Expected modifications in Nuclear Energy Back End legal responsibilities in Slovakia

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Slovenské Elektrárne is an Enel Group Company

NORTH AMERICA
- Renewable technologies (hydro, geothermal, wind)

CENTRAL AMERICA
- Hydro and wind in Costa Rica, Panama, El Salvador and Guatemala

PERU
- Power generation (30%)
- Operator in distribution (19%)
- 1,2 mln clients

CHILE
- Power generation (37%)
- Operator in distribution (32%)
- 1,6 mln clients

COLUMBIA
- Power generation (21%)
- Operator in distribution (15%)
- 2,3 mln clients

BRAZIL
- 5,4 mln clients

ARGENTINA
- Power generation (16%)
- Operator in distribution (17%)
- 2,3 mln clients

FRANCE
- Notable presence in wind generation

SLOVAKIA
- Power operator in generation (81%)

RUSSIA
- Foreign operator (upstream gas, generation, supply)

ROMANIA
- Power operator in distribution (30%)
- 2,6 mln clients

SPAIN
- Power generation (26%)
- Operator in distribution (43%)
- 13 mln clients (electricity and gas)

ITALY
- Power generation (26%)
- Operator in distribution (84%)
- 33 mln clients (electricity and gas)
Nuclear energy
The key building block of SE portfolio

Share of sources (installed capacity)

NUCLEAR
Bohunice NPP
1000 MW
Mochovce NPP
940 MW

HYDRO
Vojany TPP
880 MW
Novaky TPP
518 MW

THERMAL

PHOTOVOLTAIC
2 MW

The key building block of SE portfolio
Scheme of nuclear energy main stakeholders

Ministry of Economy

National Nuclear Fund

Slovenske Elektrarne
NPP operator

Owner of 34% of shares

Annual Contributions

Payments for operational RAW treatment and SNF storage

JAVYS
Nuclear energy back end activities

Owner of 100% of shares

Payments

Nuclear safety oversight

Nuclear regulatory authority
Division of responsibilities in the nuclear back end in Slovakia

before 2013
- RAW treatment
- RAW storage
- SNF storage
- RAW disposal
- SNF disposal
- Decommissioning

december 31, 2012

since 08/2013
- RAW treatment
- RAW storage
- SNF storage
- RAW disposal
- SNF disposal
- Decommissioning

planned from 2016
- RAW treatment
- RAW storage
- SNF storage
- RAW disposal
- SNF disposal
- Decommissioning

Responsibility of state
Responsibility of RAW originator
Modification of legislation in 2013

According to the amendment of the Atomic Act since August 2013:

• NPP operator is obliged to hand over all RAW and SNF to the appointed organization only (JAVYS) that is state-owned.
• NPP operators are not allowed to build own SNF storage facilities.

Remaining issues:

• New regulatory regime does not correspond with responsibilities related to RAW and SNF (operators remain fully responsible despite obligation to hand over).
• Regardless the absence of other options, prices for these services are subject to mutual agreement between the operator and the appointed organization (JAVYS).

→This situation called for broader modification of legislation
Draft law expected to be in force from 2016:

- Shift of responsibility for decommissioning from operators to the state.
- More precise division of responsibilities and liabilities in line with other obligations.
- More transparent methodology for calculation of contributions to the National Nuclear Fund.
- Possibility to reprocess SNF even after hand over to JAVYS.
Different interests of different stakeholders

**State**
- guarantees for final waste solution
- clearly defined responsibilities

**Waste service org.**
- sufficient finances for waste management
- profit and sustainable business

**Waste producers**
- fair and predictable fees
- back end costs optimization
- stable accounting provisions
Nuclear back end responsibilities in some EU countries

<table>
<thead>
<tr>
<th>Country / activity</th>
<th>Finland</th>
<th>Sweden</th>
<th>Switzerland</th>
<th>Germany</th>
<th>Czech</th>
<th>France</th>
<th>Slovakia</th>
<th>Spain</th>
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<tr>
<td>SNF storage</td>
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<td>RAW processing</td>
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* Germany - the overall responsibility for the construction and operation of federal repositories is with the Federal Office for Radiation Protection. In 1984 Germany concluded a co-operation agreement with DBE company and commissioned the DBE with the "planning and erection of federal facilities for the safekeeping and disposal of radioactive waste". Producers are majority owners of DBE.
Deep geological repository project in Slovakia

• First feasibility study performed in 1998-2000
• Works interrupted between 2004 – 2014
• Updated feasibility study in 2015-2016
• 5 potential sites selected without detailed investigation
• National NE back end policy mentions two options:
  1. international project
  2. Slovak national DGR
• Option to be decided up to 2020
Idea of international DGRs

• International projects extremely sensitive especially in EU - More political (public acceptance) than legal or financial issue

• More feasible in third countries (Russian Federation) through gradual steps (e.g. reprocessing, long-term storage, final disposal)

• Relying on future technologies (re-use or reprocessing of HLW)
Can the generating country enter into agreements that transfer full responsibility to the country receiving the spent fuel?

In principle YES under certain conditions:

- Receiving country „knows“ what spent fuel is all about (should have its own SNF)
- Public acceptance in the receiving country
- All costs (incl. future) are covered taking into account also worst case scenarios
- All future potential issues or scenarios legally covered within the agreement (no surprises)