissioning of RBMK-type NPP
Ignalina NPP
Decommissioning

**Strategy:** Decided by Government – immediate dismantling performed by the plant’s operational workforce. Final Decommissioning Plan issued 2005

**Progress:** Planning started 2001. Investment projects to open waste-routes started 2003. Dismantling within plant started 2010 (Unit 1) and 2014 (Unit 2)

**Licensing:** Plant is still licensed as “operating” because of nuclear fuel in the units. Preparation for decommissioning license obtaining is ongoing

**Schedule and cost:** Completion by end 2038
Cost approx. 2.6 billion euro (no inflation and no risks)

**Staffing:** A key factor in immediate dismantling that is being implemented using INPP’s own resources. INPP by far the main employer in the region
Ignalina NPP
Decommissioning Schedule and Activities

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**Preparatory activities**
(ideally completed during operation)
Includes opening waste routes

**Transitional activities**

**Dismantling & Decontamination**

January 2018

- Reactors defuelled 2018
- Pools defuelled 2022
- Decommissioning license obtained
- Site demolition 2026-2038

**Background**

Ignalina NPP decommissioning activities are co-financed by the European Union.
Transformation of an operating NPP to a decommissioning company has significant influence on human resources management.

**Challenges**

- Organizational changes
- Long-term staff planning
- Staff retention strategy
Transformation to Decommissioning Organization

**Pre-closure**

- Technical Department
- Decommissioning Project Management Unit

**CONFRONTATION**

- Operation of INPP
- Preparation for INPP decommissioning

- DPMU established in 2000 for preparation for decommissioning
- DPMU accumulated project management, planning competences, external consultancy services, but lacked adequate specialist RBMK technical expertise for decommissioning

**Challenge:** top managers completely focused on operation and only reservedly committed to decommissioning, lack of technical skills in DPMU

**Solution:**
- full commitment of top management to decommissioning while still in operation
- structural transformation strategy in advance but implementation step by step
**Transformation to Decommissioning Organization**

**Post-closure / Start of D&D**

- Decommissioning Department
- Decommissioning Project Management Unit

**DIFFERENT CORPORATE CULTURE**

- Operation of INPP
  - INPP decommissioning

- INPP decommissioning

- DD responsible for operation and decommissioning activities while DPMU responsible for key decommissioning projects management
- Technical knowledge and project management skills accumulated in two separate units
- As a result – delays in implementing key decommissioning projects and tense relationship with contractors

**Challenge:** to integrate activities of two separate units for efficient decommissioning planning and implementation

**Solution:**
- attracting highly committed managers
- integration of operation and decommissioning knowledge

Organizational changes
Transformation to Decommissioning Organization

Organizational changes in 2012-2014

- DPMU integrated into Decommissioning Department
- Technical knowledge and managerial skills accumulated in one structural unit
- Decommissioning Department staff responsible for operational activities and key decommissioning projects

Challenge: to preserve project management skills while integrating into operation staff structure

Solution:
- consolidate teams then optimize their use
- communicate changes properly
Transformation to Decommissioning Organization

Optimization since 2014

- Re-establishment of Project Management Service
- Separation of planning from execution activities
- Restructuring of dismantling activities
- Centralization of maintenance services
- Restructuring of post-operation activities

Challenge: to show initiative which was actively discouraged in NPP operational culture but is essential in pioneering decommissioning

Solution:

- continuous improvements of organizational structure
- flattened organizational structure for quicker decisions, lower costs and efficient communication
- high employee engagement
**Challenge:** The required number of qualified personnel for decommissioning activities is needed at the right time

**Importance of personnel long-term planning:** to develop a long-term strategy for decommissioning staff once the decision on decommissioning is made

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**Unit 1 closure**

- 2001-2003: 4600
- 2004-2009: 3900

**Unit 2 closure**

- 2010-2014: 2000
- 2015-2018: 2150

**Increase for dismantling**

- 2000: 1980

**Efficiency measures**

- 2000: 1980
Challenges: major reduction in staff

- facilitated by aging workforce (many staff to voluntary retirement)
- need to be aware also of impact on local community
- lack of vision on which decommissioning activities should be in-house vs outsourced

Solutions:

- a thorough analysis and long-term planning before decommissioning to identify staff needs for the whole decommissioning period
- top management commitment to long-term planning for decommissioning staff once the decision on decommissioning is made
- a redundancy plan to avoid the loss of qualified staff needed for future decommissioning works
**Staffing:** A key factor in immediate dismantling because INPP is by far main employer in local region and operators have essential knowledge

- **Key decision:** Government decision to use operational staff was essential for social and technical reasons, but:
  - Inadequate reform before closure
  - Decommissioning is lower skilled (difficult to redeploy high-skill staff)
  - Insufficient consideration of ageing workforce (unsuitable for dismantling)

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**Solution:** Staffing and organizational issues require as much planning as technical issues
Staff retention strategy

Challenge:

- Loss of trained qualified staff leads to the loss of knowledge and expertise necessary for safe and efficient decommissioning
- Retention of qualified employees and recruitment of young professionals with specific competences according to INPP’s needs in future works

Solutions:

- result-oriented remuneration system
- knowledge accumulation and preservation system
- employee performance evaluation
- employee engagement survey
- retraining for decommissioning activities
- recruitment mostly local young residents and training on-site
- outsourcing for complex assignments
Remarks

- Showing initiative (actively discouraged in NPP operational culture but essential in pioneering decommissioning)
- Adapting from continuous process-based work to project management
- Breaking down operational hierarchies and restrictive practices
- Understanding that plant is no longer a valuable asset but a costly liability
- Knowing how to justify actions to external funding bodies (formerly most decisions were internal to plant, but now wholly reliant on external funding)
- Learning to live with constant change
Decommissioning of Ignalina NPP is cofinanced by the European Union.