Licensing Process in Finland

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“New Reactor Siting, Licensing and Construction Experience”
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Radiation and Nuclear Safety Authority, STUK
Outline

• General
  – Nuclear power plant projects in Finland
  – STUK briefly

• Licensing process
  – steps, main goals and processes in each step

• Summary
Nuclear power projects in Finland

Fennovoima Ltd
- New utility, no operating reactors,
  DiP approved for FV1 (2 alternative sites)

Olkiluoto NPP (TVO)
- 2 operating units - ABB BWRs
- OL3 (EPR) under construction
- DiP approved for OL4

Loviisa NPP (Fortum)
- 2 operating units - VVERs

Photos: TVO

Photo: Fortum
STUK - Radiation and Nuclear Safety Authority

**Mission:**
Protecting people, society, environment, and future generations from harmful effects of radiation

**Organisation:**

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- Public Communication 4
- Emergency Preparedness 4
- Expert Services 7
- Administration, Internal Services and Information Management 57

Figures indicate number of staff at the end of 2009. Total 355.
Organisation of Nuclear Reactor Regulation (NRR)

Number of staff is currently 108

Project managers:
OL 3: Tapani Virolainen
New projects: Janne Nevalainen
LARA: Kaj Söderholm
Staffing and work load at NRR

Number of staff at NRR

Full time equivalents on oversight

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Three licensing steps

**Decision in Principle**: Political debate on whether using nuclear energy is for the overall good of society - Government decision and Parliament ratification/rejection - STUK’s preliminary safety assessment

- **Feasibility studies** (by utility)

- **Bidding & site preparation**

- **Construction**
  - Review and approval of the detailed design and oversight of construction to verify that approved principles and requirements are implemented

- **Construction License**: Government Decision
  - STUK’s Safety assessment on the acceptability of Technical principles and requirements of the plant

- **Operating License**: Government Decision
  - STUK’s safety assessment on the technical and organisational aspects of the as-built plant
Main parties in licensing of nuclear facilities

- **Public, other authorities, and expert organizations**
  - Opinions
  - Statement on safety (veto right)

- **STUK (regulatory body)**
  - Advice

- **APPLICANT**
  - Application
  - Safety documents
  - Suppliers-nuclear industry

- **GOVERNMENT:**
  - Makes licensing decisions
  - Conducts preparations

- **PARLIAMENT:**
  - Ratifies Decision in Principle

- **MUNICIPALITY OF PLANT SITE**
  - Agreement on site (veto right)

Three step licensing:
- Decision in Principle
- Construction License
- Operating License

Main parties in licensing of nuclear facilities:
- **STUK** (regulatory body)
- **APPLICANT**
- **MUNICIPALITY OF PLANT SITE**
- **Public, other authorities, and expert organizations**
- **STUK** (regulatory body)
- **APPLICANT**
- **MUNICIPALITY OF PLANT SITE**
- **Public, other authorities, and expert organizations**

Three step licensing:
- Decision in Principle
- Construction License
- Operating License

Safety documents

Suppliers-nuclear industry

Regulatory review and oversight

Agreement on site (veto right)
Licensing Steps

- Feasibility studies
- Decision in Principle
- EIA
- Bidding & Site preparation
- Construction License
- Construction
- Operating License
Environmental Impact Assessment (EIA)

- Goal is to assess all kinds of impacts of the nuclear power plant to the environment during the lifetime of the plant (construction, operation, decommissioning)
- EIA is based on environmental legislation
  - needs to be performed before Decision in Principle
  - does not require specific information on the plant design
  - is performed separately for alternative sites
  - is performed in two steps
    - Programme of the assessment,
    - Assessment resulting in EIA report
- Contact authority for EIA is Ministry of Employment and the Economy,
  - STUK (among others) issues a statement on EIA (both programme and results)
Environmental Impact Assessment Process

MEE = Ministry of Employment and the Economy (Contact Authority)
Licensing Steps

- EIA
- Feasibility studies
- Decision in Principle
- Construction License
- Construction
- Operating License
Decision in Principle

- Information for the DiP, i.a.
  - competence of the applicant
  - site description
  - facility and its technical principles
  - safety principles to be followed
  - environmental effects and principles to mitigate them
  - nuclear fuel and waste management.

- STUK’s preliminary safety assessment
  - Safety of the plant
  - Capabilities of the license applicant
  - Site safety

- General criteria of approval
  - Government and Parliament - will be in line with the overall good of society
  - STUK - safety
  - Municipality - approves to site the plant
Decision in Principle Process

- Utility
- MEE
- STUK
- Municipalities
- Authorities
- Public
- Government
- Parliament

1. Application for DIP
2. Asks Statements
3. Public Hearings
4. Prepares Decision for Government
5. Government Decision
6. Ratification

- DIP
- No DIP
- DIP
- No DIP
- DIP

- Statement on Safety
- Statement on Siting
- Statements on Application
- Statements on Application
- Yes
- Yes
- Yes
- No
Licensing Steps

- Feasibility studies
- Bidding & Site preparation
- Construction License
- Construction
- Operating License

Diagram:

1. EIA
2. Feasibility studies
3. Decision in Principle
4. EIA
5. Construction License
6. Construction
7. Operating License
Construction License

- Information submitted to STUK
  - Preliminary Safety Analysis Report
  - Probabilistic Risk Analysis
  - Safety classification
  - Quality Management
  - Preliminary plan for physical protection
  - Preliminary plan for emergencies
  - a plan for safeguards control
  - STUK’s control possibilities
  - Other documents
    - License applicant safety assessment
    - Compliance with regulations

- Criteria of approval among others
  - Clearly defined design basis for the plant
  - Safety of the plant demonstrated by safety analyses
  - Clear and implementable requirements for the plant, systems, main components and structures
  - Management system, resources, know how...
Licensing Steps

1. Feasibility studies
2. Decision in Principle
3. Bidding & Site preparation
4. Construction
5. Construction License
6. Operating License
Operating License

- Information submitted to STUK
  - Final Safety Analysis Report
  - Probabilistic Risk Analysis
  - Quality Management for operation
  - Technical Specifications
  - Programme for periodic inspections
  - Arrangements for physical protection
  - Arrangements for emergencies
  - Safeguards arrangements
  - Programme for radiation monitoring in the environment of the nuclear facility.

- Criteria of approval among others
  - Acceptability of the final design
    - safety analyses
    - radiological consequences
    - ...
  - Management system for operations
  - Organisation, resources, procedures,
  - Operational programmes
  - ....

- Operating License is needed prior fuel load
Process for Construction and Operating License

Utility → Application for CL or OL

MEE
- Asks Statements
- Statement on Safety

STUK
- Prepares Decision for Government
- CL or OL
- CL or OL Approved
- CL or OL Rejected

Municipalities
- Statement on Application

Authorities
- Statements on Application

Public
- Statements on Application

Government
- Government Decision
  - Yes
  - No

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Summary

• Finland has a three step licensing process
  – Decision in principle - overall good of the society
  – Construction License - safe design
  – Operating License - safe operations

• Licenses are granted by the Government
  – STUK is responsible for safety assessment - depth of review increases during the process
  – Parliament ratification is needed for the decision in Principle - political commitment