



*WM2013 PANEL SESSION 070:
International Deep Repository Progress*

SF AND HLW, LONG TERM MANAGEMENT IN SPAIN

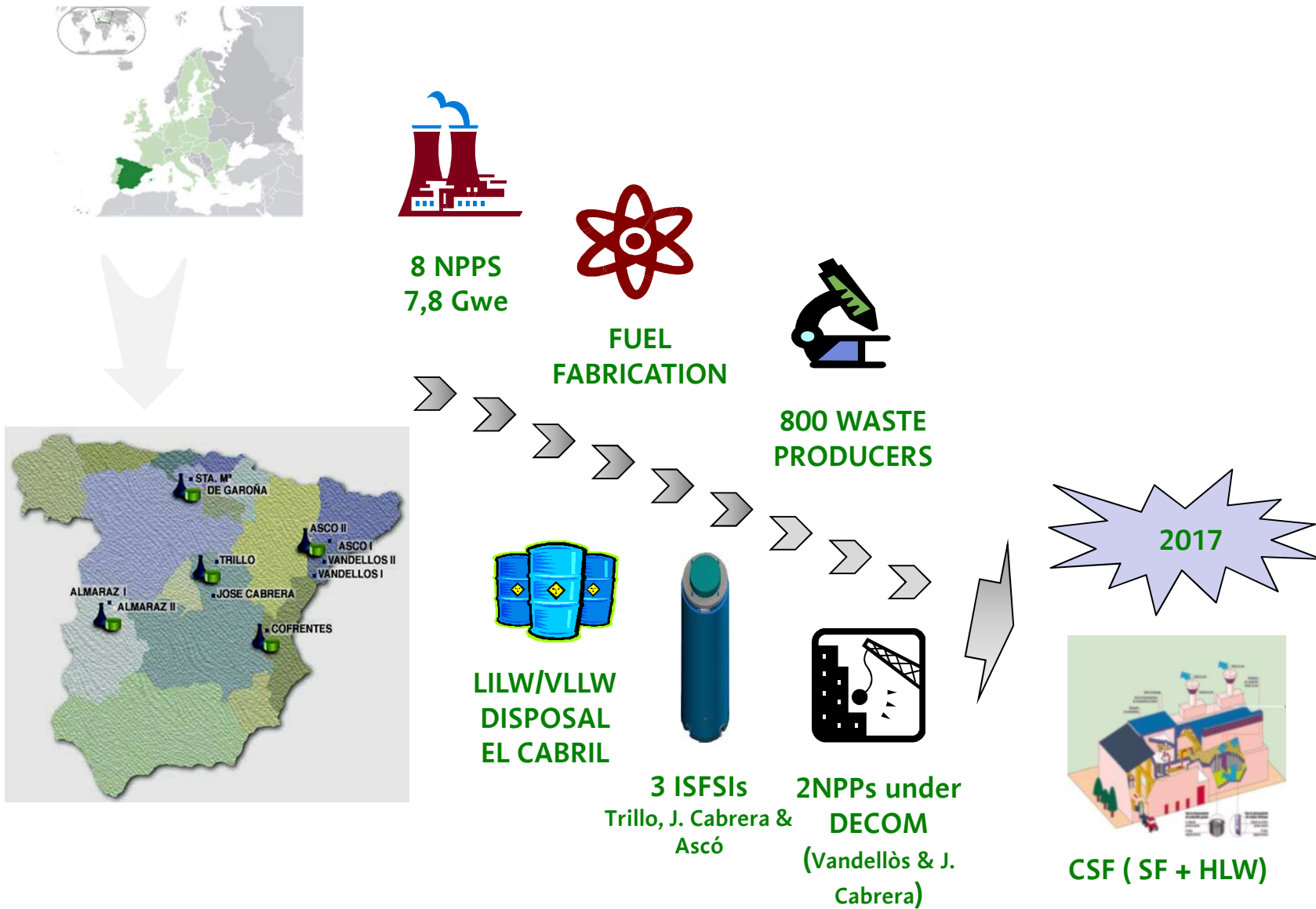
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Phoenix, 27th February 2013

SF AND HLW TERM MANAGEMENT IN SPAIN



SF AND RWM FACILITIES (EXISTING OR PLANNED)



SF AND HLW-MLW INVENTORY AND ESTIMATES

- **Past practices**
 - 90 tU from SMG NPP to UK: Pu and REPU to be sent back
 - 60 tU from JC NPP to UK: nothing returns
 - All the fuel from V1 NPP to France: Part of the waste to return. Penalties
- **Present Inventory**
 - 4200 tU SF in storage (December 2010)
 - *Most of it in pools: All pools re-racked to high density*
 - *2 ISFSI in operation (dry-storage)*
 - Trillo NPP → dual purpose metal casks in dedicated building
 - Jose Cabrera NPP → multipurpose canisters in concrete casks on a pad outdoors
 - Ascó NPP is in the licensing process for another ISFSI → similar to Jose Cabrera ISFSI

Total amount of Spent fuel considered

- **(6700 tU) 20,000 Fuel elements**

HLW and ILW management

- **Vitrified and ILW-LL waste from France (V1 NPP reprocessing)**
20m3 of HLW
- **ILW-LL (GTCC) from reactor activated internals (1,000 m3)**

MANAGEMENT STRATEGY FOR SF AND HLW

MAIN HISTORICAL OBJECTIVES:

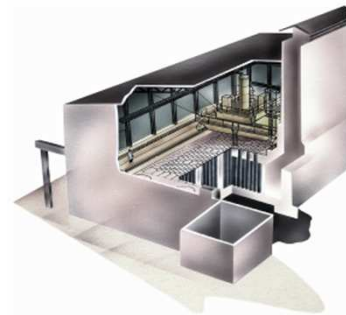
- TO PROVIDE ENOUGH CAPACITY TO ASSIST THE OPERATION OF NPPS WHILE LOOKING FOR A SOLUTION FOR LONG TERM INTERIM STORAGE
- TO LOOK FOR LONG-TERM DISPOSAL SOLUTIONS



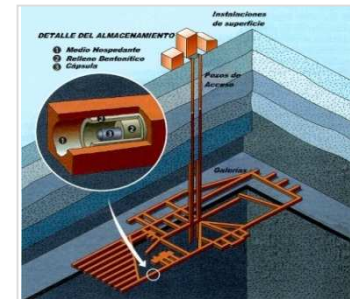
1. Reracking
90's



2. ISFSF
2000-2016



3. ATC
2017-2077

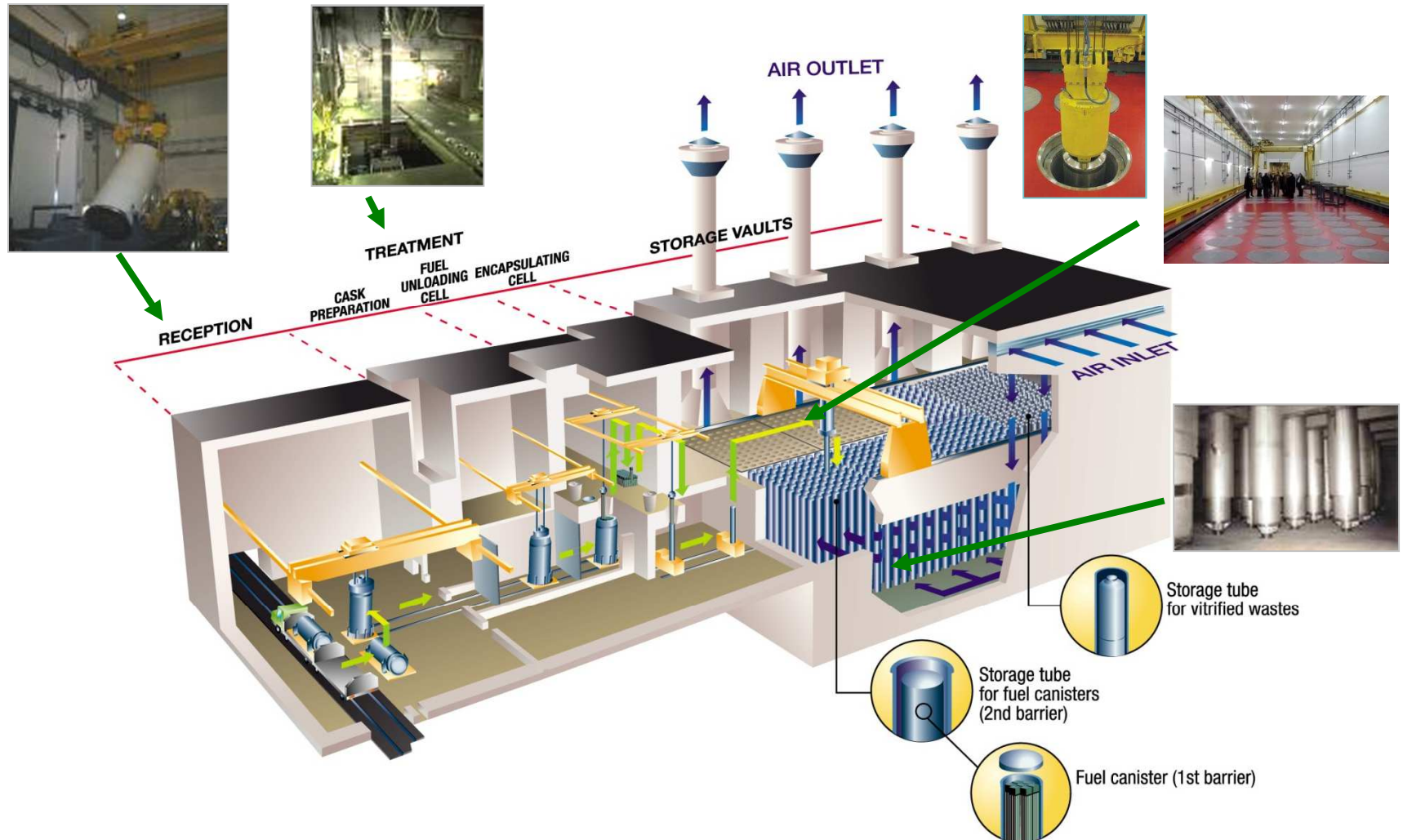


4. DGP
2078

MAIN STRENGTHS OF CSF OPTION

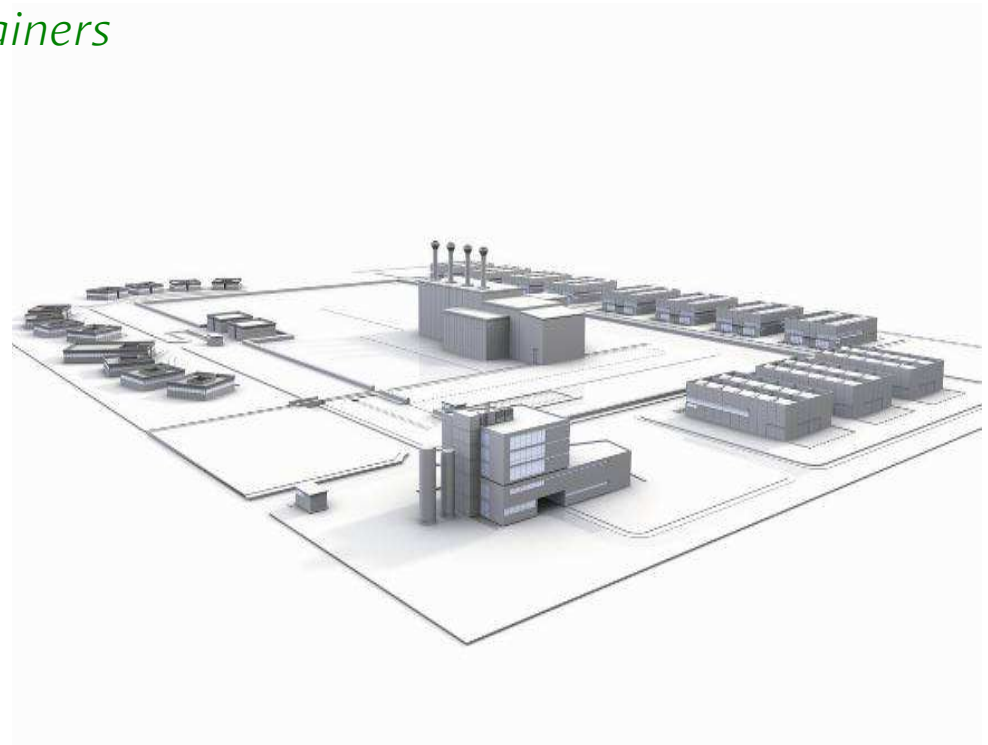
- **Allows a unified management of SF and HLW**
- **Interim management becomes independent of final management (disposal)**
- **Provides extra capacity to deal with potential unexpected events**
- **Reduces the amounts of management facilities thus decreasing the risks and obligations**
- **Allows the declassification of nuclear sites after NPPs decommissioning**
- **Allows to comply with existing obligations of bringing back waste from reprocessing from abroad.**

CONCEPTUAL DESIGN



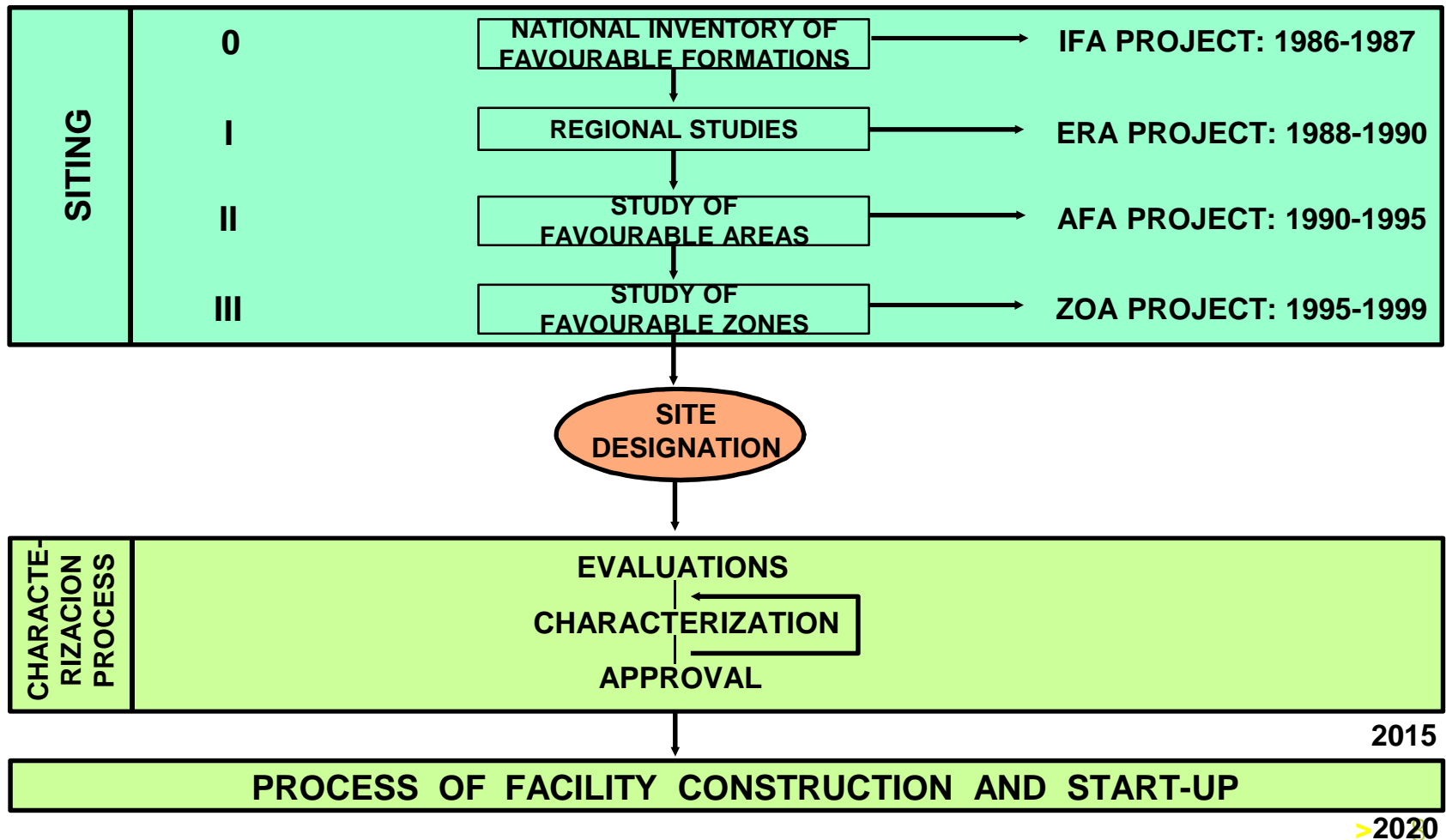
THE FULL EXTENT OF CSF FACILITIES

- **CSF Ancillaries services**
 - *Main facility: Storage vaults, reception and process areas*
 - *Storage building for ILW, container storage and workshop for transport containers*
- **Associated Technological Building**
 - *SF and radwaste lab*
 - *Conventional labs for materials, prototypes, process and environment*
- **Business park**
 - *Enterprises nursery*
 - *Industrial development*



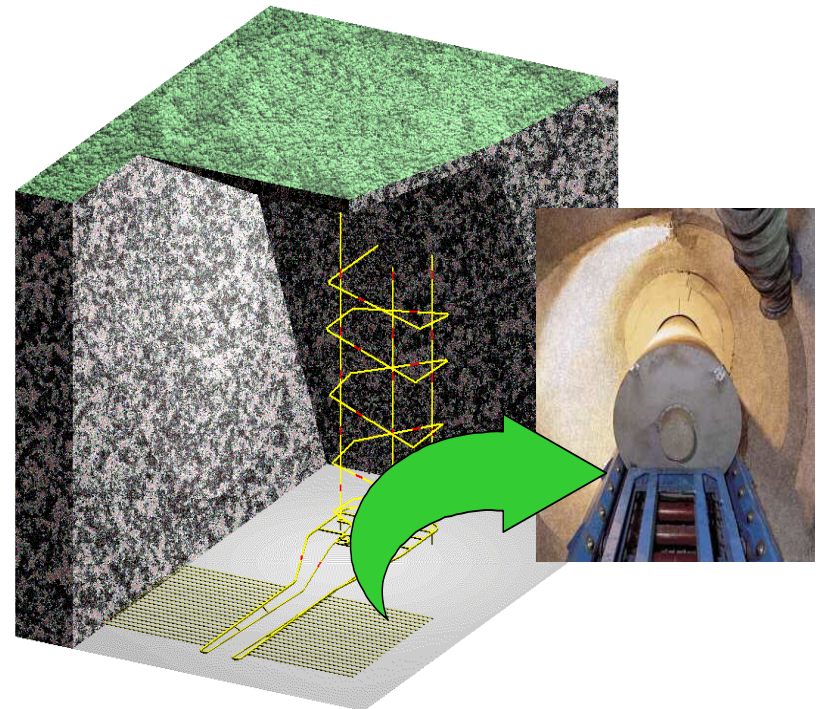
EARLY STRATEGY FOR SF AND HLW DISPOSAL SITING. 1986-1996

Methodology for Development of a High Level Waste Disposal Facility in Geological Formations



DEEP GEOLOGICAL DISPOSAL. PREVIOUS WORKS

- **Site identification Program: 1986-1996**
 - Stepwise Screening
 - To a phase where drilling boreholes became necessary
- **Deep Geological Repository design and associated Performance assessment (1990-2004) in three steps:**
 - Disposal concept and basic design
 - *Carbon steel canisters placed horizontally in parallel galleries, with Calcium-Bentonite seal*
 - Strengthening the bases of the concept
 - Optimization through requirements review
- **Three rocks; 2 basic design + Performance Assessment performed (granite and clay)**
- **R&D projects, including experimental work in foreign underground laboratories**

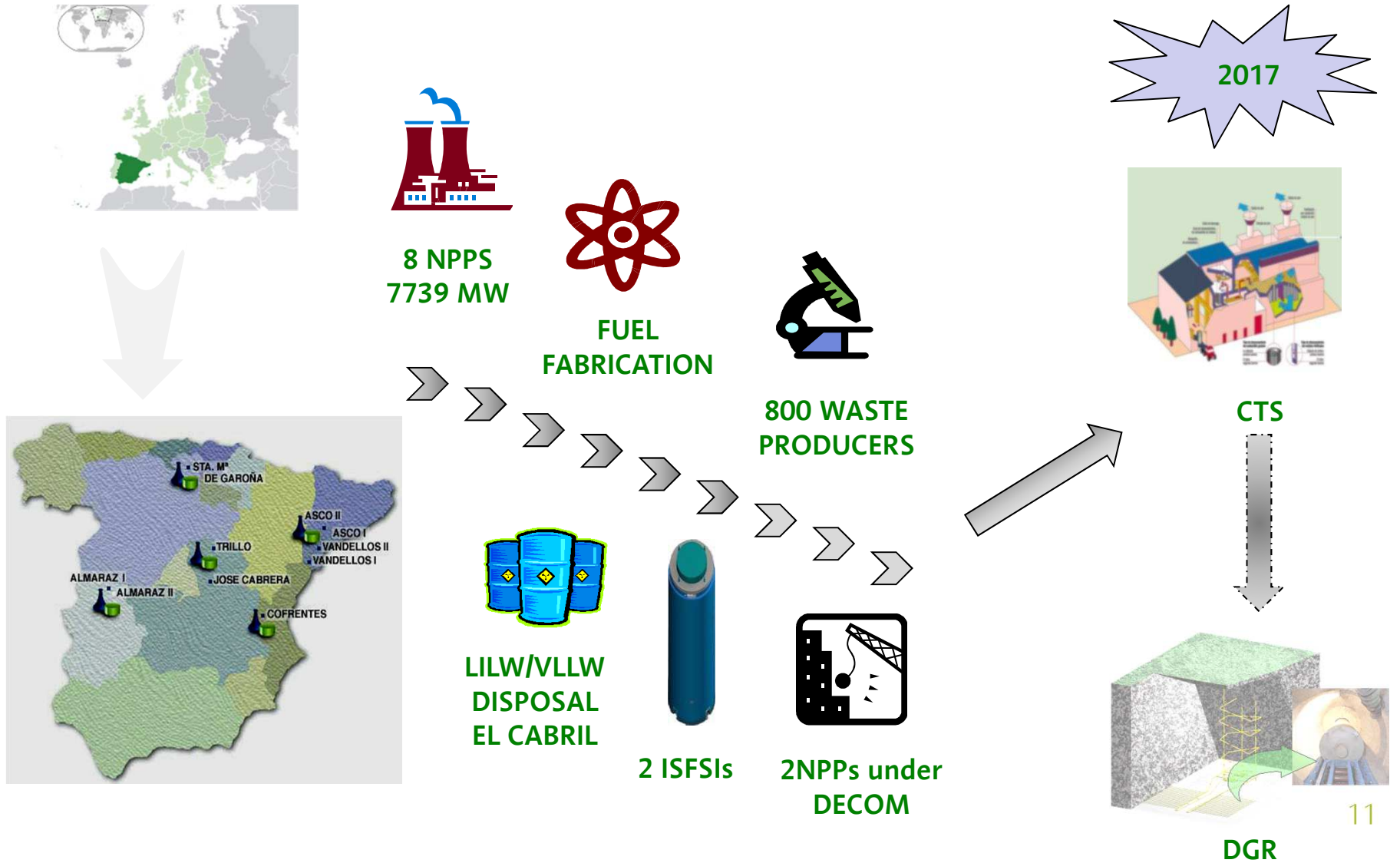


- ✓ To build and operate for decades a Centralized Storage Facility

- ✓ To continue the efforts in R&D of other alternatives:
 1. Follow geological disposal programs at a level of detail sufficient to enable:
 - To develop an orderly and gradual process of decision-making on the implementation of the remaining stages to definitive management.
 - To consider the above from three complex perspectives: the legislative, social and technical.

 2. Use this period to:
 - To continue the research work already done
 - To preserve the knowledge gained
 - To enhance the capabilities developed through a systematic and orderly plan
 - To assess the complementarity of S+T with geological storage.

RWM Present and future



**THANKS FOR YOUR
ATTENTION**