Nuclear energy for the future

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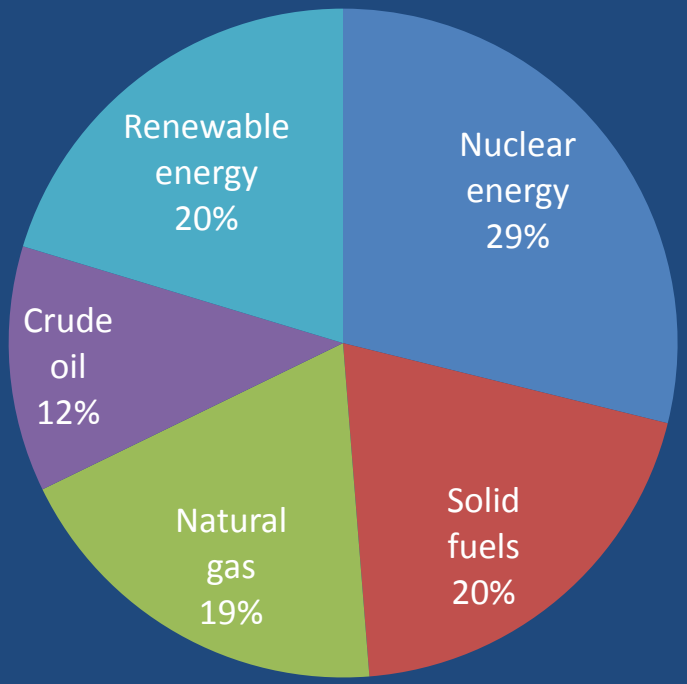
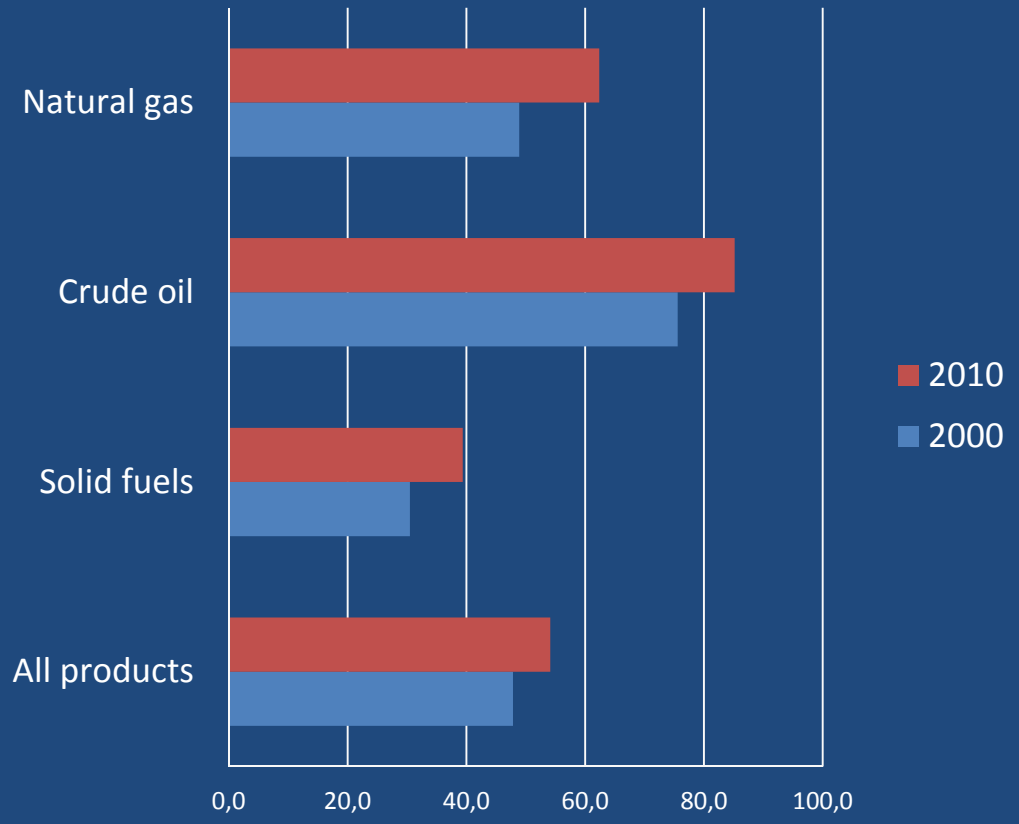
CEO of NucAdvisor

Nuclear in Europe (EU27 - 2010)

Production of primary energy



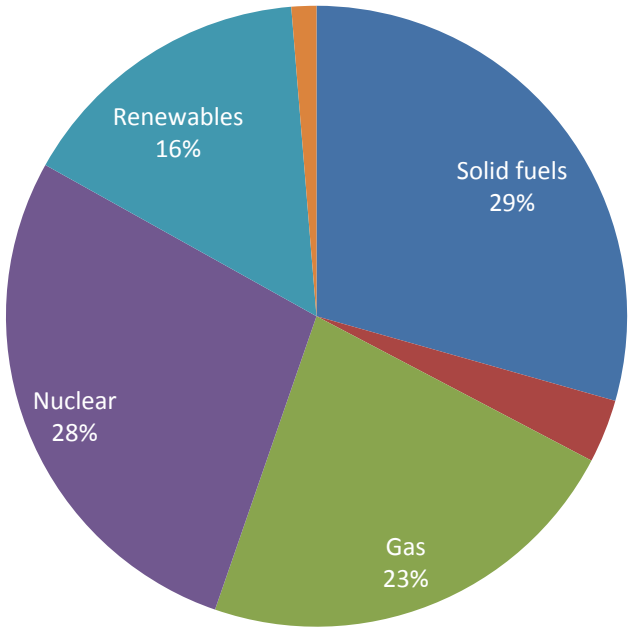
Dependency



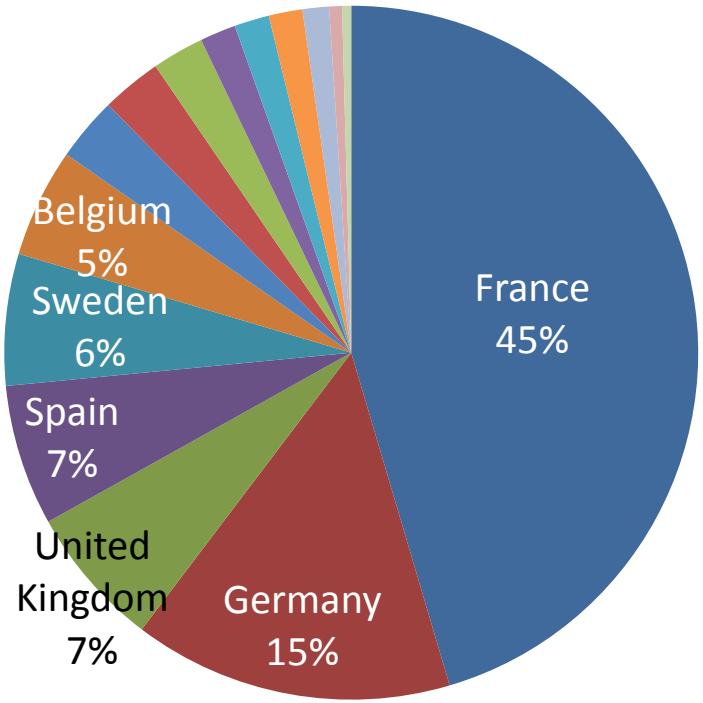
Source : Eurostat

European electricity generation (2010)

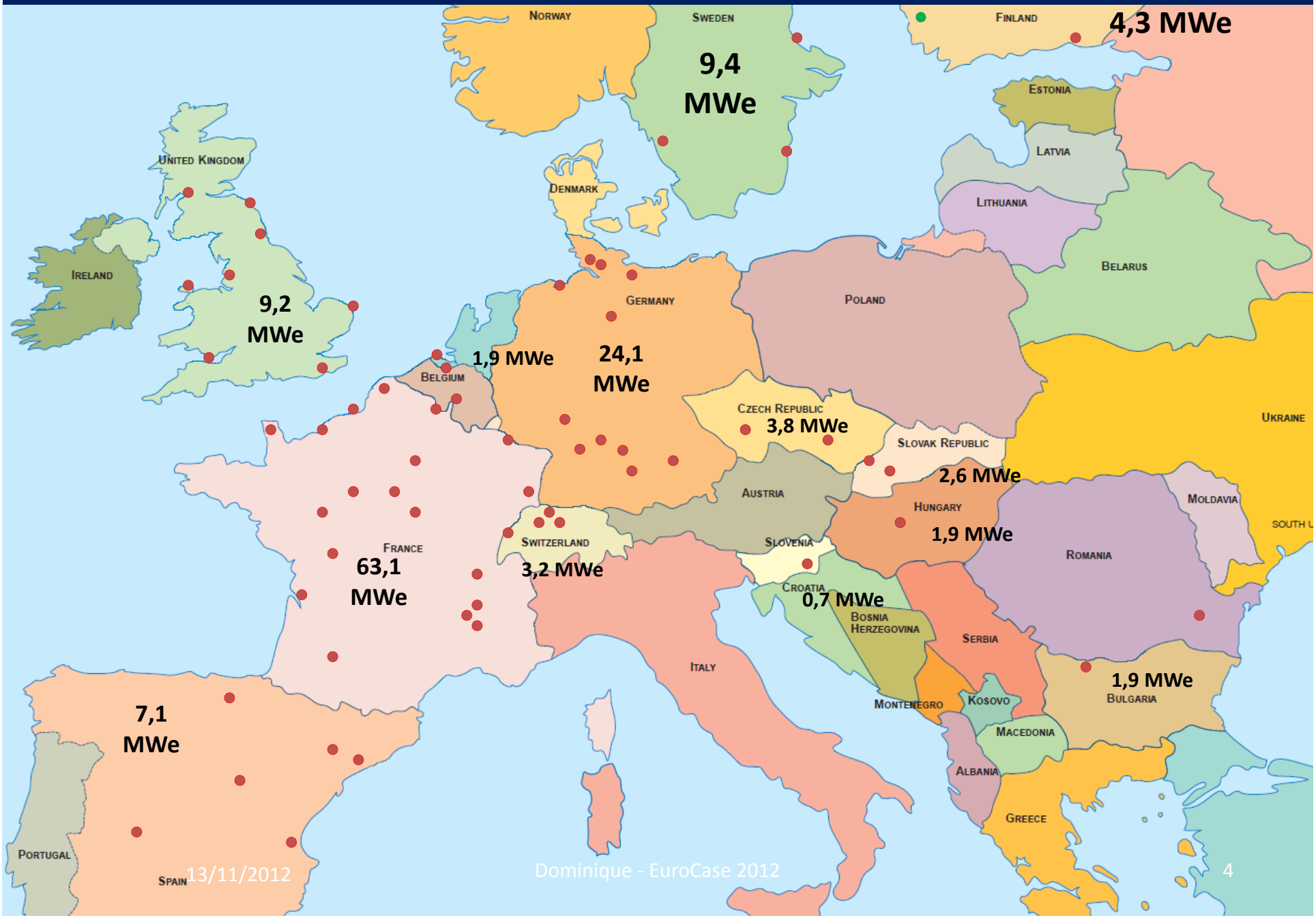
Gross electricity generation



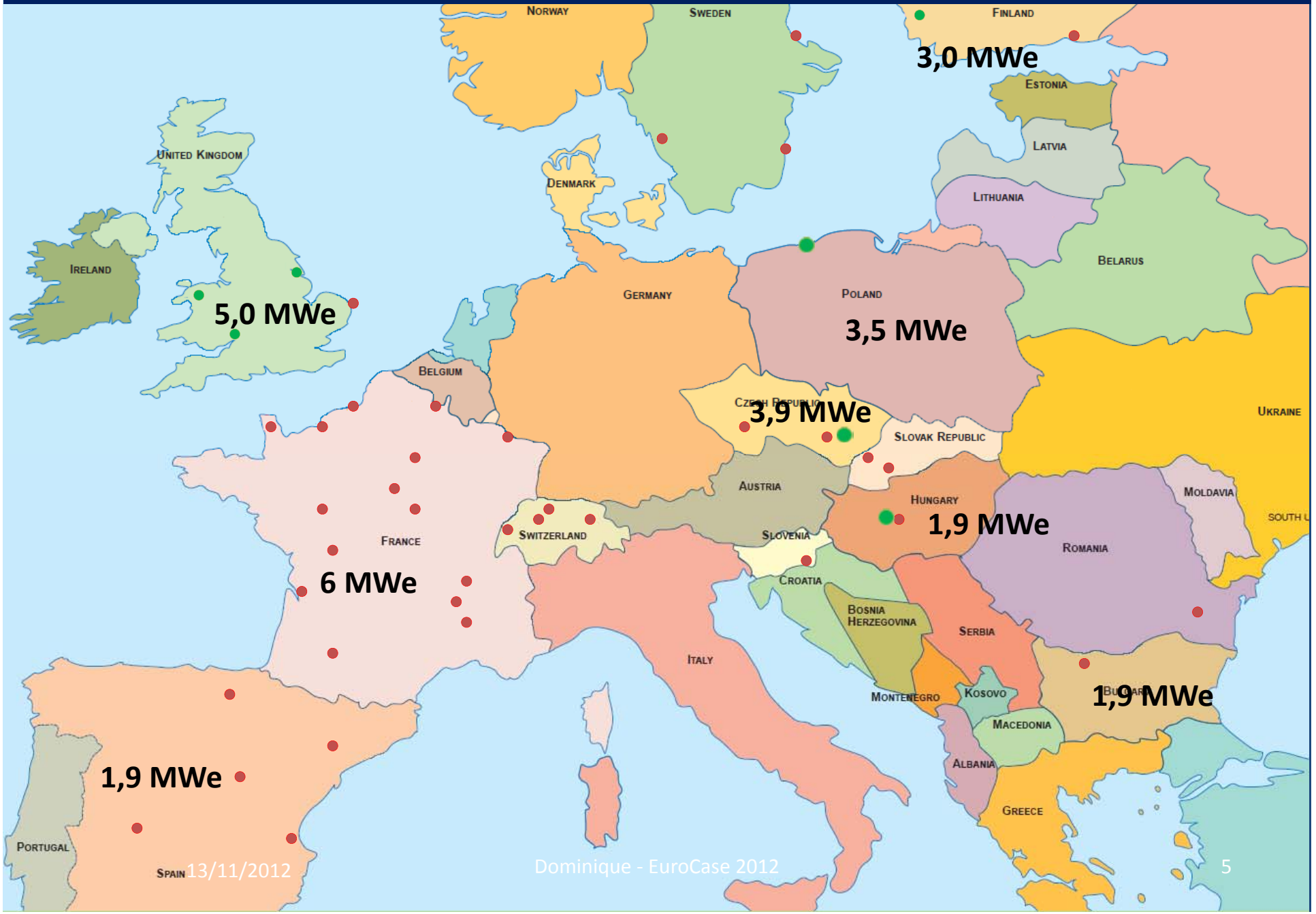
Share of european nuclear electricity



Nuclear Power Plants in operation in 2025



Nuclear Power Plants in operation in 2035



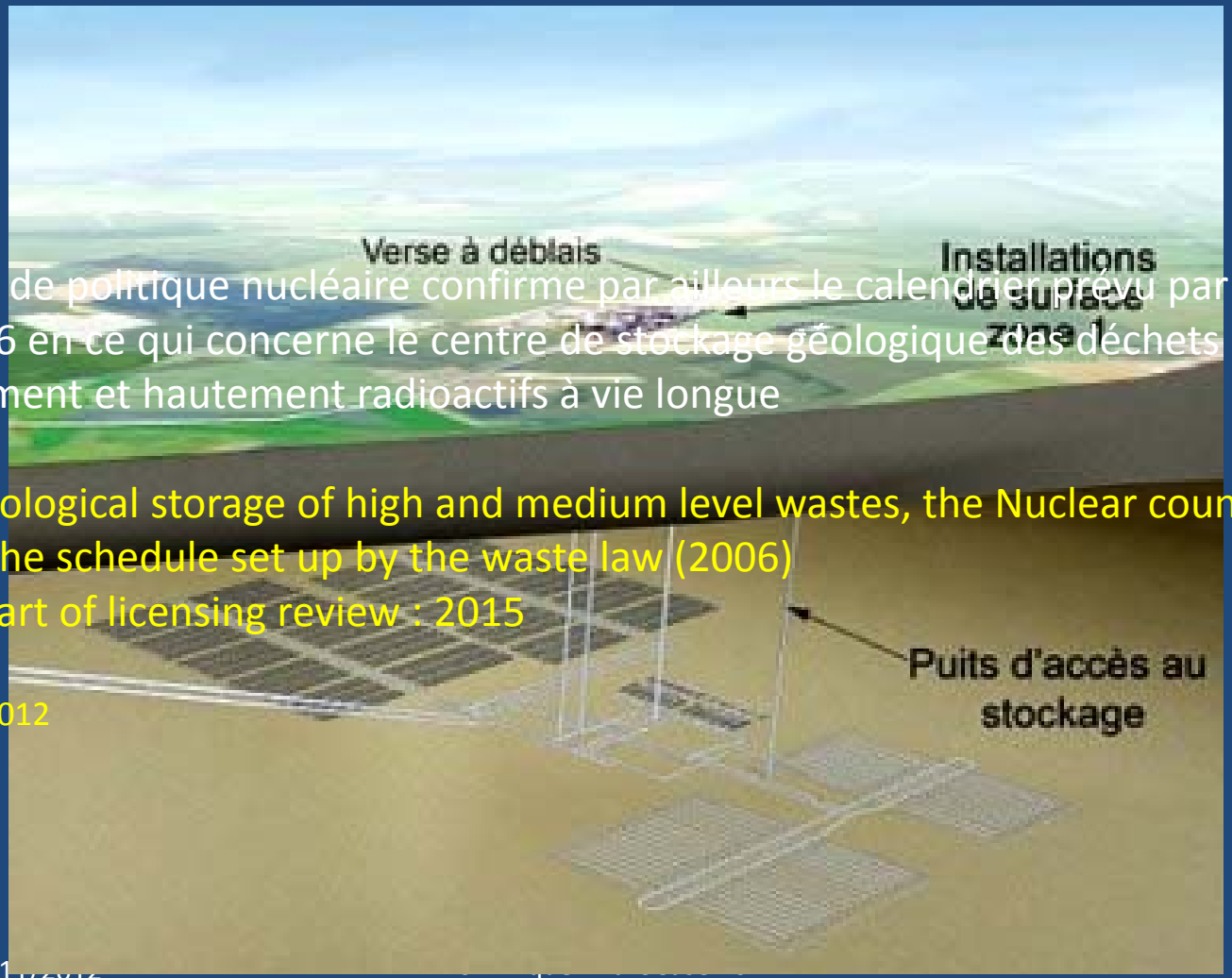
Waste storage : Sweden

Sweden : licensing application for a deep repository / 2011

Waste storage : Finland

Finland: licensing application in 2012/2013

France and Belgium : deep laboratories under operation/ Industrial design of the repository



Le Conseil de politique nucléaire confirme par ailleurs le calendrier prévu par la loi de 2006 en ce qui concerne le centre de stockage géologique des déchets moyennement et hautement radioactifs à vie longue

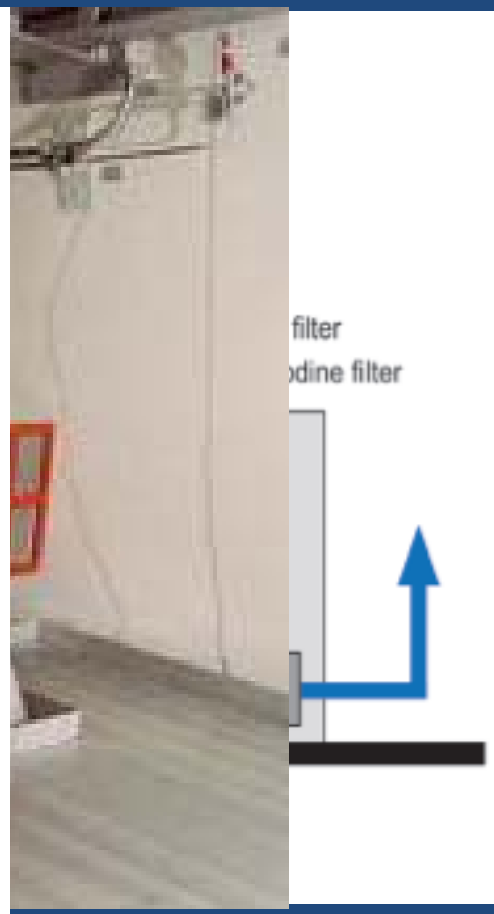
For the geological storage of high and medium level wastes, the Nuclear council confirms the schedule set up by the waste law (2006)

- Start of licensing review : 2015

September 2012

Fukushima lessons were implemented after the Chernobly accident

Filter Efficier
Aerosols: > 99,99 %
Elemental Iodine: > 99,97 %
Organic Iodine: >97,40 % Future: 99,72



And as we speak

As we speak

In December 2011 the National Energy Administration (NEA) said that China will make nuclear energy the foundation of its power-generation system in the next "10 to 20 years", **adding as much as 300 GWe of nuclear capacity over that period**.

Two weeks earlier the NDRC vice-director said that China would not swerve from its goal of greater reliance on nuclear power.

The former head of the NEA said that **full-scale construction of nuclear plants would resume in March 2012**.

A convincing business case
(General accounting office report – Jan-2012)

Results of the various calculations of generating cost per In €2010

Impact of the €55 billion investment programme between now and 2025 on the generating cost per MWh

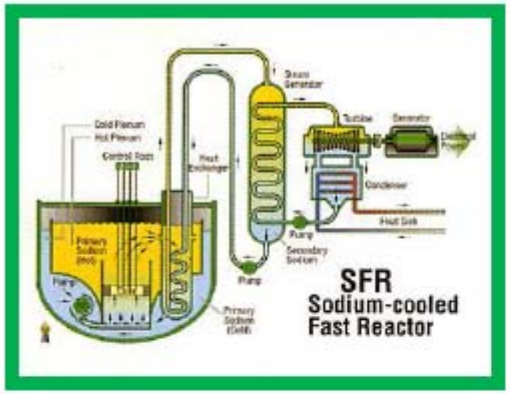
Maintenance investments	Full cost accounting	Champsaur approach	CEC
Value in 2010 €1,747 million	33.4	33.1	49.5
Average value of the €55 billion programme €3.7 billion	38.2	37.9	54.2
Percentage variation	+ 14.5%	+ 14.5%	+ 9.5%

invested, allowing for inflation (with the objective of calculating an average generating cost with no historical reference).

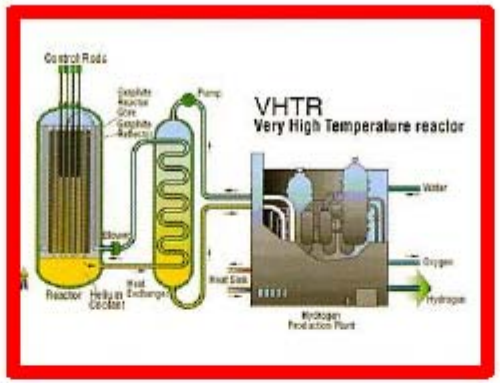
New models are marketable

Small modular reactors

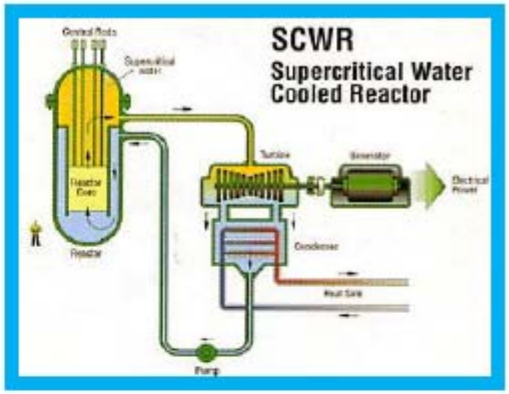
Generation IV reactors : actinides burner



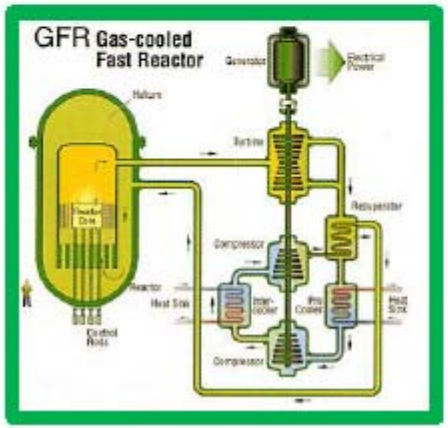
Closed Fuel Cycle



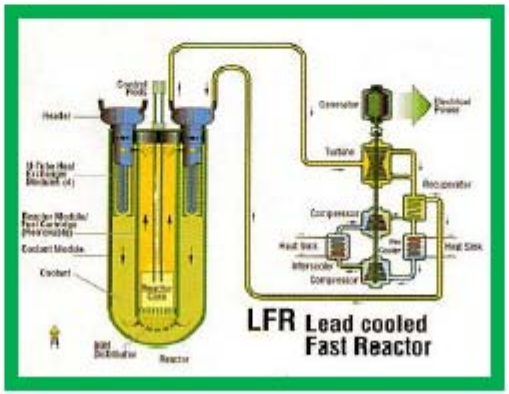
Open Fuel Cycle



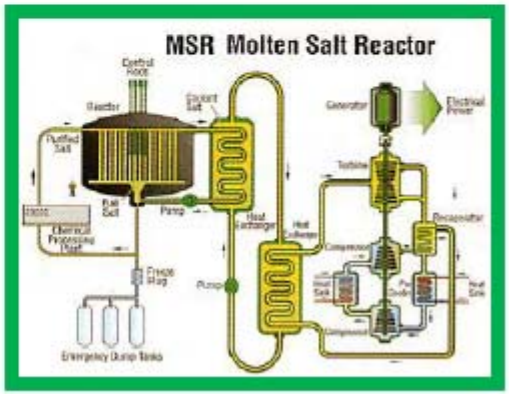
Open/Closed Fuel Cycle



Closed Fuel Cycle



Closed Fuel Cycle

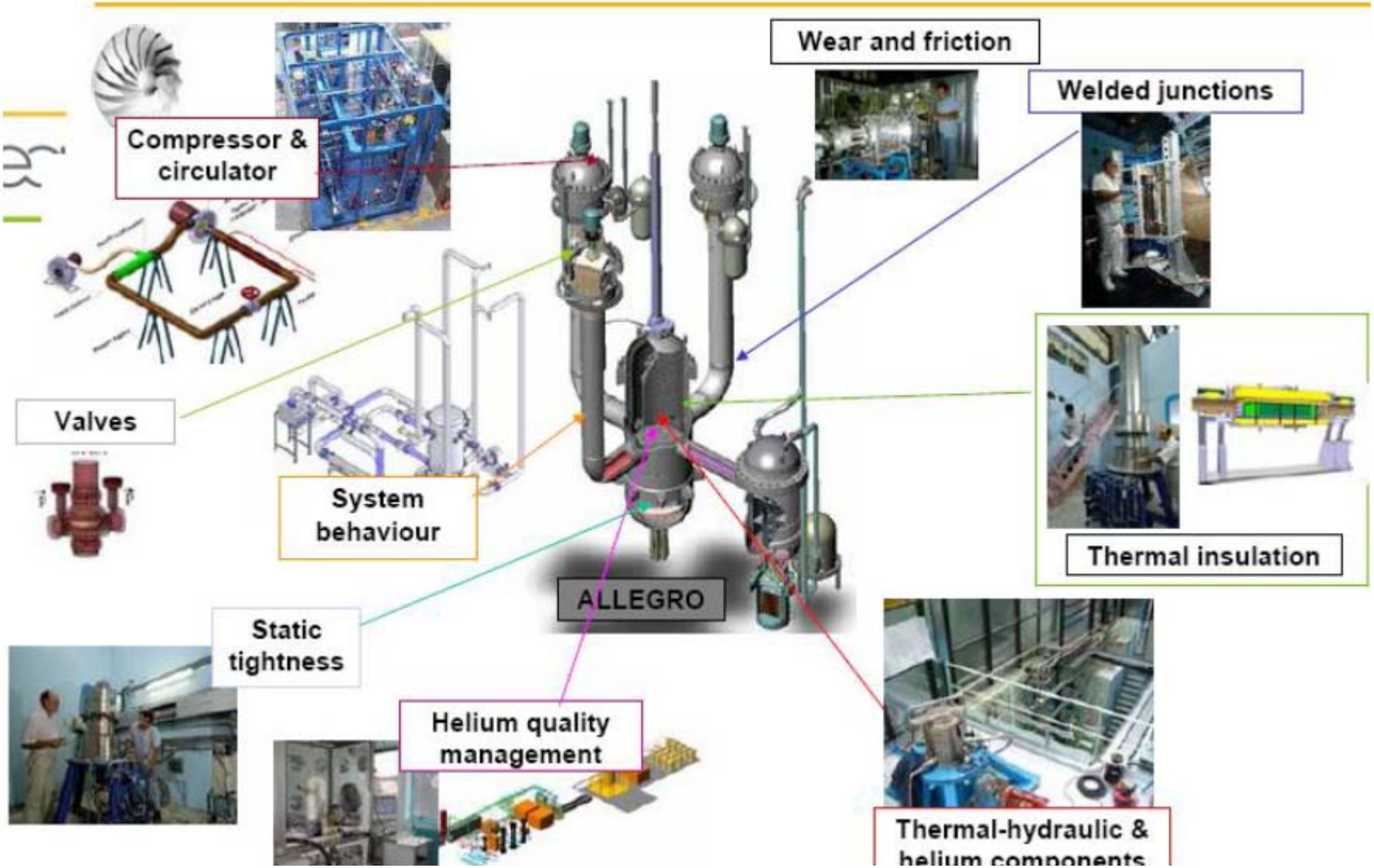


Closed Fuel Cycle

Fast breeder reactors

Liquid Metal Fast Breeders – ASTRID – 600 MWe

Gas cooled Fast Breeder – Demo Plant -



Euro-CASE

What is missing

- A credible energy strategy
  - Seriously aiming at reducing CO2 emissions
  - Without putting too high a burden on electricity costs
- A coordinated licensing approach providing a proper balance between
  - A joint European view
  - The respect of national interests
- Inspiration and leadership to pave the way for the energy infrastructure to be used by our grandchildren