

**Nuclear power yes please?!
Questions on current EU energy and
research policy at the 60th
anniversary of the EURATOM treaty**

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Linz, 25 April 2017

Euratom historic overview

1957

Treaties of Rome

Euratom as a pillar of the EC

1986
Single European Act

1997
Amsterdam Treaty

2007

Lisbon Treaty
Abolishes Euratom as a pillar of the EU

1965

Merger Treaty
establishing a joint Commission and Council of the European Communities

1992

Maastricht Treaty
Euratom remains a separate legal personality

2002-2003

Proposals to reform Euratom:
Penelope Paper, Praesidium Proposal, Nagy et al. Proposal

Euratom historic overview

2007
Launch of
ITER
project

2011
**Council Directive
2011/70/Euratom**
framework for the
responsible and
safe management
of spent fuel and
radioactive waste

2013
Regulation on the
**Research and Training
Programme of Euratom
(2014-2018)**
*Horizon 2020
Framework Programme*

2011-2012
stress tests and
risk assessments
after Fukushima
accident 2011

2013
**Council Directive
2013/59/Euratom**
safety standards for
protection against the
dangers arising from
exposure to ionising
radiation

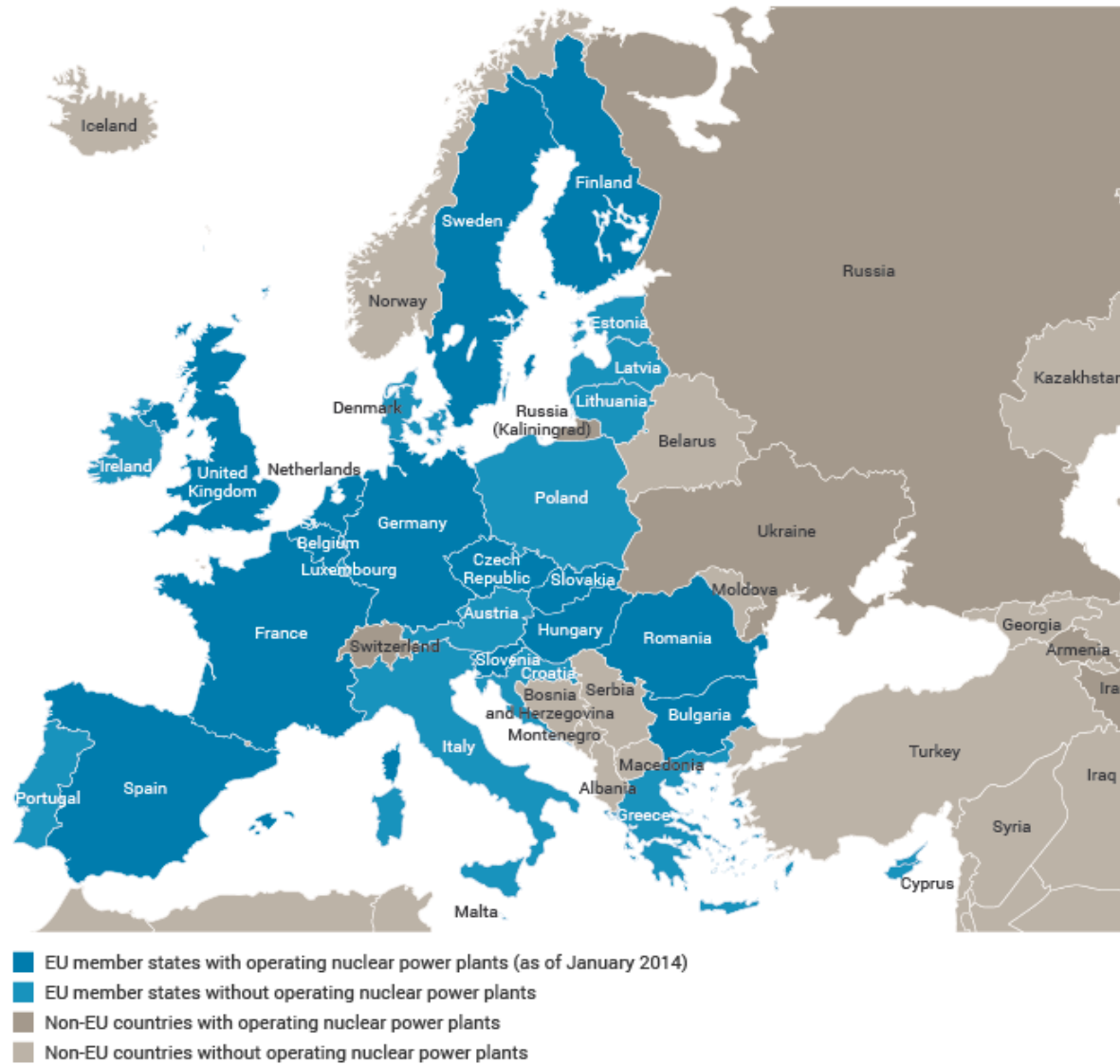
2014
**Council Directive
2014/87/Euratom**
amending Directive
2009/71/Euratom
framework for the
nuclear safety for
nuclear installations

Legislative framework

- Radiation protection
- Transport of radioactive substances and waste
- Waste management
- Safeguarding nuclear materials
- Safety of nuclear installations
- Nuclear research and training activities

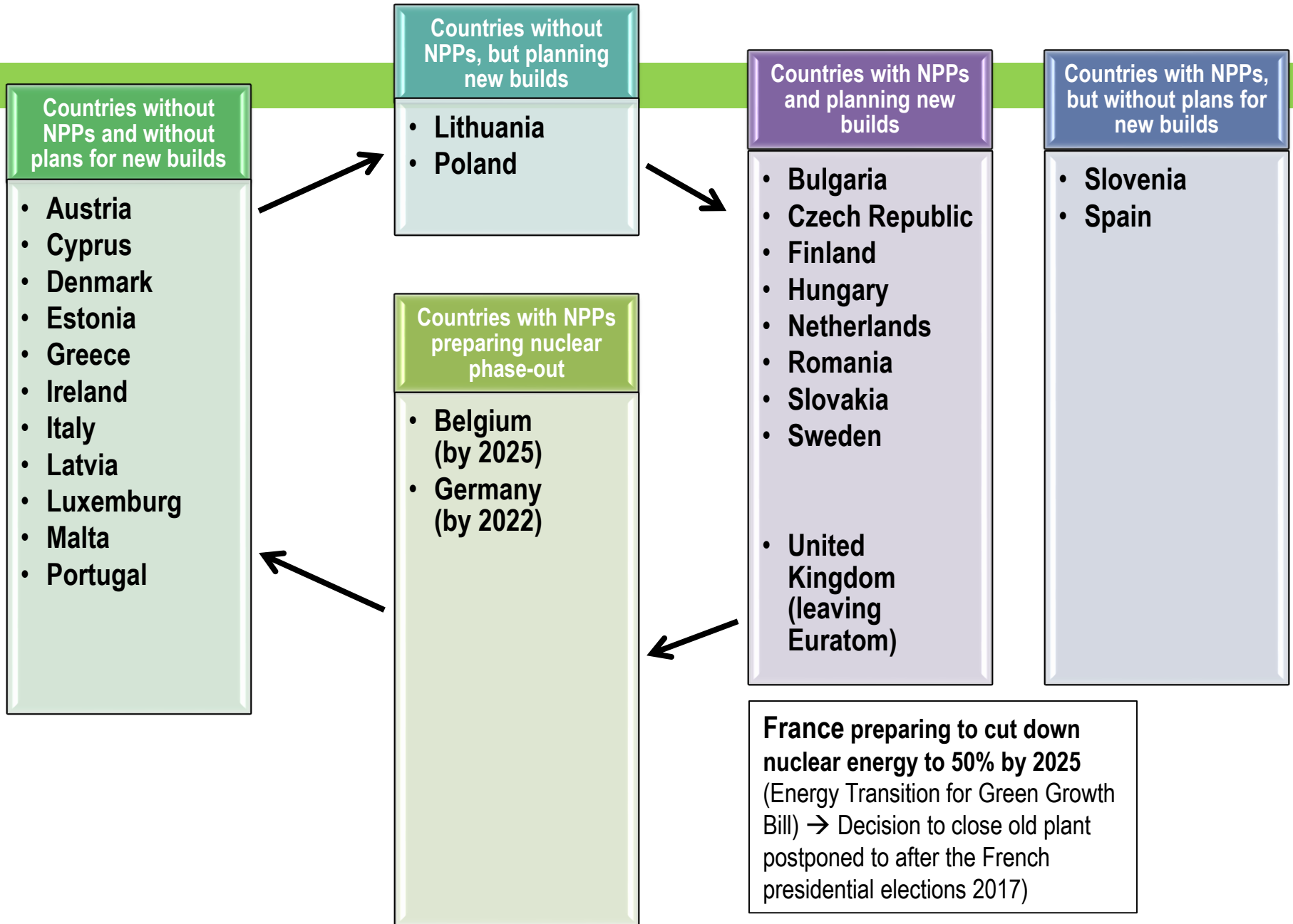
The lack of democratic legitimacy

- No co-decision procedure for the operational functions of EURATOM
- No scrutiny by the EP and national parliaments
- Limited public participation and low transparency
- The Common interest not always taken into account in its legislative acts



World Nuclear Forum (2017): Nuclear Power in the European Union, URL: <http://www.world-nuclear.org/information-library/country-profiles/others/european-union.aspx>

Divergent nuclear energy policies in EU Member States



The 7th Euratom Framework Programme for research and education purposes (2007-2013)

	2007-2011	2012-2013
Fusion energy research	1.947.000.000 Euro	2.208.809.000 Euro
- including support for ITER	1.047.000.000 Euro	1.300.000.000 Euro
Nuclear fission and radiation protection	287.000.000 Euro	118.245.000 Euro
Nuclear research and operations for ensuring the nuclear technical security of the GFS	517.000.000 Euro	233.216.000 Euro

Source: Deutscher Bundestag/Wissenschaftliche Dienste (2016): Sachbestand: Einzelfragen zur finanziellen Förderung der Kernenergie durch die Europäische Atomgemeinschaft bzw. die Europäische Union, WD 4 - 3000 - 101/16, 1. September 2016.

The 2014-2018 Euratom Programme (Horizon 2020)

Fusion research	728.232.000 Euro
Nuclear fission and radiation protection	315.535.000 Euro
Nuclear research and operations for ensuring the nuclear technical security of the GFS	559.562.000 Euro

Source: Deutscher Bundestag/Wissenschaftliche Dienste (2016): Sachbestand: Einzelfragen zur finanziellen Förderung der Kernenergie durch die Europäische Atomgemeinschaft bzw. die Europäische Union, WD 4 - 3000 - 101/16, 1. September 2016.

The budgetary implementation 2014-2016 of the Euratom Framework Programme 2014-2018 (amounts in Euro):

	2014	2015	2016
Administrative Expenditure in Euratom's research and innovation programmes	15.707.146	13.482.000	13.448.882
Administrative Expenditure in the Euratom Programme – direct measures of the GFS	9.409.510	9.541.097	12.400.000
Euratom Fusion Energy	97.841.846	146.941.084	132.233.979
Euratom nuclear fission and radiation protection	417.357	30.875.121	59.135.715
Completion of previous Euratom programmes	58.499.975	40.191.089	16.581.759

Source: Deutscher Bundestag/Wissenschaftliche Dienste (2016): Sachbestand: Einzelfragen zur finanziellen Förderung der Kernenergie durch die Europäische Atomgemeinschaft bzw. die Europäische Union, WD 4 - 3000 - 101/16, 1. September 2016.

Nuclear Safety and Decommissioning Programmes in the EU

Programme	Time frame	Amount
Decommissioning of nuclear plants in Lithuania, Bulgaria and Slovakia (EBRD)	1999-2013	€ 2.85 billion
Decommissioning of nuclear plants in Lithuania, Bulgaria and Slovakia (EBRD)	2014-2020	€ 860 million
Programme on nuclear safety in countries to join the EU/ neighbouring EU countries	2014 - 20	€631 million
European Investment Bank (EIB) funding for <u>Euratom</u> (nuclear safety projects in Eastern Europe)	long-term loan facility	\$1.4 billion
Nuclear Decommissioning Assistance Programmes (NDAP)	1999 -2020	total financial support given predicted to be €3.8 billion

Nuclear safety and financial needs (PINC 2016)

Front end of fuel cycle

- Uranium resources and mining activities
- Functioning internal market for nuclear fuels
- Modernizing conversion and enrichment capabilities
- **no estimates available**

New nuclear power plants

- To replace existing nuclear power capacity upon closure of old plants
- estimates: **EUR 350-450 billion by 2050**

Investment requirements in nuclear fuel cycle

**Total estimate 2015-2050:
EUR 650-760 billion**

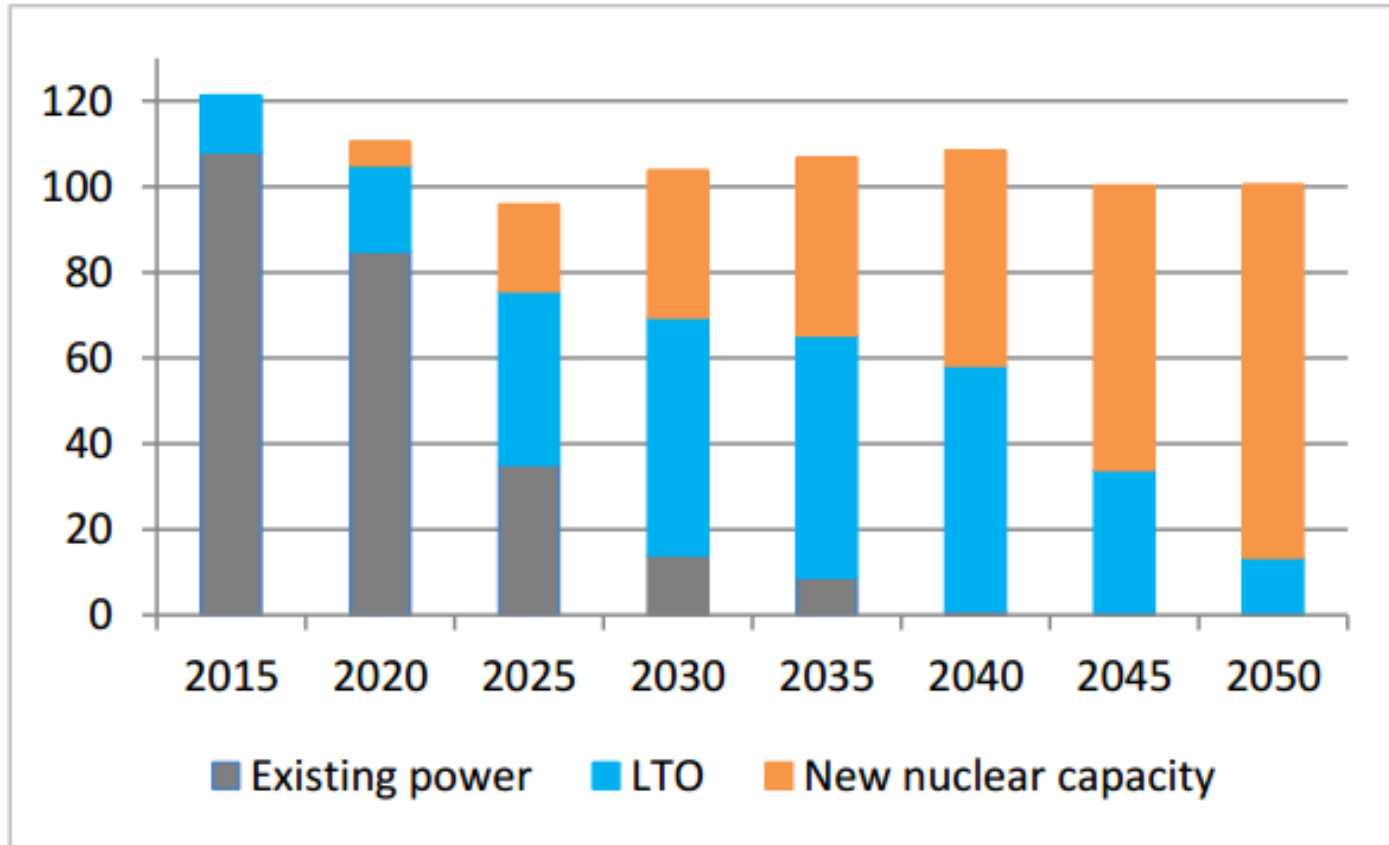
Safety upgrades and long-term operation of existing nuclear power plants

- estimates: **EUR 45-50 billion by 2050**

Back end of the fuel cycle

- Spent fuel and radioactive waste management
- Estimates: **EUR 130 billion by 2050**
- Decommissioning
- Estimates: **EUR 123 billion by 2050**

Figure 1 - Total EU nuclear capacity (GWe)



The World Nuclear Industry Status Report 2016

- Nuclear power generation in the world increased by 1,3%, entirely due to a 31% increase in China
- Early Closure, phase outs and constructions delays due to unfavorable economic environment
- With the exception of UAE and Belarus, all potential newcomer countries delayed construction decisions
- Nuclear giants in crisis – renewables take over

Possible scenarios for the future of EURATOM

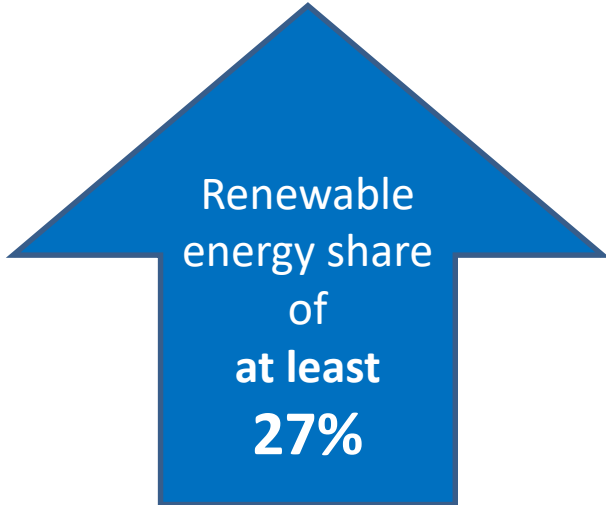
- Unilateral exit from the treaty
- Abolishing the EURATOM treaty and transferring competencies on nuclear safety to the TFEU
- Reform of the EURATOM treaty

EU climate and energy targets

2030 Climate and Energy Framework



Reduce
greenhouse
gas
emissions by
at least
40%

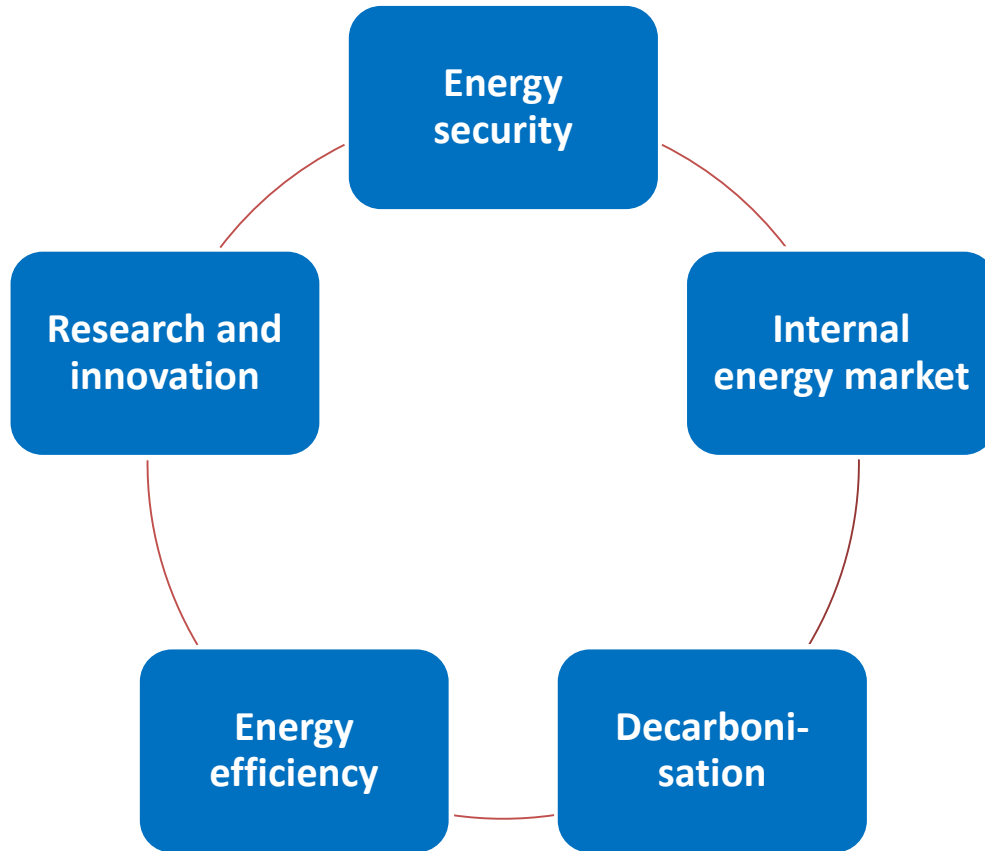


Renewable
energy share
of
at least
27%



Energy
savings of at
least **27%**
(upgrading
to **30%**)

Energy Union



Winter energy package proposals 2016 (Nov)

- Market Design Directive
- Renewable Energy Directive
- Energy Efficiency Directive
- Governance addressed in Renewable Energy Directive
- EU ESD: Targets for MS including LULU
 - Targets not in line with the Paris commitments and the Energy Union objectives to be Nr. 1 in renewables
 - New capacity mechanisms – possibility for subsidizing the building of new nuclear power plants at national level
 - Removing priority grid access and dispatch for renewables

European Community for Renewable Energy (ERENE) – major objectives

- To conduct research via research programmes and institutions, support dissemination of new technologies and facilitate innovation through the establishment of pilot projects
- To contribute to creation of a European electricity grid
- To establish joint undertakings
- To facilitate and promote investment in renewable energy through a common support scheme for electricity trade from renewable energy
- To further co-operation with other states in the area of renewable energy.

Suggestions for funding of ERENE

- to be financed by the participating Member States using **revenue from ETS**
- principle of “**geographical return**”
 - value of projects, investments and electricity-supply agreements distributed according to financial contributions of member states

Thank you for your attention

Sources

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