Freie Universität Berlin

Nuclear waste policy in Spain

Ana María Isidoro Losada (FFU –Berlin)

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ENTRIA

Outline

- nuclear, enrichment and reprocessing facilities
- institutional framework
- RW management practice
- financing – current schemes
- national strategy for interim and long-term storage
- 6th General Waste Management Plan
- Central Interim Storage facility
- transparency of the decision making process
- Spanish public opinion on nuclear affairs
- lessons learnt

Installations

- five Nuclear Power Plants
- installed capacity: 7002 MWe
- N-power generates ~22% of the national electricity
- further nuclear facilities

source: http://1.bp.blogspot.com/_C3cZ4JR_IjA/S9X4yMzNqWI/AAAAAAAAAJU/kYlny4hxQTE/s1600/4.jpg

Enrichment and reprocessing facilities

- no conversion or enrichment facilities
- spent fuel has been sent to France for reprocessing
- certain amounts of SF has been sent to Great Britain
- bilateral agreement with France
- since 2011 Spain pays 64,900 € daily

Facilities in the dismantling process

- NPP José Cabrera finished its lifespan in 2006
- NPP Sta. Maria de Garoña was closed in 2013
- NPP Vandellós I is already in a decommissioning process

Expected volume of waste

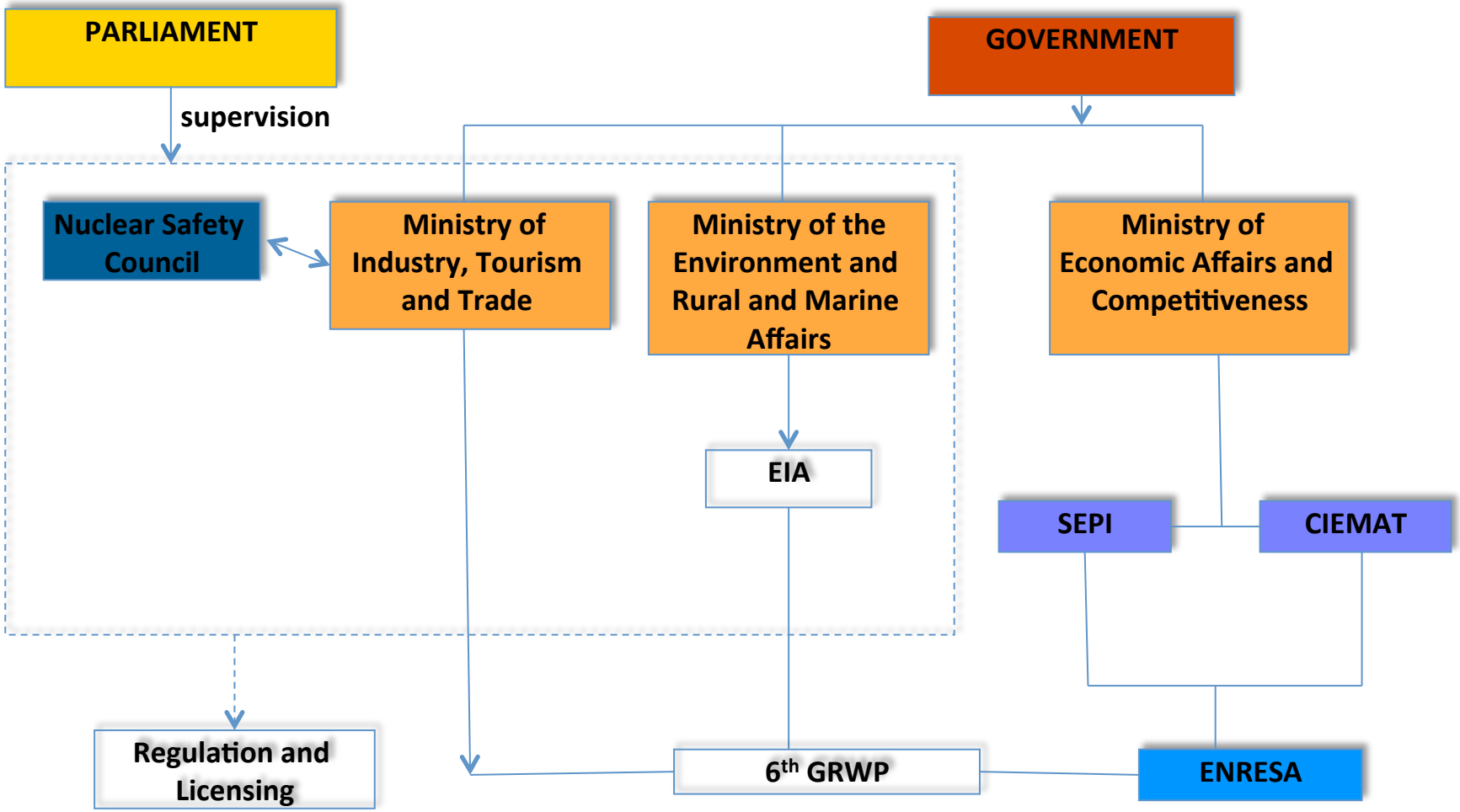
LILW ≅ 176.300 m^3

HLW/SF: 12.800 m^3

10.000 m3 - 79 % SF

rest HLW including 81m^3 vitrified waste from Vandellós

Institutional framework



source: http://www.iaea.org/nuclearenergy/nuclearpower/Downloadable/Meetings/2013/2013-03-18-03-21-TM-NPE/18.casas.pdf, p. 13, modificated

Other key institutional stakeholders

Autonomous Communities (regional governments)

competence in territory organization, environment and in economic activity organization

Other key institutional stakeholders

Association of Municipalities in Areas of nuclear plants (AMAC)

created in 1990

represents ~72 municipalities located in a 10km radius around the NPP

defends a centralized storage approved by consensus by the interested parties

creation of an economic alternative

RW management practice

- temporary storage facilities at the sites of the Trillo/ Guadalajara and José Cabrera in Almonacid de Zorita/ Guadalajara NPPs
- since 1992 LILW is stored at El Cabril in a near-surface repository (a former uranium mine)
- the capacity of this facility is considered sufficient for LILW disposal until about 2020
- the Spanish Government has opted not to recycle irradiated fuel but to consider it as waste

Financing - current schemes:

- a fee on the electricity bills
- producers pay also tariffs for the waste to be treated and disposed of

Law 15/2012 on tax measures for energy sustainability

- tax on the production of SF and RW from nuclear energy generation
- tax on SF and RW storage in centralized installations

The money goes into funds, which are invested in a fixed income financial assets portfolio.

National strategy for interim & long-term storage

- increase SF storage capacity of reactor pools
- constructing further temporary storage facilities using dry storage close by the NPPs
- 2006 Parliament approved ENRESA's plans to develop an Central Interim Storage facility by 2010

→ a priority in the 6th General Radioactive Waste Plan

6th General Waste Management Plan

- basic reference document that deals with strategies to be undertaken in the fields of
  - radioactive waste management
  - dismantling of facilities

- 2025 – 2040 decision-making process and site characterisations
- 2040 -2050 construction of the final geological disposal facility

National strategy for interim and long-term storage

- decision process on a definitive long-term disposal has been postponed by 15 years

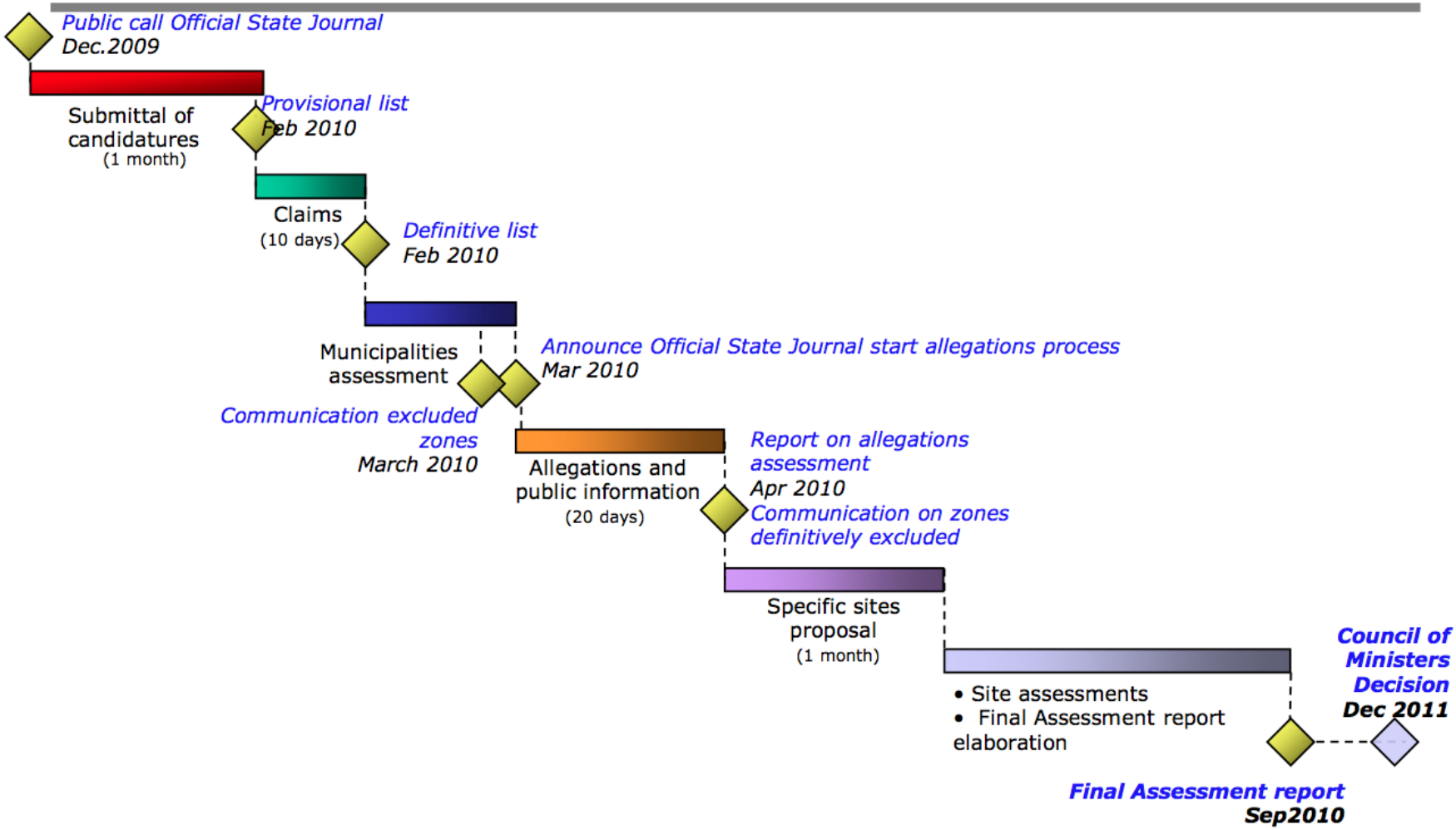
- final geological disposal facility is not expected before 2050

Central Interim Storage facility

- retrievability is no regulatory requirement for the final disposal of HLW and SF
- ENRESA is considering options to facilitate easy retrieval of wastes for a period of 100 years
- facility (100 years):

  6,700 metric tons of SF
  2,600 m^3 of medium-level wastes,
  plus 12m^3 of HLW

Information policy



source: http://www.iaea.org/nuclearenergy/nuclearpower/Downloadable/Meetings/2013/2013-03-18-03-21-TM-NPE/18.casas.pdf, p. 18

Central Interim Storage

- 2011 Villar de Cañas/ Cuenca - Castilla-La Mancha, a municipality with ~450 inhabitants had been selected

- according to official declarations,
  "*its strategic position close to other sites has been central*"
  for deciding on this municipality

Central Interim Storage

- > 2016 Central Interim Storage at Villar de Cañas will be constructed
- the additional construction of a research centre and an industrial park is foreseen
- trigger regional development
- the Government offered to pay up to €7.8 million annually once the Central Interim Storage facility is operational
- creation of ~300 new jobs.

Transparency of the decision making process

- anti-nuclear movement origin of the ecological movement
- 1986 to 1996, ENRESA conducted systematic geological surveys and studies in granite, salt and clays formations

  ➙ around 25,000 km² of possible areas were registered

- in 1996 strong public opposition

  ➙ ENRESA's advanced work was halted

Transparency of the decision making process

- misinformation
- large demonstrations
  1996, Belaleazar 10,000 participants
  1997, Villanueva 15,000
  1998, Torrecampo 20,000

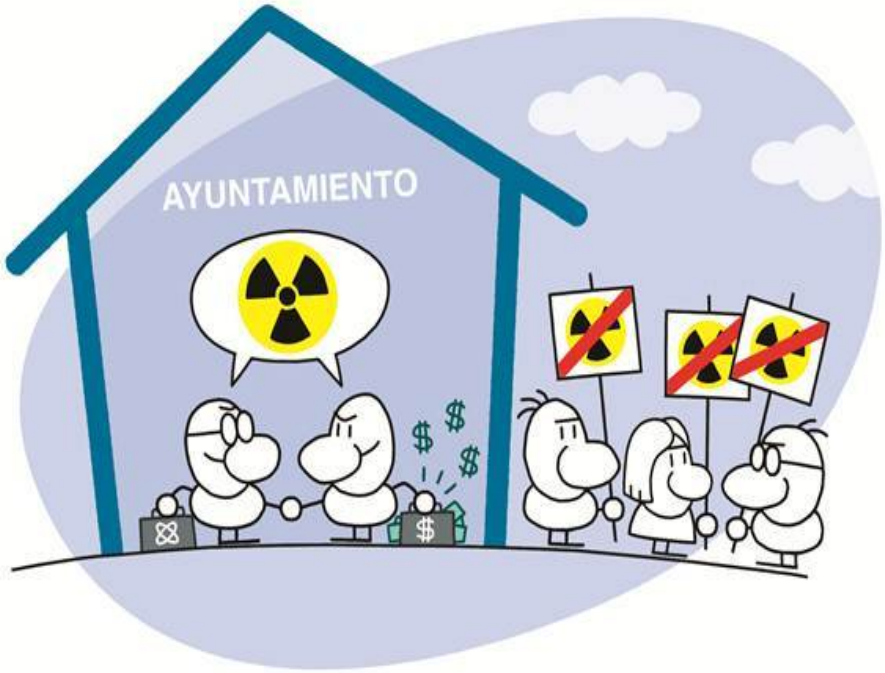
source: http://greenpeaceblong.files.wordpress.com/2010/03/p2140058.jpg

- main discourse:

"the need to phase out nuclear power
before finding a solution for radioactive waste"

- storage of the waste should be restricted to the pools of the NPPs or to storage facilities nearby

Transparency of the decision making process



source: http://www.greenpeace.org/espana/es/Blog/tufo-corrupto-en-las-candidaturas-al-cementer/blog/32744/

- 2012 AMAC contested the installation of the Central Interim Storage facility at Villar de Cañas

"only the positive verdict of the political party in the autonomous community had been considered, without contemplating technical criteria"

Transparency of the decision making process

- environmental/ local groups, trade unions are against the storage facility

- no transparency nor public participation mechanisms to consult and involve the public in the decision-making

source: http://profile.ak.fbcdn.net/hprofile-ak-snc4/50262_278074426879_347171_n.jpg

In March 2012 it turned out that the promised regional jobs were not materializing as expected.

Spanish public opinion on nuclear affairs

- Spain level of support for nuclear energy is below the EU 27 average
- 83% of the Spanish respondents feel uninformed about nuclear safety related topics
- majority of citizens (73%) consider that NPPs represent a risk
- second place for the category “fear of nuclear power”

Eurobarometer on nuclear safety, 2010
source: http://www.ec.europa.eu/energy/nuclear/safety/doc/2010_eurobarometer_safety.pdf

Spanish public opinion on nuclear affairs

"a country outside the EU,
under the supervision and control of the responsible authorities and legislation of that country" (36%)

Eurobarometer on nuclear safety, 2010
source: http://www.ec.europa.eu/energy/nuclear/safety/doc/2010_eurobarometer_safety.pdf

Lessons learnt

- acceptance is greater among those municipalities who live closest to a nuclear site
- two main problems:
  lack of trust
  highly non-transparent administrative practice

→ establish constant communication and information systems among the different actors

→ better trust and political decision-making process that ensures some guaranteed procedures

→ facilitate implication of local actors in search for solutions

Thank you for your attention!