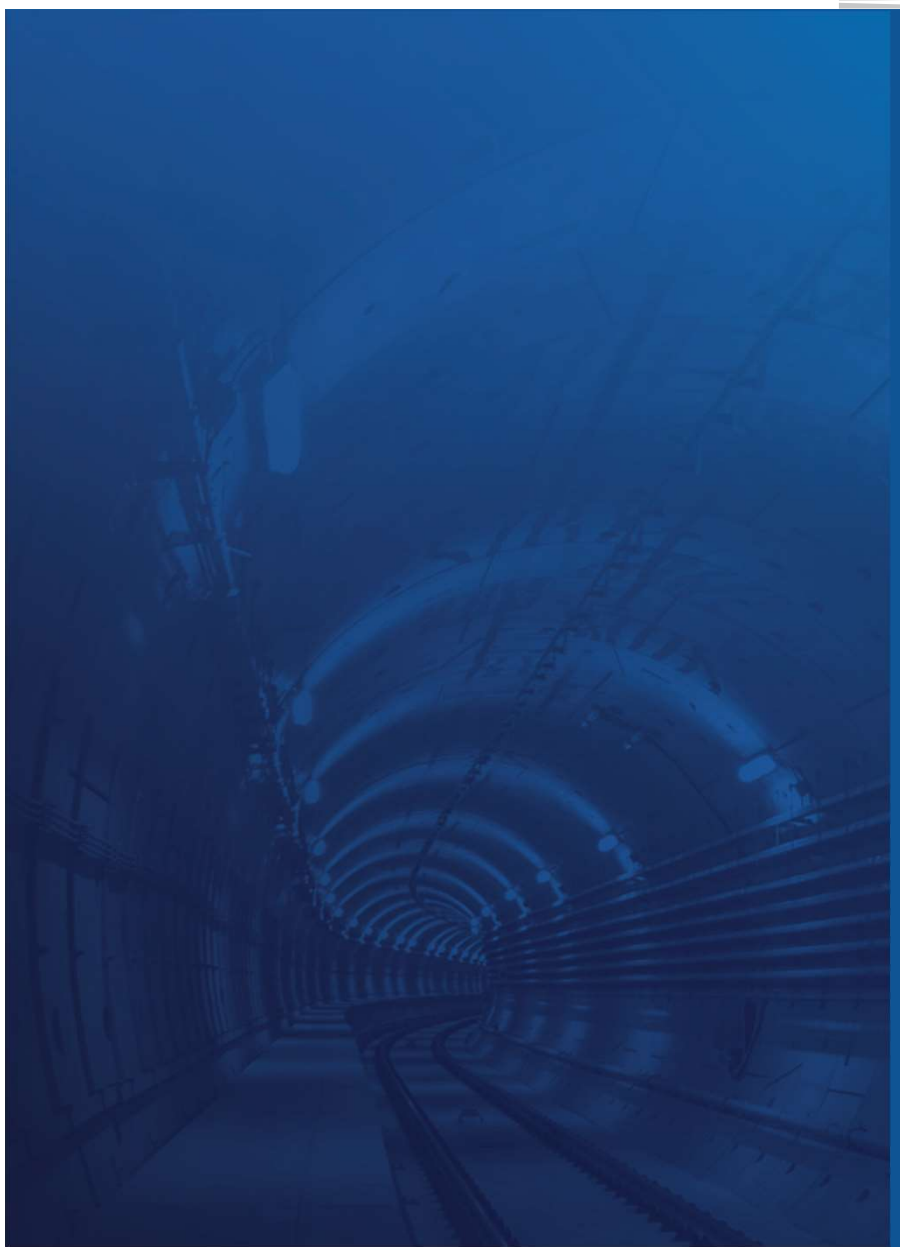


The role of nuclear energy in the EU low-carbon future

Hans RHEIN
DG ENER, European Commission

SYMPOSIUM UNION DE L'ENERGIE
« Solidarité, autonomie, interdépendance, sécurisation, segmentation et optimisation énergétique européenne »

Paris, 15-16 May 2019

Energy

Energy Union

Energy Union Governance

1. Energy Efficiency

2. Integrated energy market

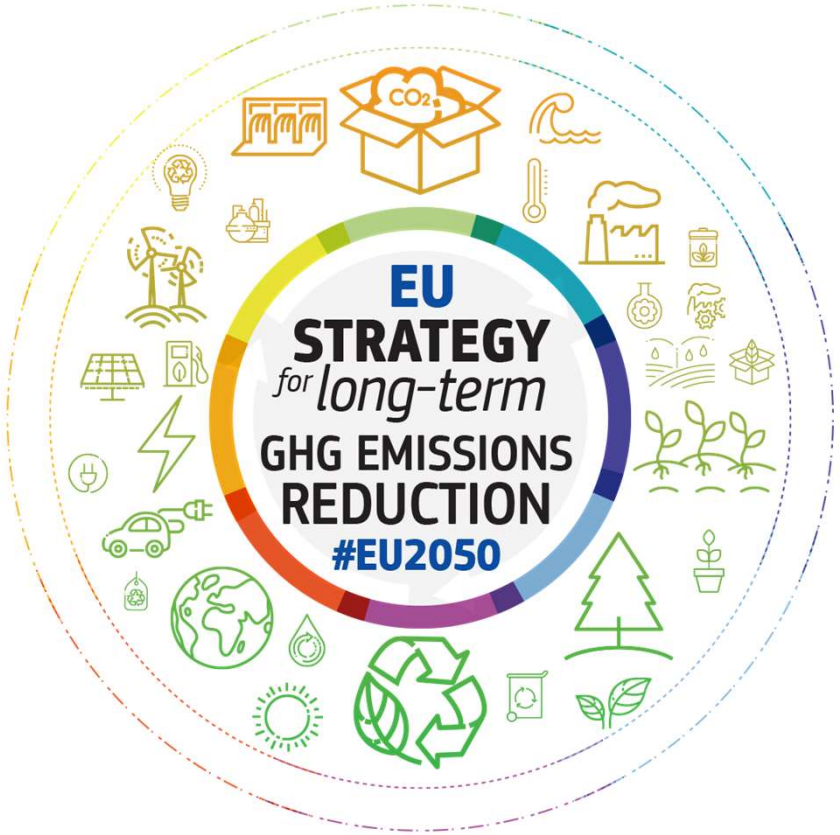
3. Research, Innovation and Competitiveness

4. Decarbonising the economy

5. Energy security, solidarity and trust

A Clean Planet for all

A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy



Paris Agreement objective:
to keep temperature increase well below 2°C and to pursue efforts to limit it to 1.5°C

For the **EU to lead the world in climate action**, it means achieving **net-zero greenhouse gas emissions by 2050**

The EU with this vision can inform others how we can deliver collectively a clean planet

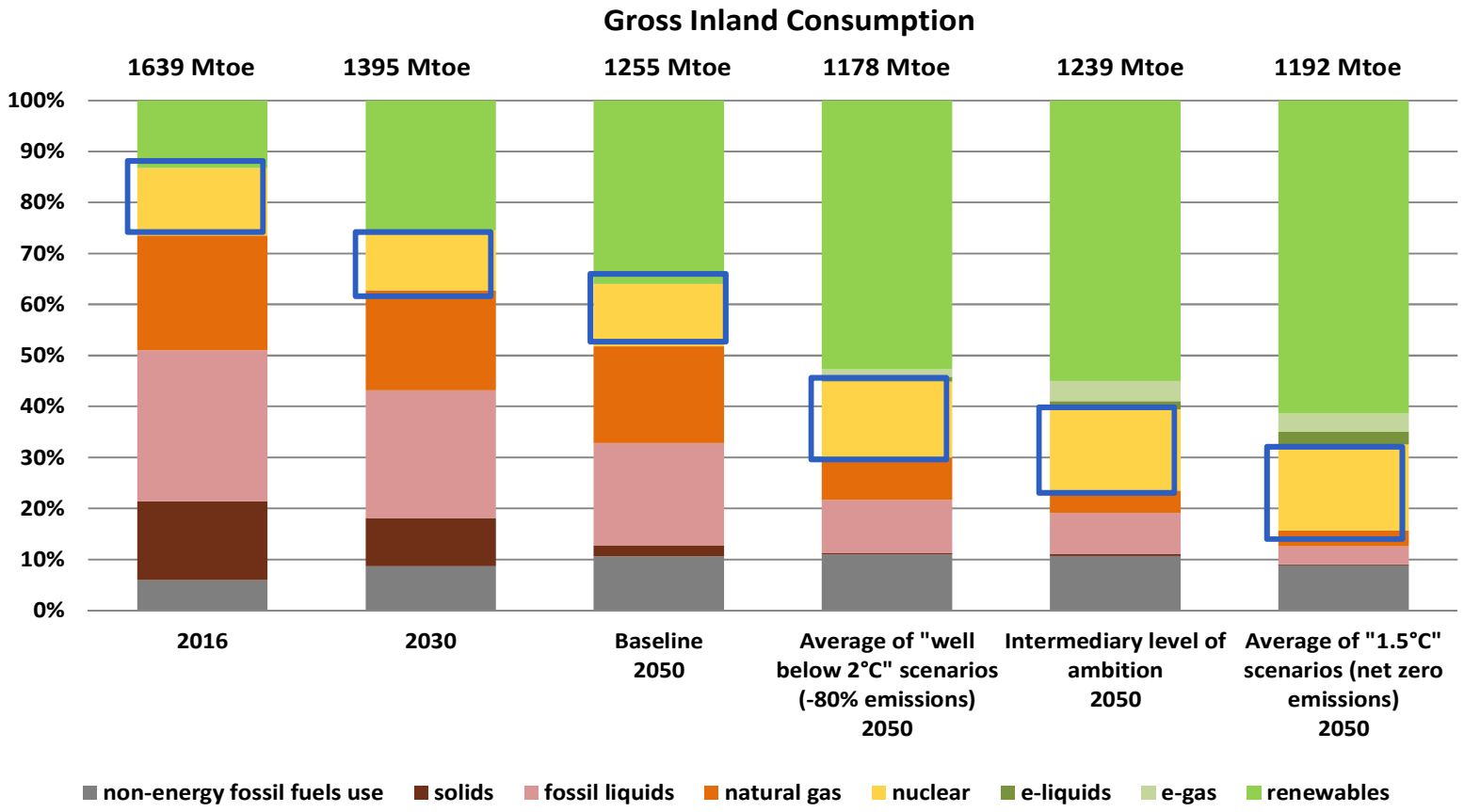
The Long Term Strategy shows **transforming our economy is possible and beneficial**

Commission will continue its LTS **outreach to Member States and to third countries** throughout 2019

European Commission

Our vision for the Power Sector

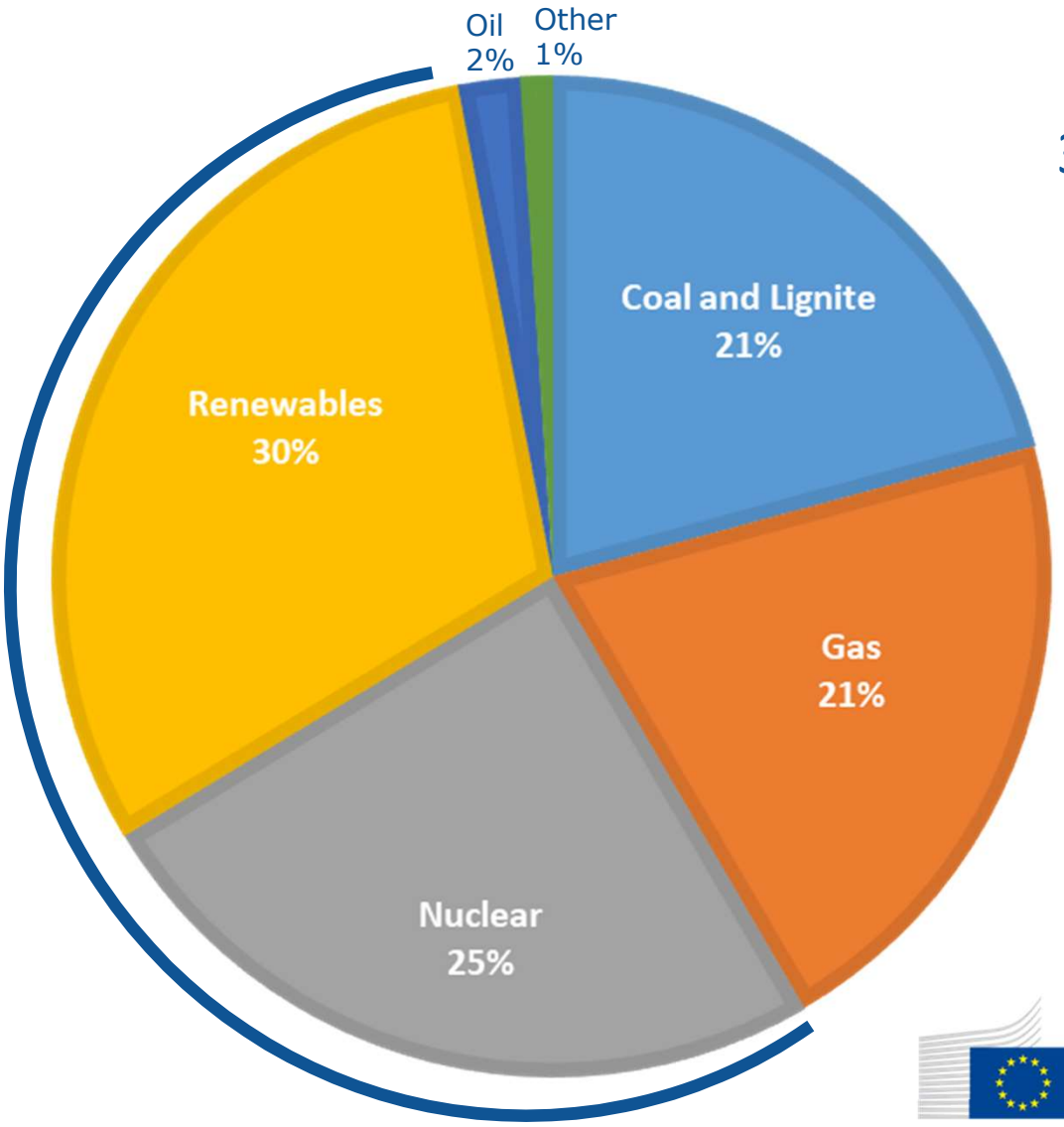
Power is nearly decarbonised by 2050 in all 8 scenarios provided.
Strong penetration of Renewables and **Nuclear still plays a role**



European Commission

Nuclear Power in the electricity mix

EU-28 gross electricity generation in 2017



Total
3294 TWh

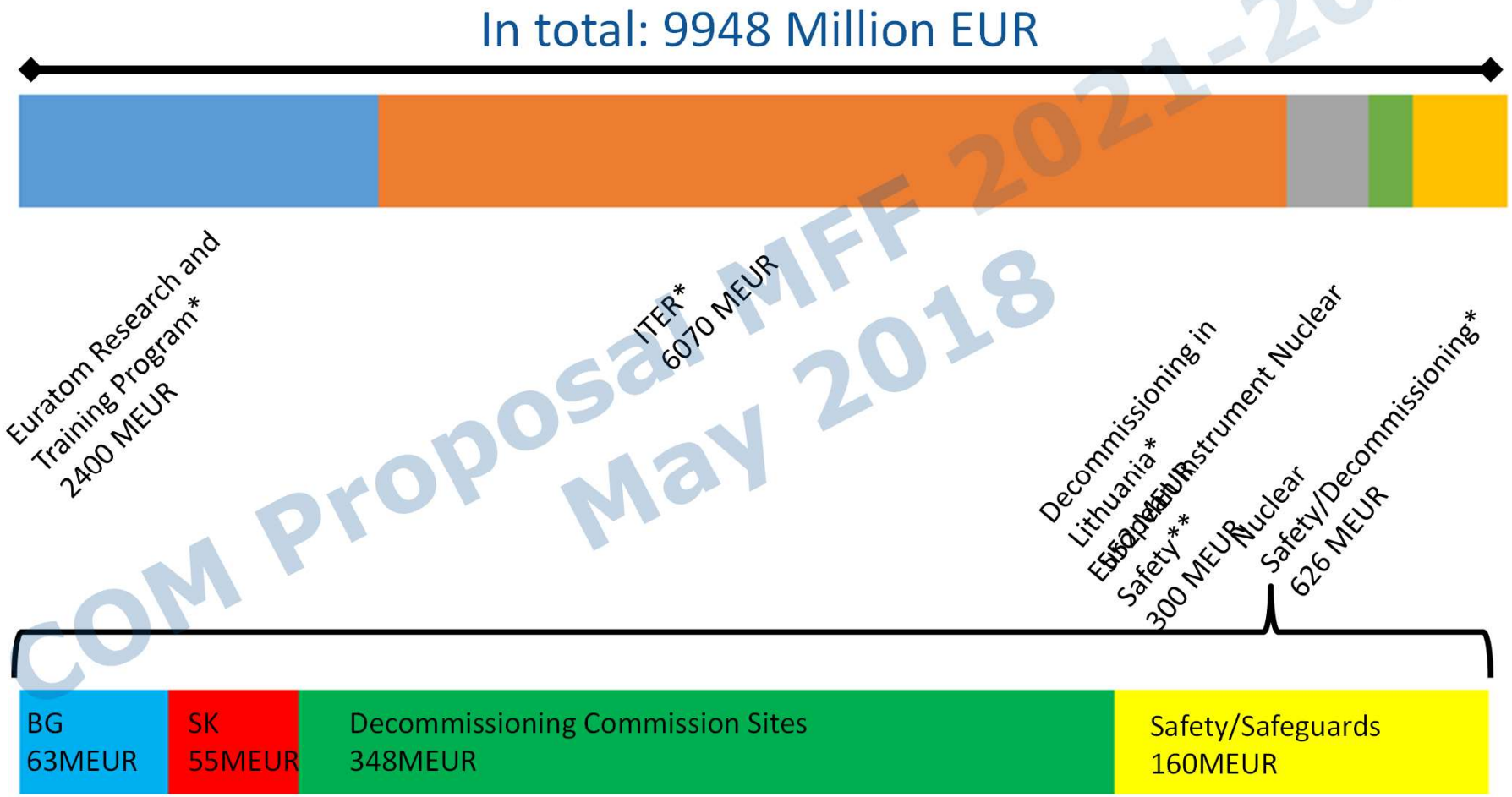
Low Carbon
55%

European Commission

Multiannual Financial Framework

2021-2027

Funding proposed related to nuclear/Euratom activities

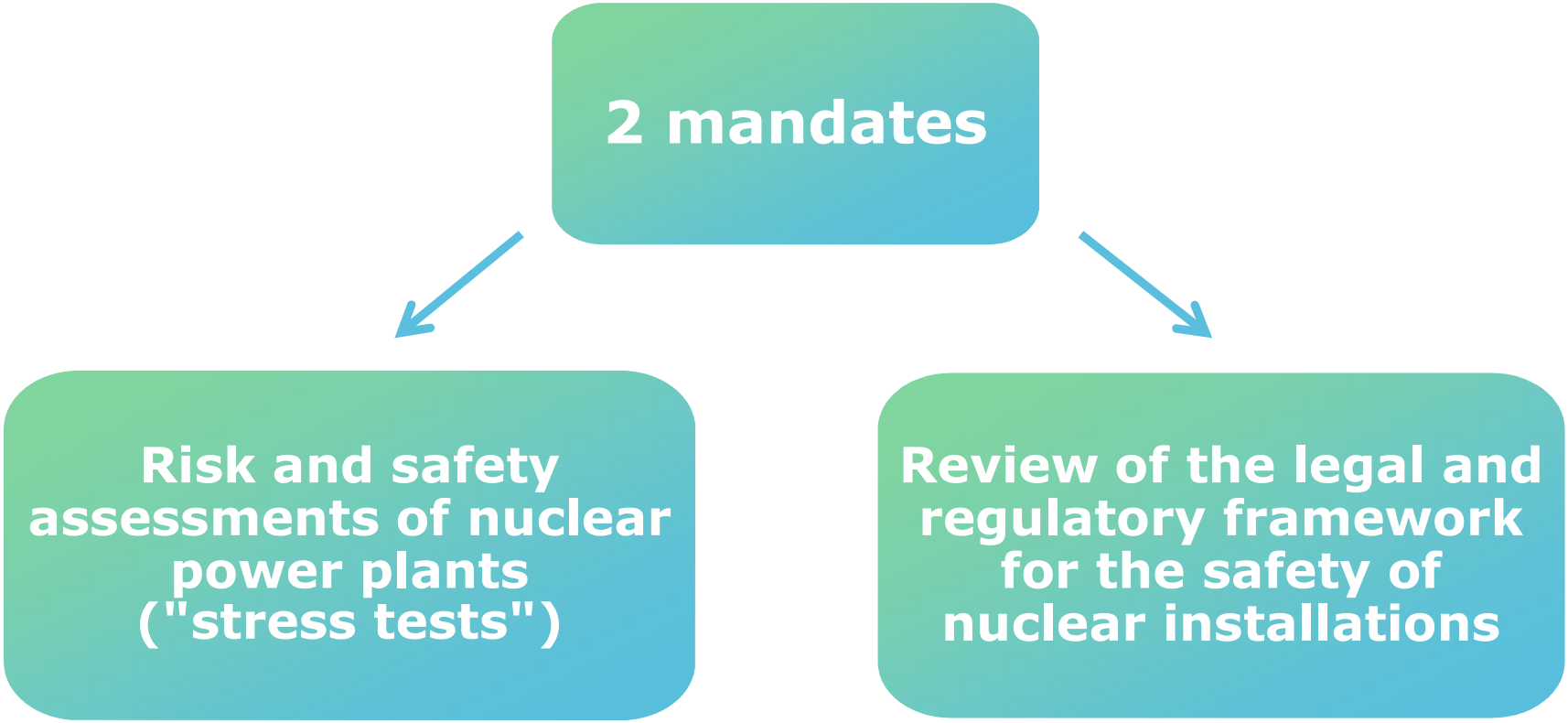


*Commission Proposal COM(2018)321 Annex I, "The Multiannual Financial Framework for 2021-2027"

**Commission Proposal COM(2018)462, "European Instrument for Nuclear Safety"

European Commission

Fukushima nuclear accident
European Council 24-25 March 2011



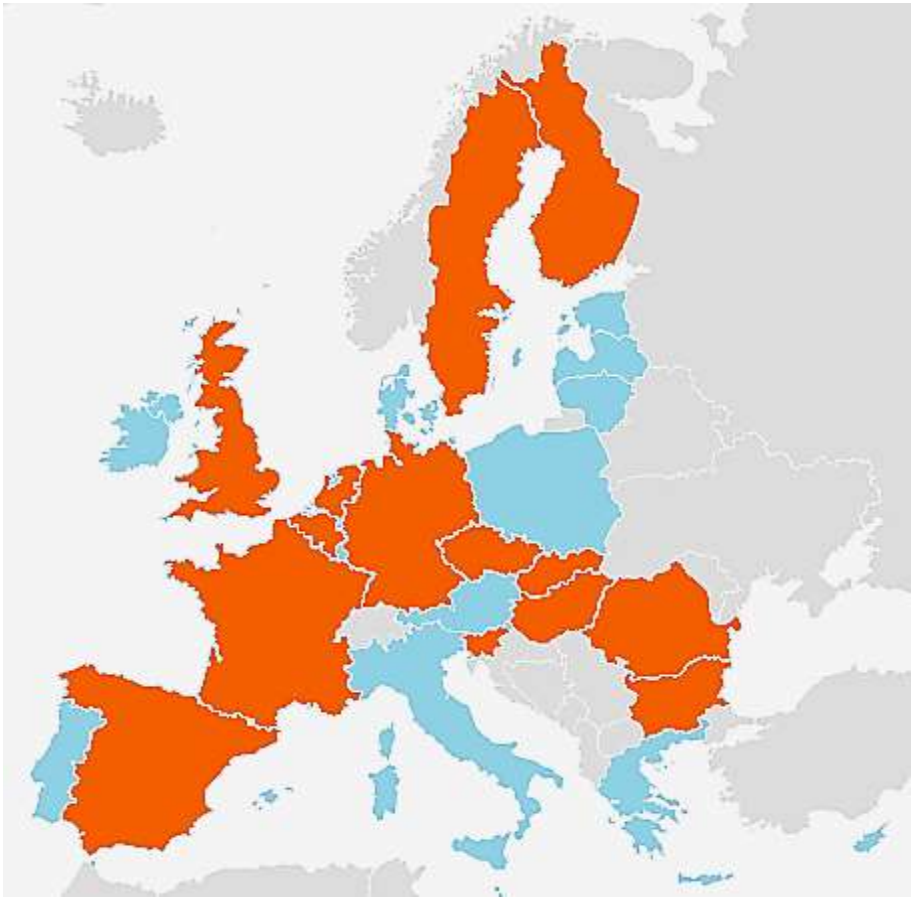
European Commission

EU Stress Tests in 2012

ENSREG
European Nuclear Safety Regulators Group

All 14 EU Member States that operate nuclear power plants, plus Lithuania, Switzerland, Ukraine. Additionally, Taiwan (2013), Armenia (2016) and Belarus (2018).

Planned in Turkey and Iran.



European Commission

Euratom legal framework

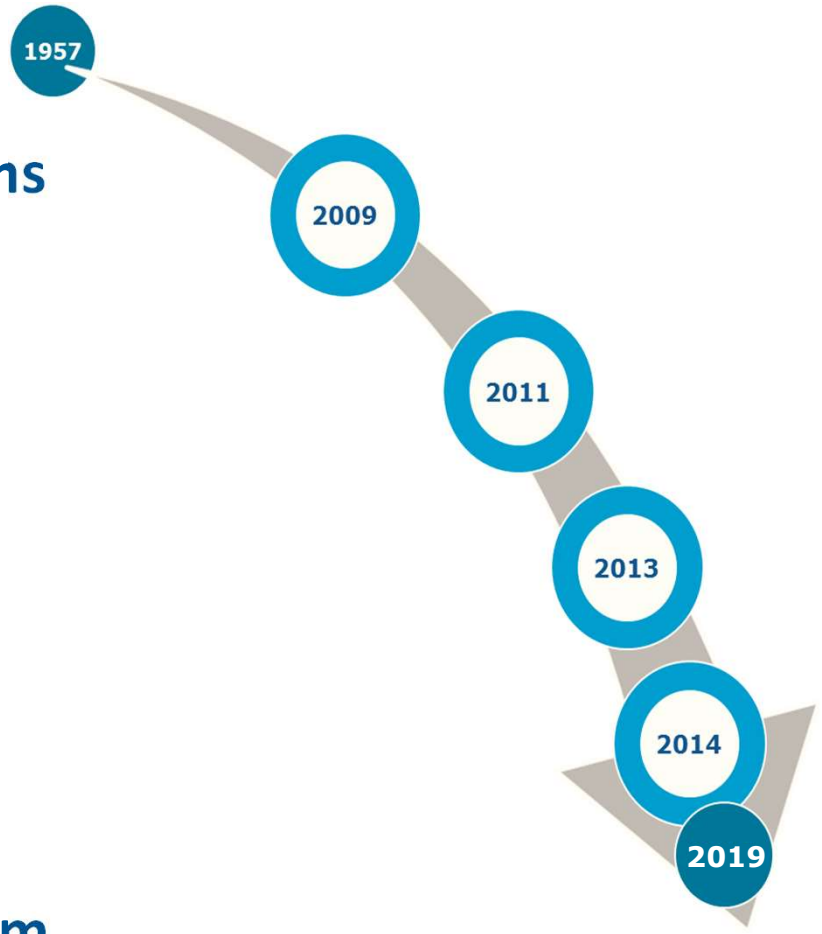
Directive 2009/71/Euratom
Nuclear Safety of nuclear installations

Directive 2011/70/Euratom
Spent Fuel and Waste Management

Directive 2013/51/Euratom
Euratom Drinking Water Directive

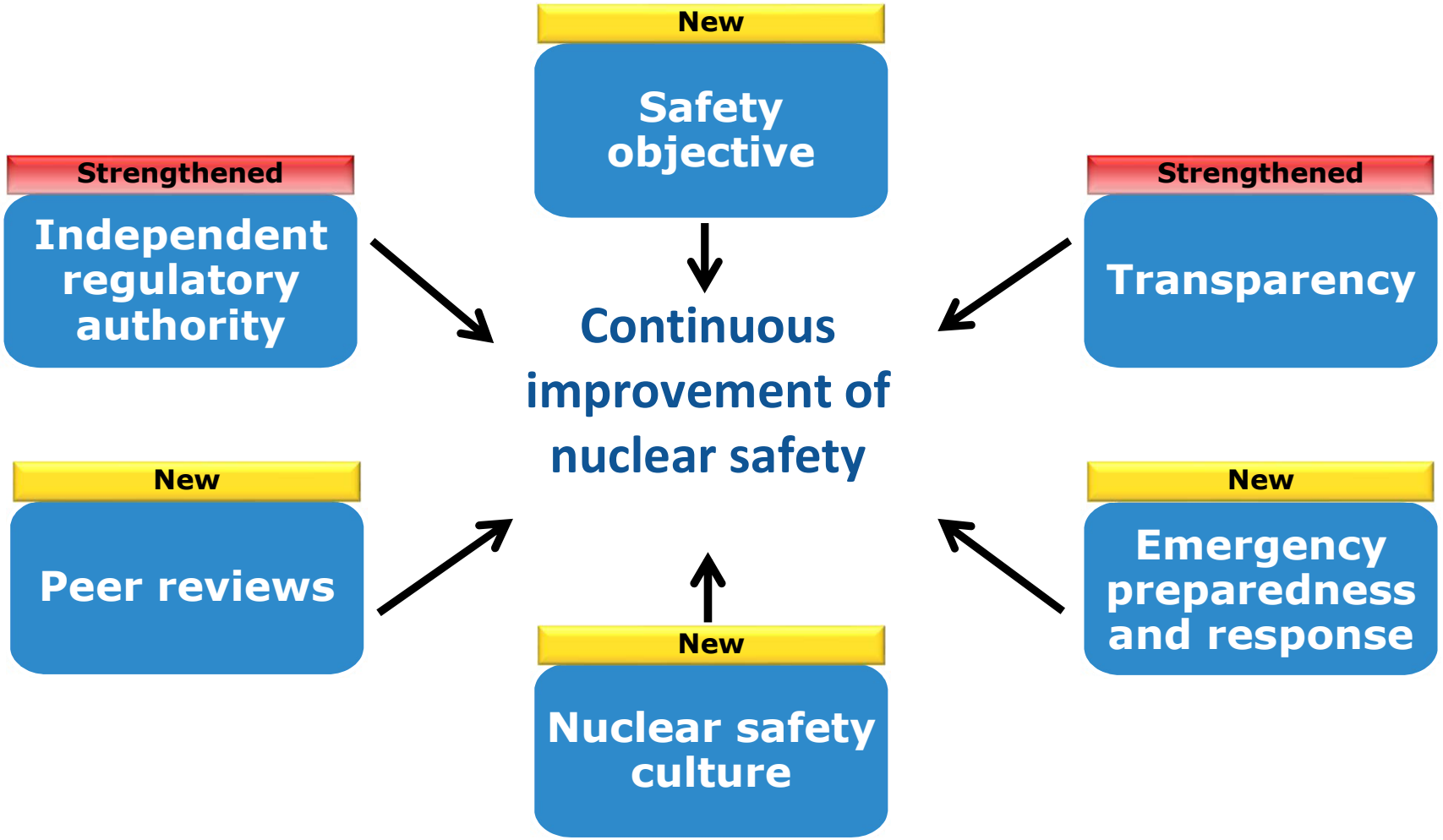
Directive 2013/59/Euratom
Basic Safety Standards

Directive 2014/87/Euratom
amending Directive 2009/71/Euratom



European Commission

Amended 2014 Nuclear Safety Directive



European Commission

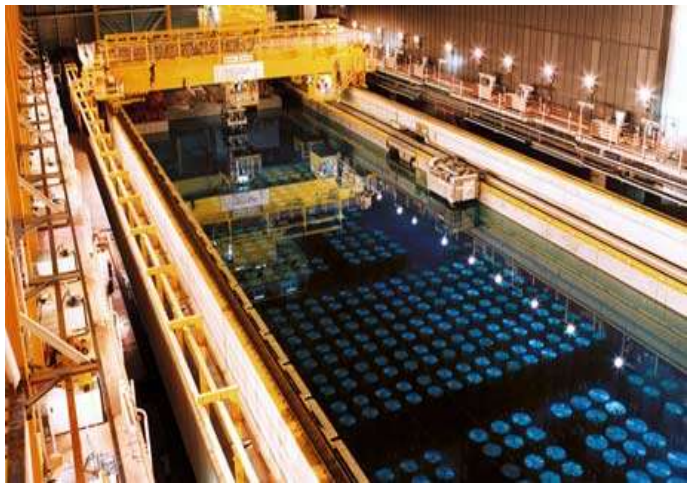
European system of Topical Peer Reviews

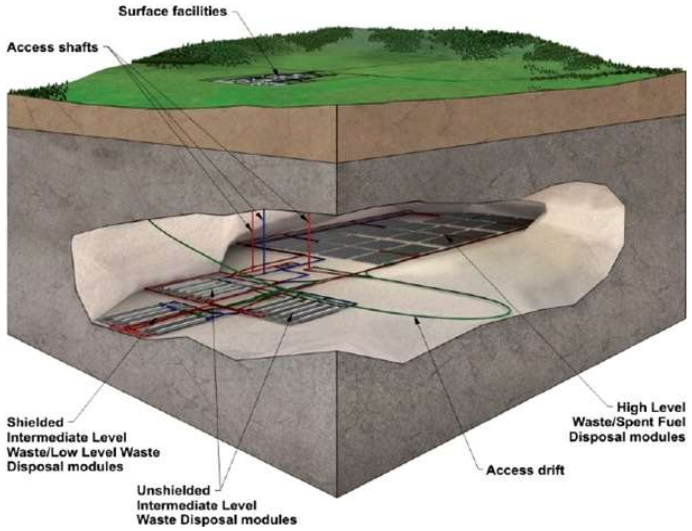
- Introduced by amended Nuclear Safety Directive → legally binding, every 6 years
- Inspired by successful EU nuclear stress tests
- 1st Topical Peer Review in 2017 :

  "Ageing management of nuclear power plants“ (e.g. reactor vessel, cables, reactor's containment) - final report October 2018

Radioactive Waste Directive

- Legally binding and enforceable standards
  for managing radioactive waste and spent fuel
- National programmes setting out concrete actions
- National reports on implementation



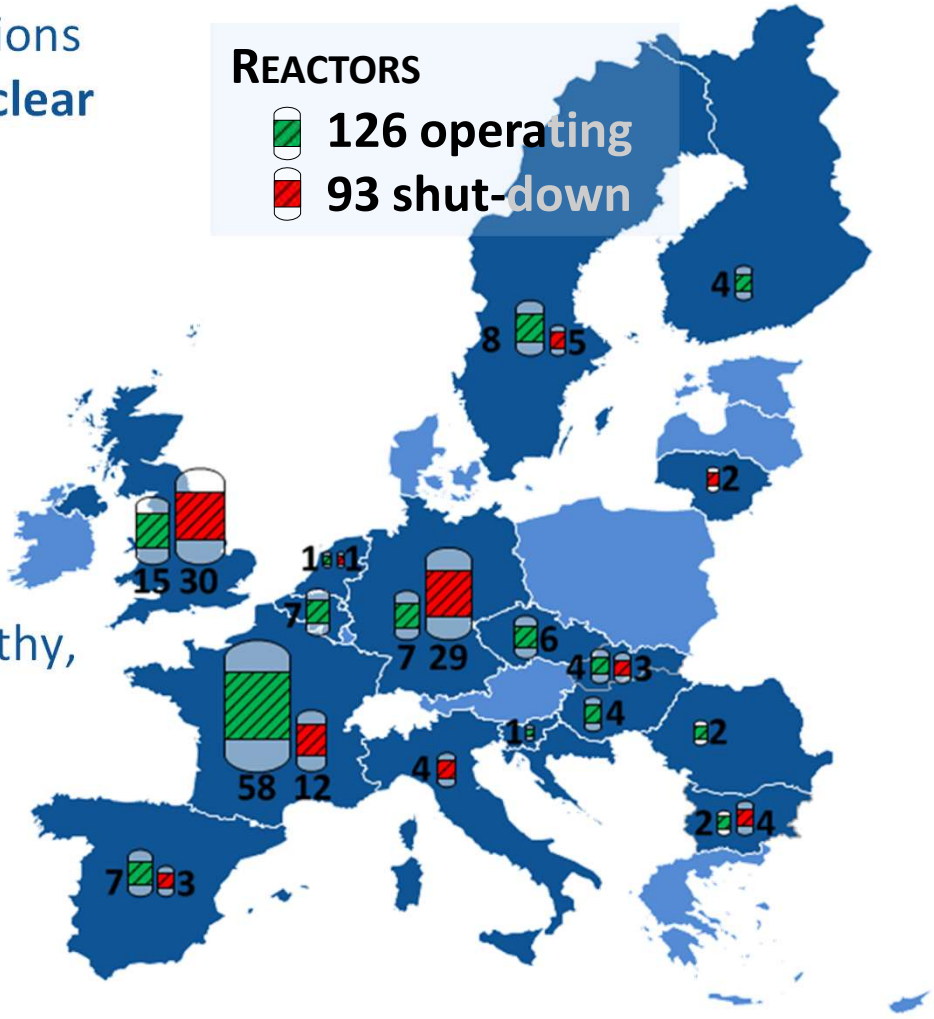


European Commission

Nuclear Decommissioning

After the shut-down of a nuclear installations **decommissioning is a key process for nuclear safety**

- The decommissioning of a nuclear installation such as a power plant or research reactor is the final step in its lifecycle which returns the sites for safe re-use
- The whole process is complex and lengthy, it is carried out with the **highest safety standards**
- The number of facilities to be decommissioned is increasing in the European Union

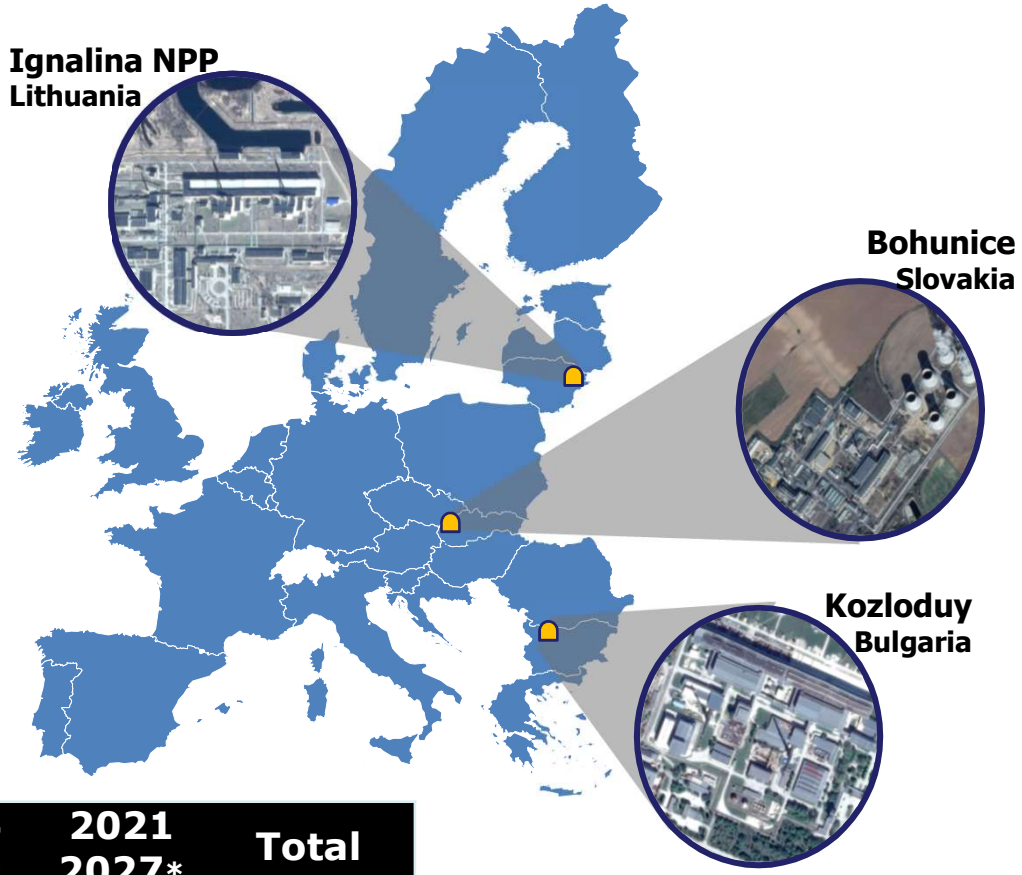


European Commission

Decommissioning Assistance Programmes

In the framework of their EU accession negotiations, Bulgaria, Lithuania and Slovakia took a formal commitment to close 8 reactors located on their territories.

Since the early 1990s, the Commission has been working closely with those MS to meet the closure commitments and to support the decommissioning process.

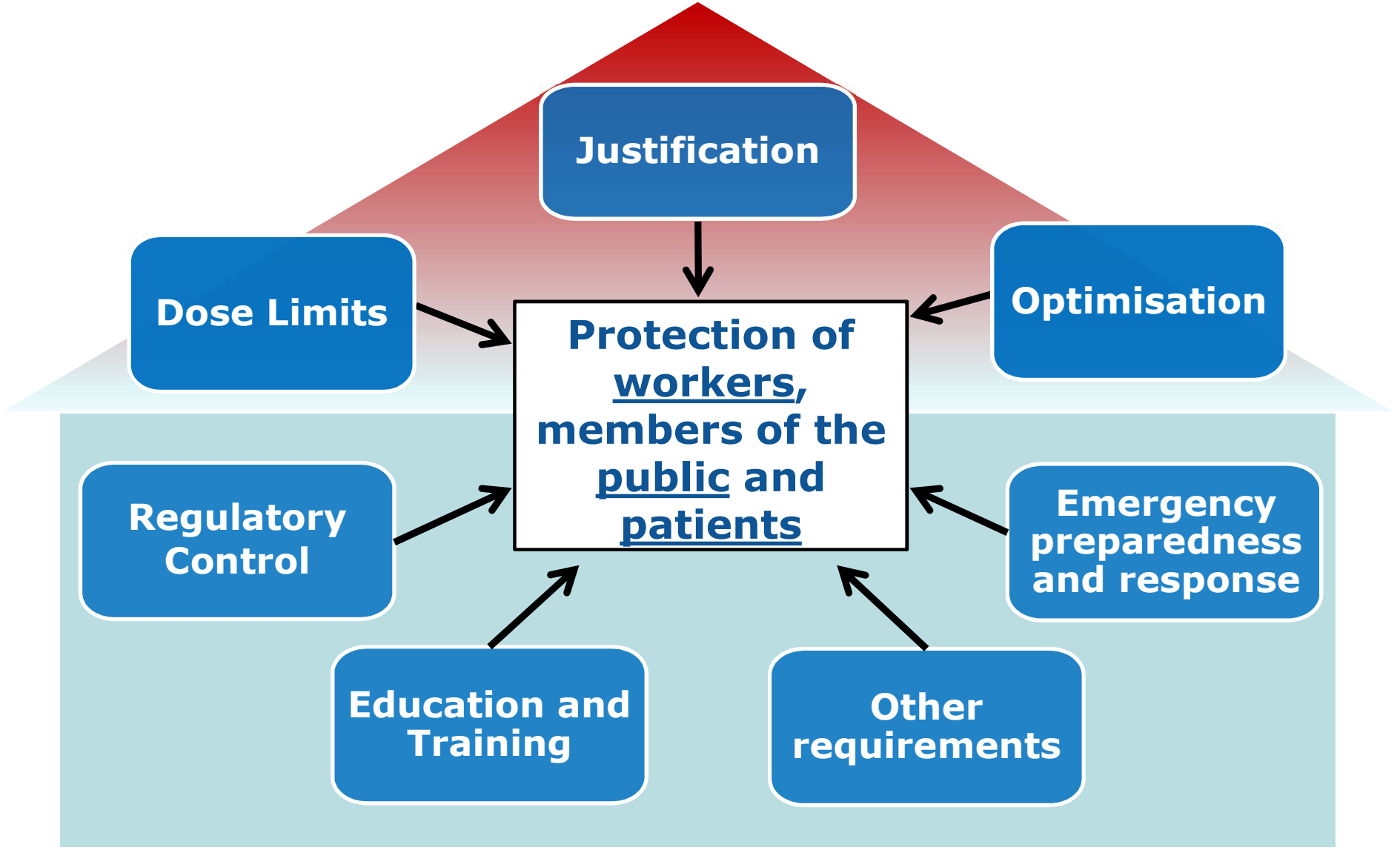


EUR million	To end 2009	2010 2013	2014 2020	2021 2027*	Total
Bulgaria	566	300	293	63	**1222**
Lithuania	875	492	451	552	**2370**
Slovakia	364	248	225	55	**892**
Total	**1805**	**1040**	**969**	**670**	**4484**

* Commission Proposal COM(2018)321

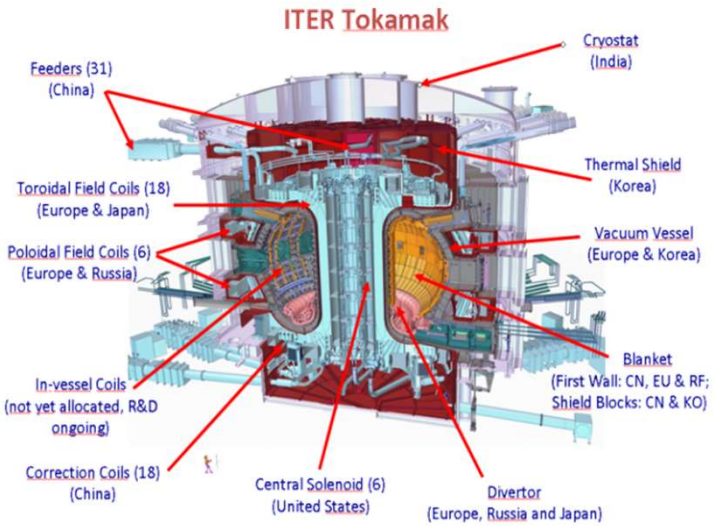
European Commission

Radiation Protection
Basic Safety Standards Directive



ITER - towards a new, clean, safe and nearly unlimited energy source

ITER



How the ITER site looks – February 2019

- International project being built in South of France aiming at demonstrating the scientific and technological feasibility of fusion energy

- EU, China, India, Japan, Korea, Russia and USA - Domestic Agencies to deliver "in-kind" and "in-cash" contributions to the ITER Organization

European Commission

Evident economic benefits

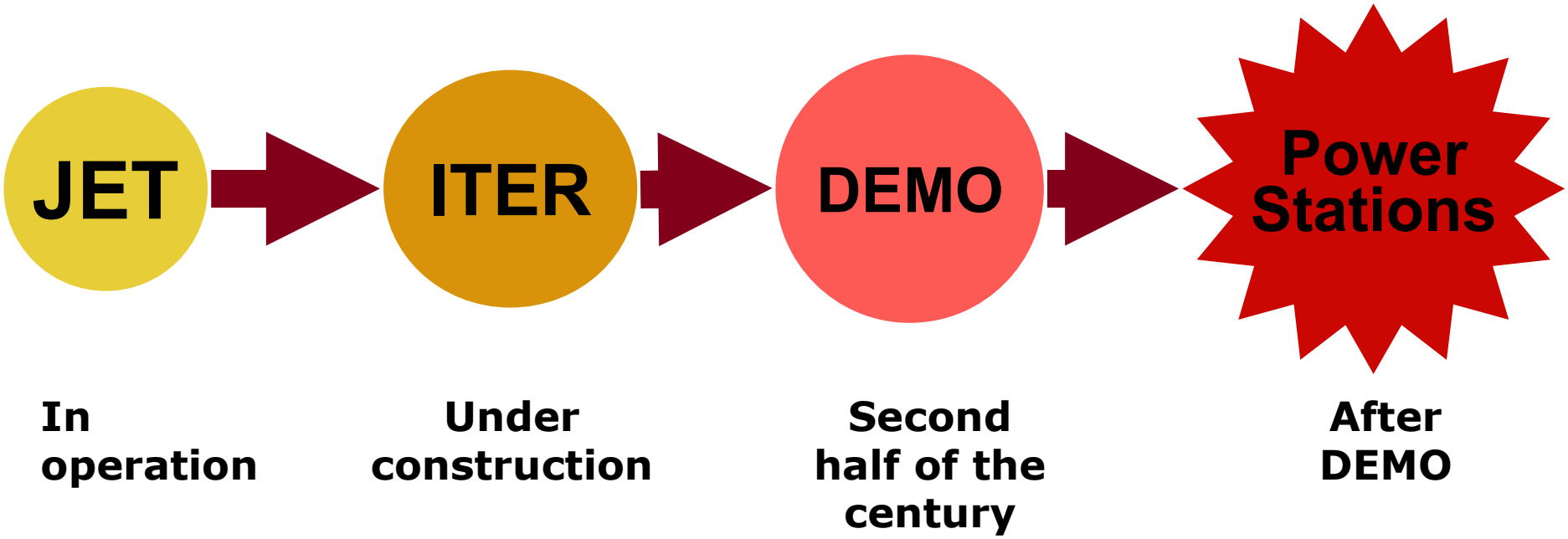
- Contracts and grants for ~ EUR 5.7 billion awarded to European companies and research centers
- Creation of new knowledge and cutting-edge technology by European companies
- Spin-off products (e.g. in energy and aeronautics)
- Close to 4.000 direct jobs created on site and 1.700 indirect jobs

...but with many challenges

- First of a kind nature - biggest fusion device
- Technological and industrial challenges with 35 countries sharing manufacturing
- Difficult management with 7 Domestic Agencies
- Complex international set up and governance

European Commission

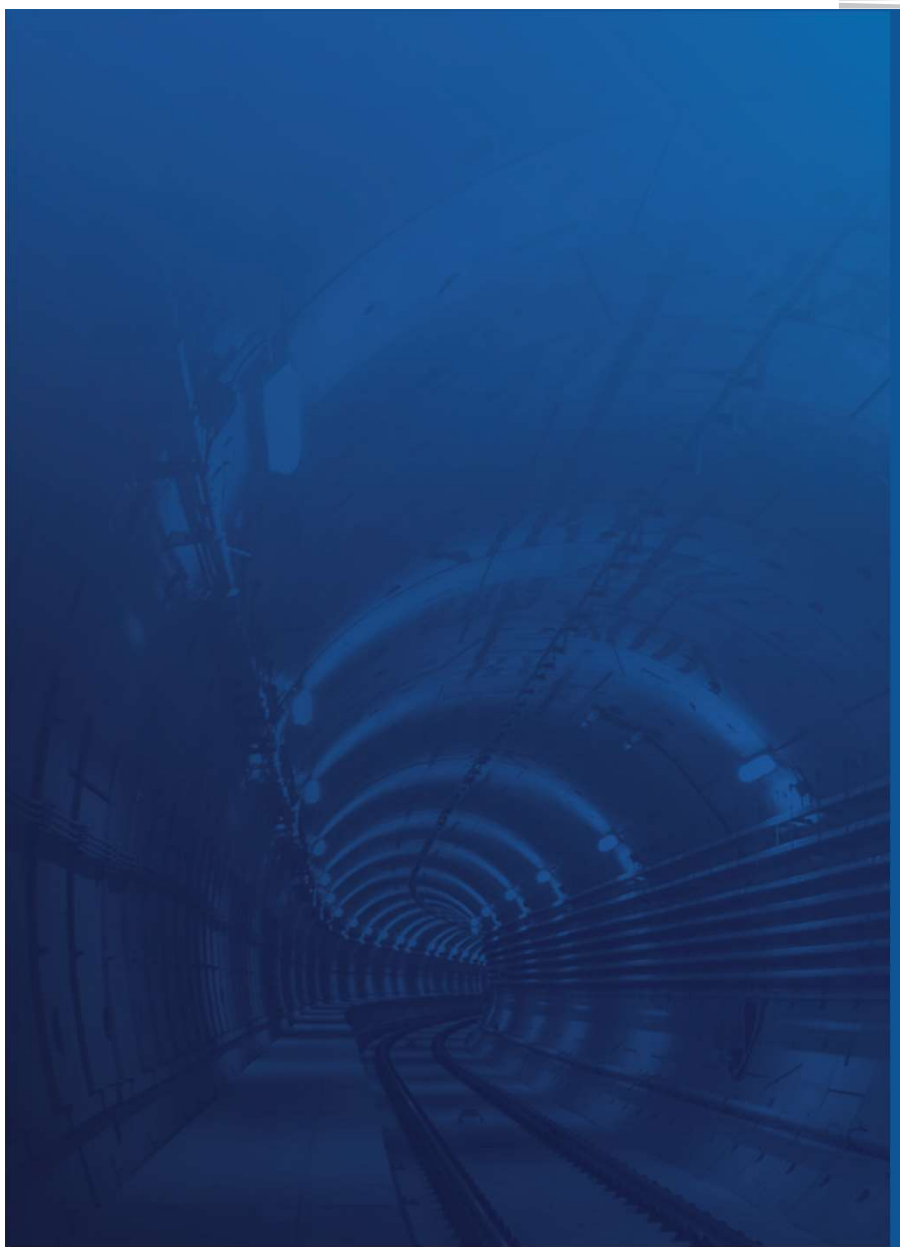
Fusion: a global strategic choice for the next 100 years



European Commission

Communication of April 9th – Future of Euratom

- The current decision making procedures under the Euratom Treaty:
  - have seen no major changes since its signature in 1957, and
  - need to evolve in line with a more united, stronger and democratic EU.
- To this end, the Communication proposes to:
  - reflect on how to enhance the involvement of the European Parliament and of national Parliaments in policy-making under the Euratom Treaty, and
  - establish a High Level Group of Experts assessing how to increase democratic accountability and transparency in the implementation of the Euratom Treaty.



European Commission

THANK YOU

https://ec.europa.eu/energy/en/home

Energy