



European Green Deal – from myths to reality?

FORATOM Director General Yves Desbazeille

29.10.2020

Who we are



FORATOM acts as the voice of the European nuclear industry in energy policy discussions with EU Institutions and other key stakeholders.



Membership



The membership of **FORATOM** is made up of 15 national nuclear associations representing more than 3,000 companies.

Belgium

Bulgaria

Finland

France

Hungary

Italy

Netherlands

Romania



Slovakia

Slovenia

Spain

Sweden

Switzerland

Ukraine

United Kingdom

CEZ (Czech Republic), Fermi Energia (Estonia) and PGE EJ 1 (Poland) are Corporate Members

What we do

FORATOM provides information and expertise on the role of nuclear energy

POSITION PAPERS

FORATOM
THE VOICE OF THE EUROPEAN NUCLEAR INDUSTRY

THE BREXIT IMPACT ON NUCLEAR ENERGY

To avoid disruption across the whole nuclear fuel cycle, the EU should work closely with the UK Government to:

- Establish a new Nuclear Agreement with the UK as soon as possible, and arrangements for live levels in the nuclear sector.
- Continue to operate and collaborate on nuclear policy and regulation including safety programmes.
- Involve a variation period to minimise any disruption to the civil nuclear sector activities across the EU.
- Allow for the free movement of nuclear skills and know-how in the UK.
- Negotiate a new agreement that would allow the UK to continue to be involved in the European R&D programmes.
- Confirm validity of contracts already approved by the UK and the EU, along with the Agency for the supply of our materials for the EU's supply chain.

NUCLEAR INDUSTRY IN NUMBERS

- Accounts for 27% of electricity in the EU
- Almost 50% of low-carbon electricity
- Supports around 800,000 jobs
- Turnover of 70bn per year

EVENTS



DEBATES



MEDIA RELATIONS



SITE VISITS



Key topics



EU Energy Policy:

- Economics of nuclear
- EU energy mix
- Euratom Treaty
- Security of energy supply
- Sustainability
- Special projects - Brexit

Nuclear technology:

- Innovation, R&D
- Nuclear safety*
- Nuclear transport
- Supply chain
- Waste disposal

Communication:

- Nuclear advocacy
- Perception of nuclear energy
- Promotion of nuclear energy
- Public opinion

Legal aspects

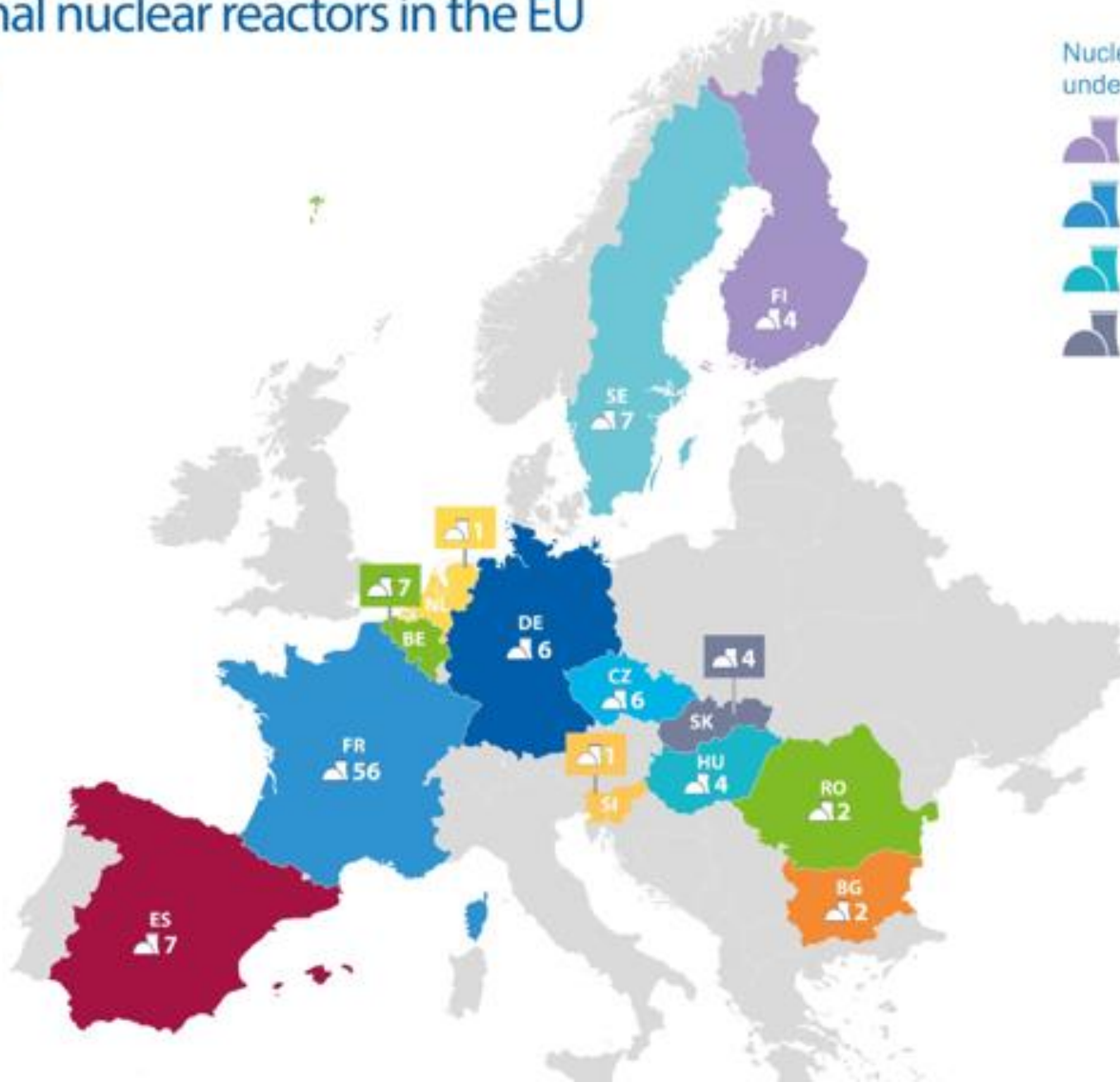
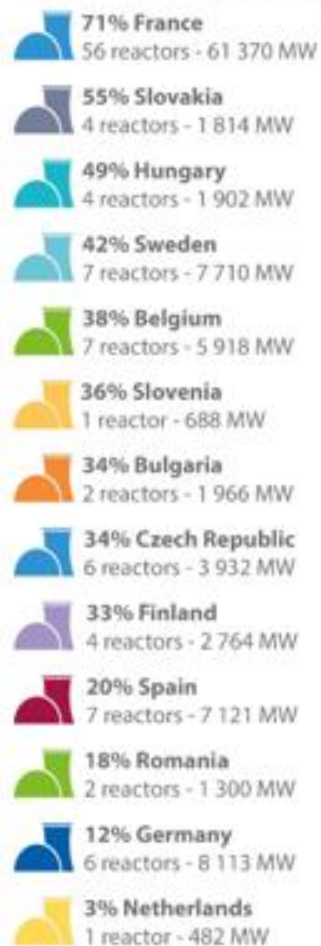
* Topic overseen by ENISS



Nuclear energy in the EU

107 Operational nuclear reactors in the EU

Nuclear share of electricity



Nuclear power plants under construction



ELECTRICITY PRODUCTION

26%



LOW-CARBON ELECTRICITY

50%



EU landscape



1. Many EU member states have recently announced their plans to invest in or continue using nuclear energy:

- Bulgaria
- Czech Republic
- Estonia
- Finland
- Hungary
- **Poland**
- Romania

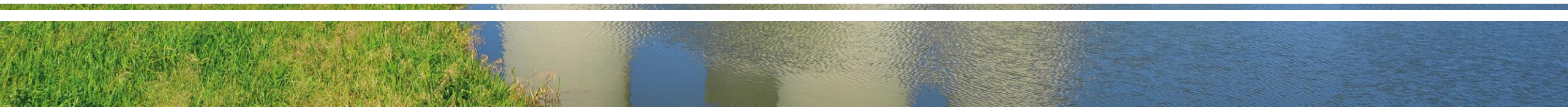
2. All nuclear projects, examined by the EC, have been cleared and will be carried out.

3. Each MS has the right to choose nuclear as part of its energy mix in line with the objectives of the Euratom Treaty.

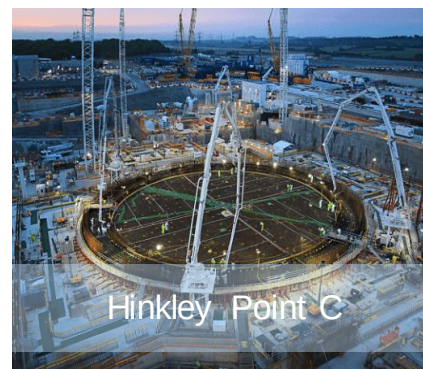
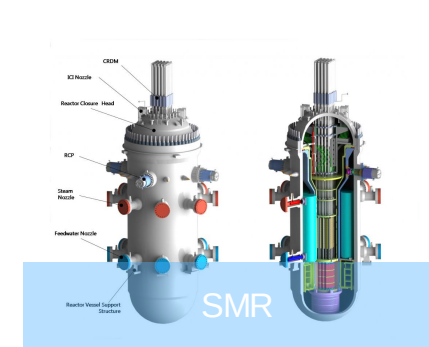
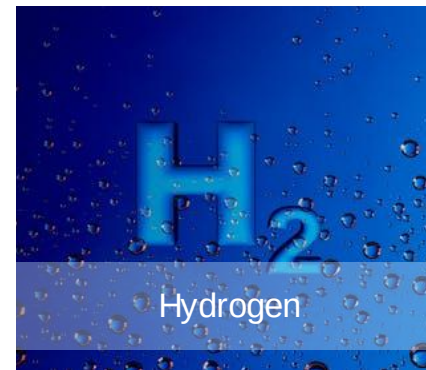
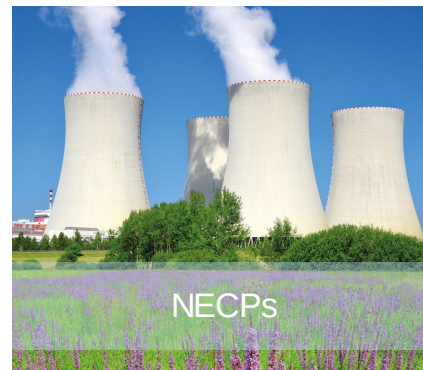




INITIATIVES IMPACTING THE NUCLEAR SECTOR

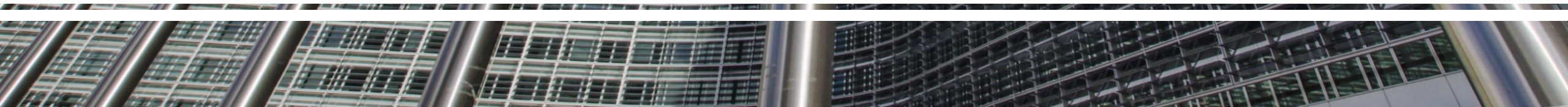


Initiatives impacting the nuclear sector





EUROPEAN GREEN DEAL



European Green Deal



Topics followed by FORATOM

list updated depending on the identified impact on nuclear

Climate ambitions

- EU Climate Law
- 2030 Climate Target Plan
- Review of relevant legislative measures – Energy Efficiency Directive review

Clean, affordable and secure energy

- Assessment of the final National Energy and Climate Plans
- Strategy for smart sector integration
- Hydrogen strategy

Industrial strategy for a clean and circular economy

- EU Industrial strategy
- Circular economy

Mainstreaming sustainability in all EU policies



European Green Deal



European Green Deal

“The European Green Deal is a roadmap for making the EU’s economy sustainable by turning climate and environmental challenges into opportunities across all policy areas and making the transition just and inclusive for all”.



What needs to be done?

- If the EU wants to achieve its zero-carbon target by 2050, the 2030 CO₂ reduction targets have to be ambitious enough.
- Commission should allow Member States to choose their own low-carbon energy mix.
- Commission should adopt a technology-neutral approach.
- Ensure a stable, coherent & consistent policy environment



EU Climate law and 2030 Climate Target Plan



What is included in the EU Climate Law



An EU-wide legal target for climate neutrality by 2050 that binds the **EU Institutions and national governments**.



Creating a **predictable business environment** for **industry and investors**, with the pace of emission reductions mapped out from 2030 to 2050, showing them what needs to be done, and at what speed.



A process to include in the Climate Law **the updated 2030 emissions reduction target**.



A **mechanism** for **keeping everybody on track** – with regular reporting on progress and tools to catch up if anyone falls behind



A focus on the effective transition towards a **fair and prosperous society**, with a **modern, resource efficient and competitive economy**.



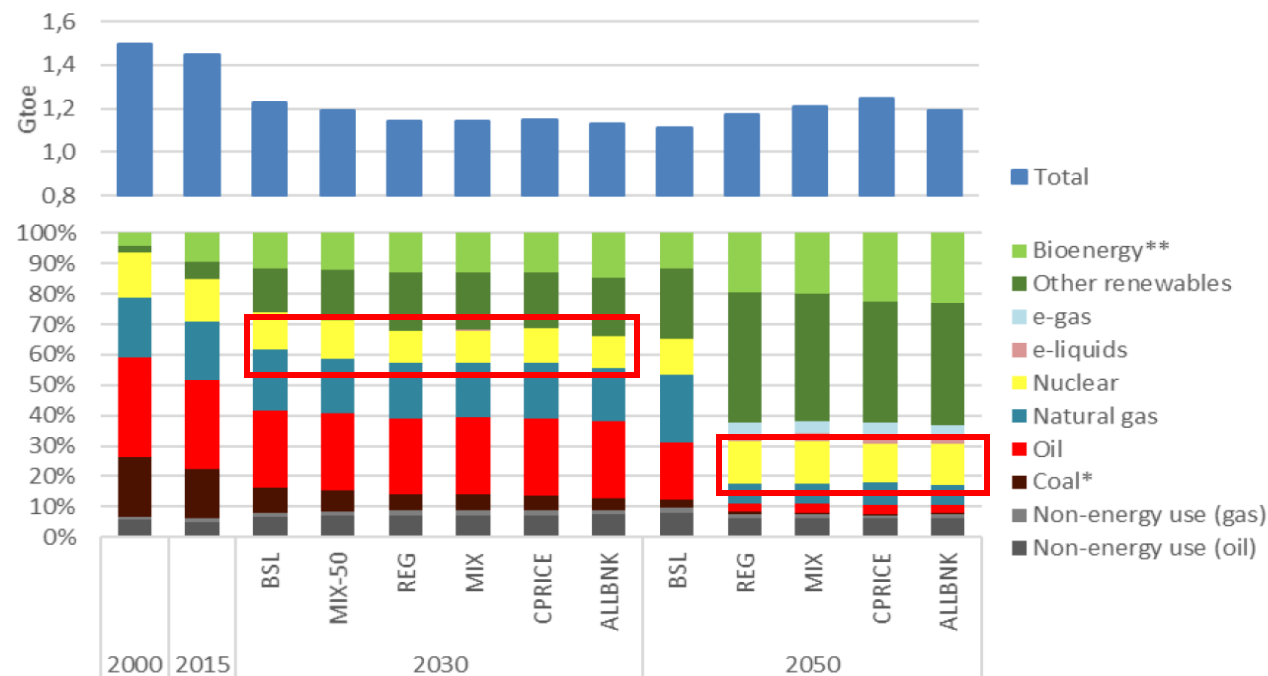
A renewed focus on adapting to the impacts of climate change to **strengthen Europe's resilience**, including for its **vulnerable communities**.

2030 Climate Target Plan



	Greenhouse Gas Emissions	Renewable Energy	Energy Efficiency
2020	- 20%	20%	
2030 – Clean Energy Package*	≤ -40%	≤32%	≤32.5%
2030 – Climate Target Plan	At least -50% towards 55%	TBD	TBD

* Concluded in 2019 ** European Parliament proposed 60%



Forecasts for nuclear:

- 2030 – between 11% and 13%
- 2050 – around 14%

Note: * includes peat, oil shale, ** includes waste

Energy gross inland consumption

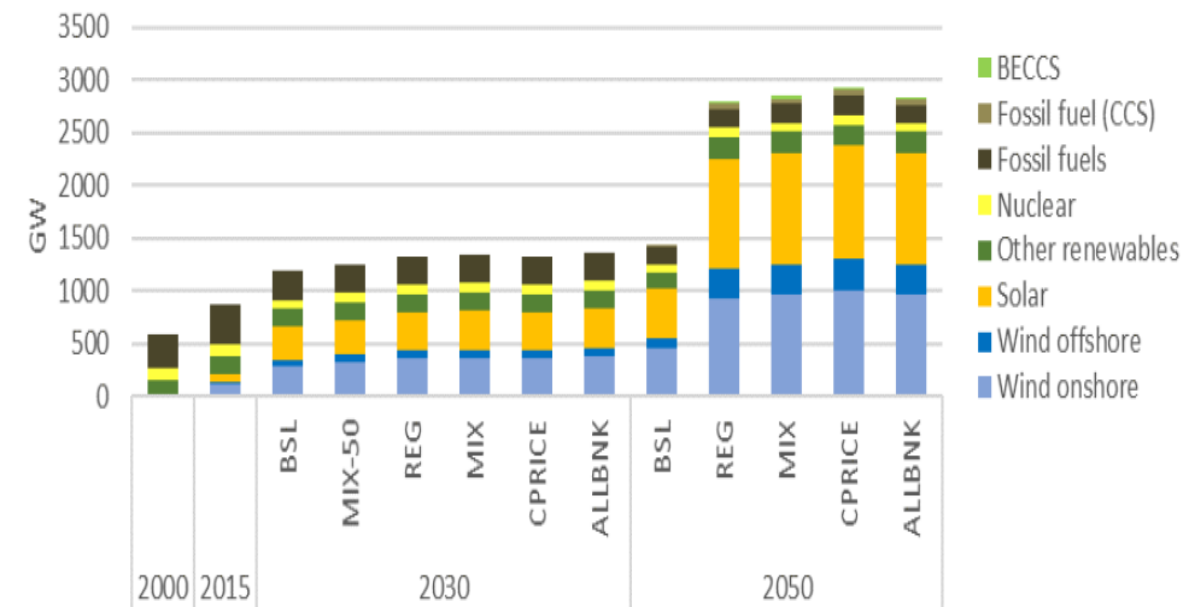
Source: 2000, 2015: Eurostat, 2030-2050: PRIMES model



www.foratom.org | foratom@foratom.org |

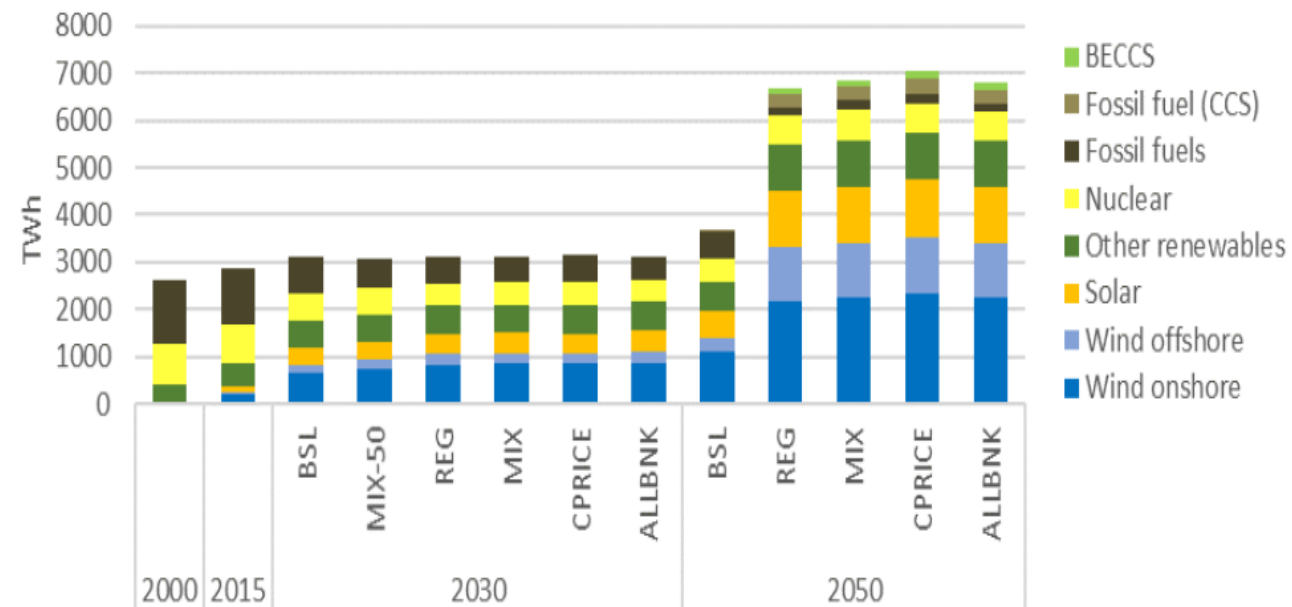
EC 2030 Climate Target Plan

● ● ●



Source: 2000, 2015: Eurostat, 2030-2050: PRIMES model

Installed power production capacities



Electricity production

“By 2030, the combined installed capacity of the EU’s nuclear power plants is projected to decline to 92 GW in all scenarios.”





National Energy and Climate Plans



EU assessment of Member States' NECPs

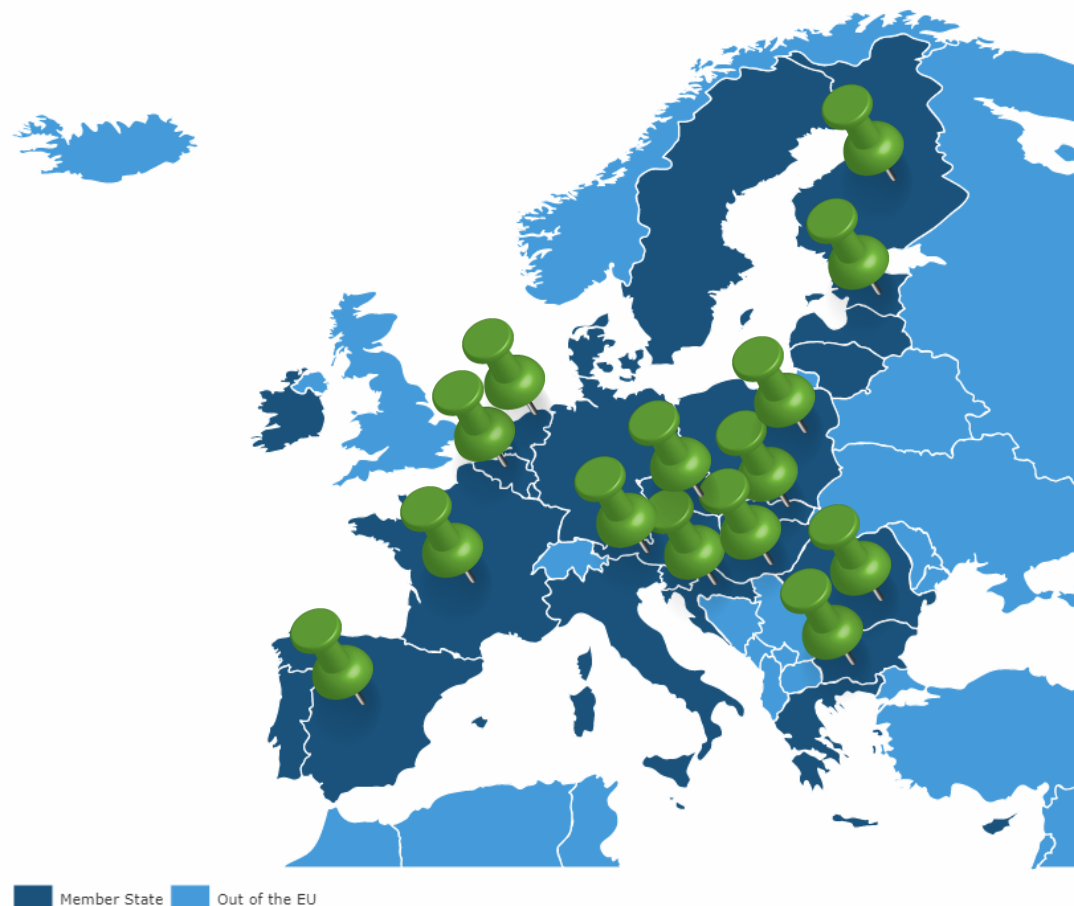
According to the communication on “An EU-wide assessment of National Energy and Climate Plans” published on **17 September**:

1. Member States with nuclear energy as part of their energy mix, presented their nuclear plans in their NECPs.
2. The Commission will continue to secure the application of the highest safety standards for nuclear technologies.
3. Concerned Member States should maintain adequate capacities in all the parts of the nuclear supply chain and ensure security of fuel supply to lead to safer facilities for people and the environment.

On **14 October** the Commission published the individual assessments and summaries for the NECPs for all 27 Member states and FORATOM is currently analysing them focusing on the impact on the nuclear sector

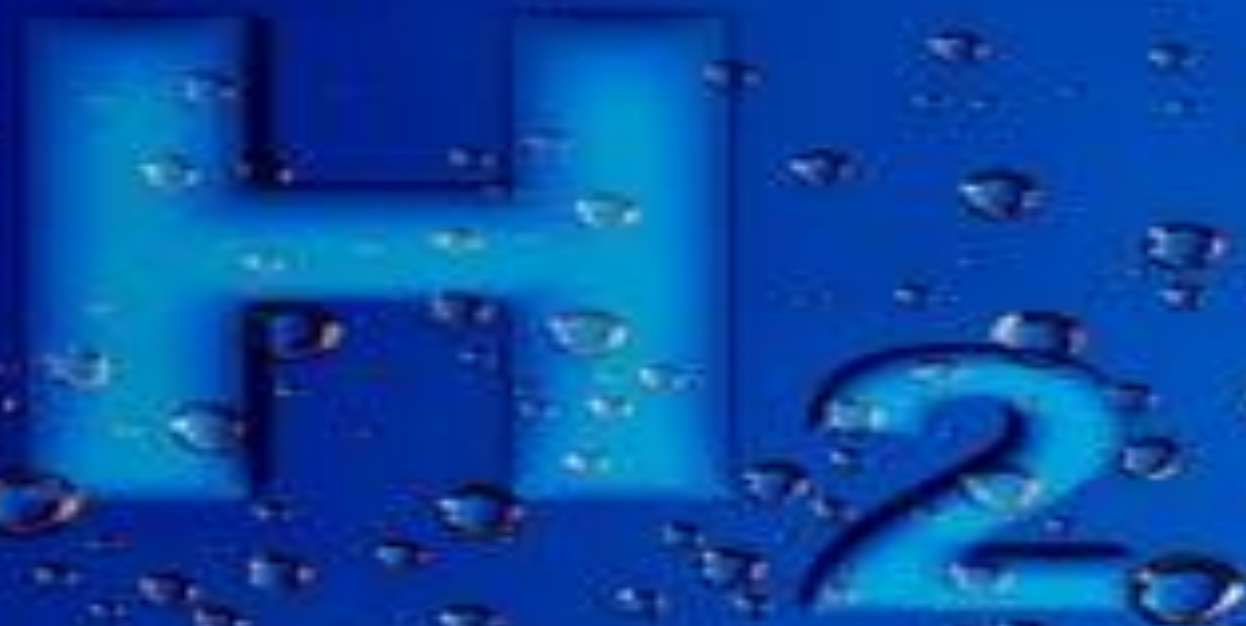


National Energy & Climate Plans



16 EU Member States with nuclear in their NECPs
(existing reactors, R&I or new build plans)

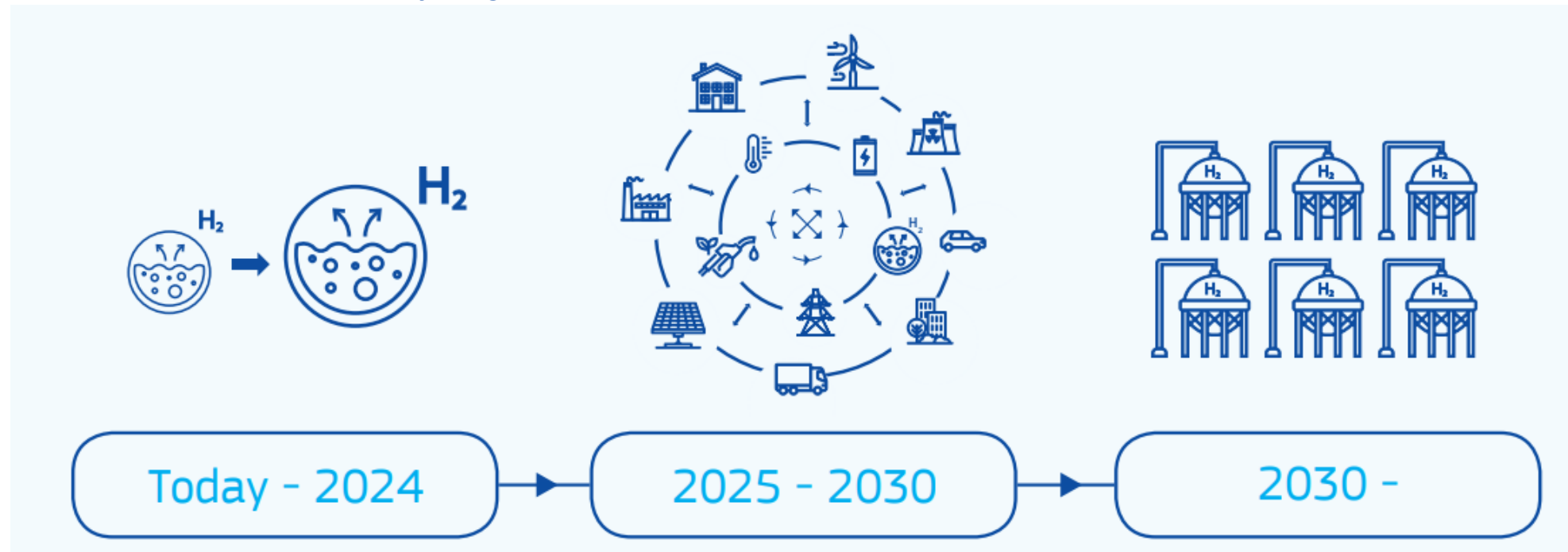
	Nuclear Discussed positively to meet part of 2030 plans (LTO, NB or R&I)	Ongoing Nuclear Operations or NB mentioned	Nuclear to improve energy security (LTO and/or NB)	Nuclear to increase flexibility of energy systems	Nuclear R&I (inc SMRs, adv. reactors, innovation, L TO or SET Plan Action 10)
Belgium	✓				✓
Bulgaria	✓	✓	✓	✓	✓
Croatia	✓	✓	✓		
Czechia	✓	✓	✓	✓	✓
Estonia	✓				✓
Finland	✓	✓	✓	✓	✓
France	✓	✓	✓	✓	✓
Hungary	✓	✓	✓	✓	✓
Lithuania					✓
Netherlands	✓	✓	✓	✓	✓
Poland	✓		✓	✓	✓
Romania	✓	✓	✓	✓	✓
Slovakia	✓	✓	✓	✓	✓
Slovenia	✓	✓	✓	✓	✓
Spain	✓	✓	✓	✓	✓
Sweden	✓		✓	✓	✓



HYDROGEN

EU hydrogen strategy

- No more colours classifications
- Two main categories: clean (renewable) and low-carbon hydrogen
- Nuclear falls under the low-carbon hydrogen that refers to fossil-based hydrogen with carbon-capture and electricity-based hydrogen
- Establishment of “[Clean Hydrogen Alliance](#)” that FORATOM is member of



- ❖ Adding **6 GW** hydrogen electrolyzers
- ❖ Producing 1 million tonnes of clean hydrogen
- ❖ Reaching **40 GW** hydrogen electrolyzers
- ❖ Producing 10 million tonnes of clean hydrogen
- ❖ Deploying clean hydrogen at large scale



FORATOM Hydrogen Ad-Hoc group



Proposed structure of FORATOM's position paper:

- **Context**
 - EU Green Deal – 2050 climate ambitions
 - Sustainability goals
- **Hydrogen production technology coupled to nuclear power**
 - Current key R&I projects and available technologies (commercial and demonstrators)
 - Forecasts on new technologies
- **Economics of nuclear hydrogen production and market integration**
 - Economic and operational features of hydrogen production (through electrolyzers or not): CAPEX, OPEX, Flexibility (capability of ramping up and down, etc.)
 - Potential role of nuclear in stabilizing / balancing out a hybrid system power + power-to-gas
- **Policy recommendations**

Paper expected to be published by the end of the year / beginning of next year





SMR



FORATOM SMR Task Force

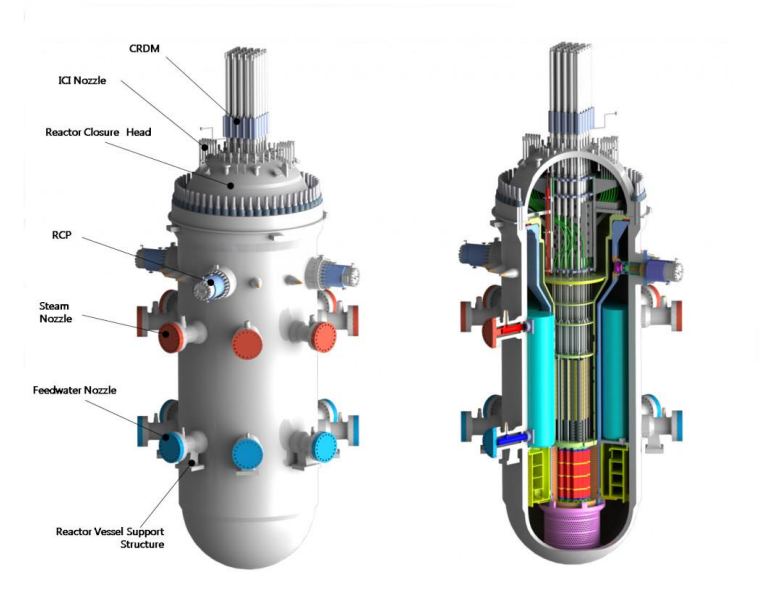
Objective

The objective of the FORATOM SMR-TF is to develop a position on the required technical, regulatory, economical and political conditions to support the development of Small Modular Reactor (SMR) technologies (as defined by the IAEA) for applications in Europe.

Scope

This group is devoted to the SMR technology and will prepare FORATOM contributions and position papers on the following aspects (but not limited to):

- **Technology developments**
- **Economics**
- **Market integration**
- **Licencing and regulatory aspects**





NUCLEAR RESEARCH

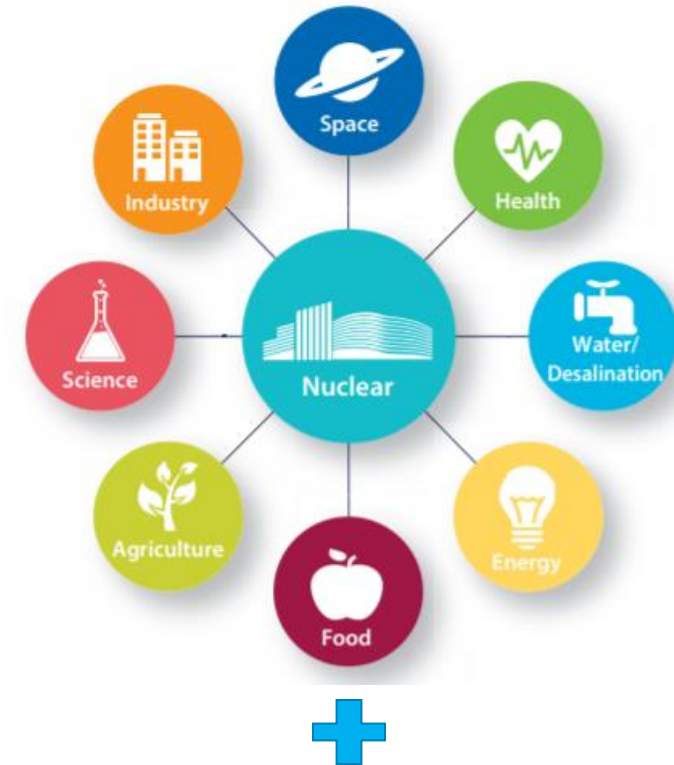


Synergies between Horizon Europe & Euratom Programmes



*“Promote **synergies between Horizon Europe and other Union Programmes**, including [...] **the Euratom programme**, thus becoming a point of reference for research and innovation in all related programmes across the EU budget and non-funding instruments”^{*}.*

Nuclear: More than just power



Digitalisation

Advanced
manufacturing

Hydrogen

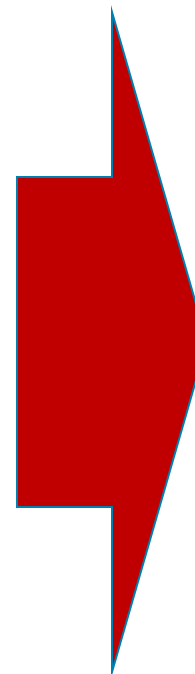
^{*}Decision of the Council 29/09/20 - <https://www.consilium.europa.eu/media/45765/st11256-en20.pdf>

Horizon Europe and Euratom 2021-2027 Budget



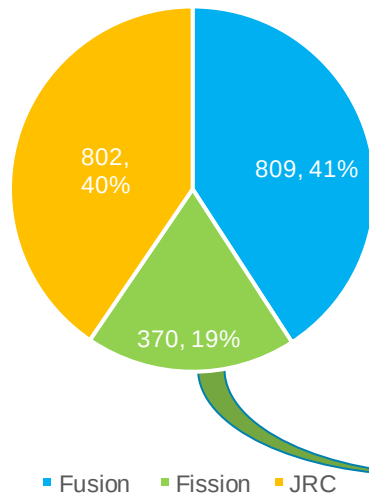
Horizon Europe Budget: EUR 100 billion -> EUR 94 billion

	2018		2020*
Euratom R&D Budget (7 y)	EUR 2.4 billion		EUR 1.98 billion
Euratom R&T (7 years)			
<i>Indirect R&D</i>			
Fusion R&D	EUR 1,040 million		EUR 809 million
Fission R&D Safety & radiation protection	EUR 475 million		EUR 370 million
<i>Direct JRC</i>			
Fission Safety & safeguards	EUR 885 million		EUR 802 million
ITER	EUR 6.1 billion		EUR 5.6 billion



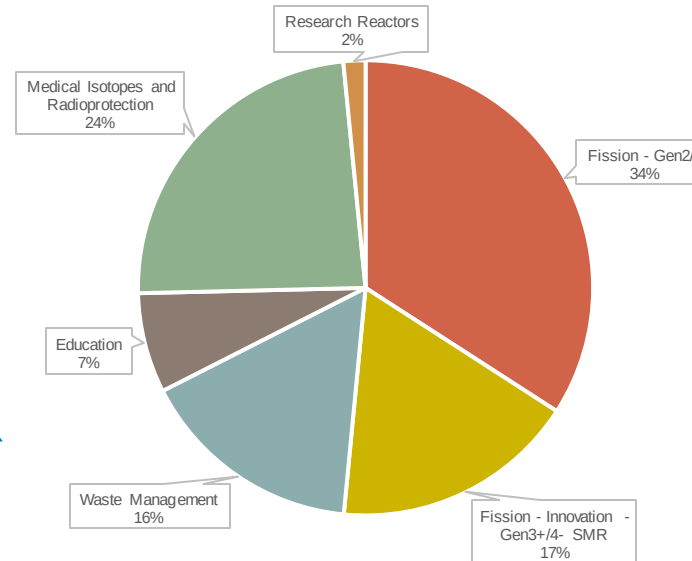
Next Euratom Programme: Expected reduced budget means even more reasons to enable synergies with other EU R&I funding

Expected 2021 -2027 Euratom E&T Budget Split



+ over 5Bn EUR towards ITER

Euratom Fission Area R&D H2020 Ave Spend Over calls 2019-2020



Historically just over half of the fission R&D budget is dedicated to fission power R&D projects:
~ €40-50m / year !!

POTENTIAL RISKS:

- Proposed R&D funding & scope will not meet the needs of the EU nuclear industry.
- Insufficient synergies with Horizon won't allow support for forward looking R&D
- More available funds inside Euratom R&D need to be focused on additional areas.



NUCLEAR SUPPLY CHAIN OPTIMISATION



Current status & challenges



Safe & reliable operation of the EU nuclear fleet **requires availability of appropriate supply chain options** (EU Fleet is 35 years).

Many OEMs* no longer on the market or stopped manufacturing original items. Market more challenging for new entrants (stringency/ diversity of requirements)

The European nuclear industry could leverage modern, HQ & proven products from well-established suppliers to other industries which also HQ items.
=> A European guideline providing a harmonised methodology for use of non-nuclear HQ industrial grade items would enable consistency across Europe & support wider use of best practice.

*Original Equipment Manufacturers

SCO WG Report Published 10/06/2020: recommendations



To secure a robust and diversified supply chain for the European nuclear industry, enabling continuous improvement of safety and reliability of the nuclear fleet, FORATOM proposes the following recommendations



European Guideline



Harmonised Legal and Regulatory Framework



National Guidance or Endorsement Framework



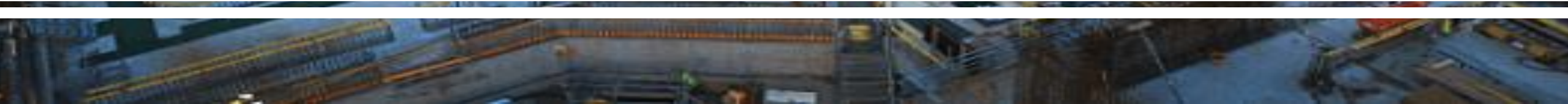
Industry / Company Procedures



Additional Supply Chain Optimisation solutions led by the European Nuclear Industry



HINKLEY POINT C



Case - Austria vs. European Commission



Background to the dispute

On **22 October 2013**, the United Kingdom notified measures in support of a new nuclear power station to be located at Hinkley Point C.

- A contractual agreement aimed at providing price stability for the sale of the electricity produced at Hinkley Point C: The Contract for Difference including a 'gain-share' mechanism + a compensation scheme in case of a shutdown for political reasons + a guarantee agreement to be concluded between the Secretary of State for Energy and Climate Change and NNBG's investors.

On **8 October 2014**, the Commission approved the measure and stated that the notified measures constituted State aid but that the measures were also compatible with the internal market according to **Article 107(3)(c) TFEU**.

On **6 July 2015**, Austria brought an action for the annulment of the decision at issue. The General Court dismissed the action in its entirety.

On **12 July 2018**, The General Court dismissed the action in its entirety.

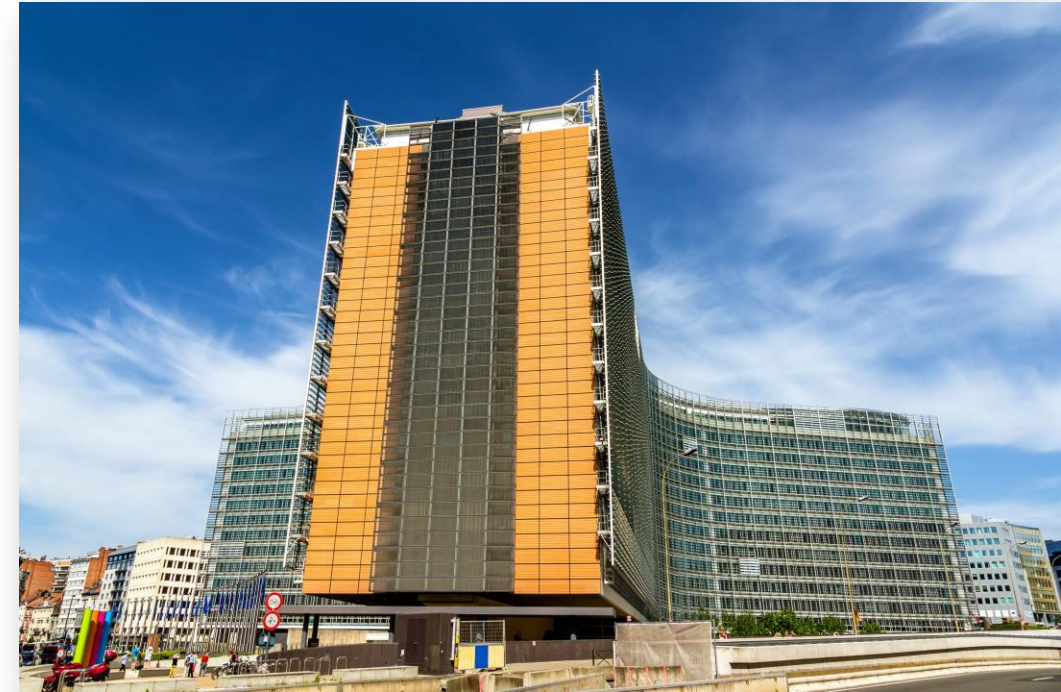
Austria appealed before the Court of Justice, which dismissed it on **22 September 2020**.



European Commission's decision

The fundamental question is whether the construction of a nuclear power plant can be subject of a State aid (SA) approval by the European Commission for the purposes of Article 107(3)(c) TFEU.

- ✓ There is no requirement for an objective of common interest to be in place for SA to be legal under **article 107(3)(c) TFEU**.
- ✓ TFEU & Euratom treaty constitute primary law of the EU. The Euratom treaty does not contain SA rules, so that the TFEU SA rules apply.
- ✓ The Euratom Treaty does not oppose the application of EU environmental law rules in nuclear sector, but EU environmental law cannot oppose, in all circumstances, to the granting of SA for the construction or operation of an NPP.
- ✓ The existence of a market failure is not a condition for declaring an aid compatible with the internal market rules.
- ✓ A judiciary body is not required to formally characterize the measures at issue as 'investment aid' or 'operating aid' in order to declare it legal.





SUSTAINABLE FINANCE

Legislation Overview



- March 2018: Commission adopts Action Plan on Financing Sustainable Growth
- May 2018: Commission presents 3 legislative proposals on sustainable finance:
 - [Proposal for a regulation on disclosures relating to sustainable investments and sustainability risks and amending Directive \(EU\) 2016/2341](#)
 - [Proposal for a regulation amending Regulation \(EU\) 2016/1011 on low carbon benchmarks and positive carbon impact benchmarks](#)
 - [**Proposal for a regulation on the establishment of a framework to facilitate sustainable investment \(Taxonomy\)**](#)



GOAL



- Encourage investment in ‘sustainable technologies’
- Increase transparency and aim to harmonise different sustainable investment funds across EU
- Activities considered as ‘sustainable’ will thus have access to funds with lower interest rates
- EIB energy lending criteria will be updated to only provide funds to ‘Taxonomy compliant’ activities
- Currently working on an Ecolabel for Financial Products which will be aligned to the Taxonomy
- Potential alignment of all future EU legislation, funds and State Aid to notion of ‘taxonomy compliance’



Status of nuclear



- Currently not included under the taxonomy as did not have the right experts to assess nuclear (but not excluded either)
- Joint Research Centre mandated by Commission to review all existing studies.
 - Report to be produced and review by 2 expert groups + potentially the Member States
- Depending on the outcome the Commission could potentially consider including nuclear under the taxonomy in the future (but it is not obliged to...)





NEXT GENERATION EU

Proposal



- Commission Communication: “The EU budget powering the recovery plan for Europe”
 - Revised Multiannual Financial Framework
 - Next Generation EU (EU Recovery Instrument)

Supporting MS

- Recovery and Resilience Facility
- Recovery Assistance for Cohesion and the Territories of Europe - REACT-EU
- Reinforced rural development programmes
- Reinforced Just Transition Mechanism

Kick starting the economy and helping private investment

- Solvency Support Instrument
- Strategic Investment Facility
- Strengthened InvestEU programme

Lessons from the crisis

- New Health programme
- Reinforced rescEU
- Reinforced programmes for research, innovation and external action

- Council proposal on 21/07/2021



Highlights



- The majority of the funds covered by the new proposal explicitly exclude nuclear.
 - In particular InvestEU and the Just Transition Fund.
- The MS recovery plans will need to be closely aligned to their National Climate and Energy Plans
 - As several MS have included nuclear in the NCEPs as a way of achieving the CO2 reduction objectives, this provides an opportunity to justify the use of recovery funds for NPPs



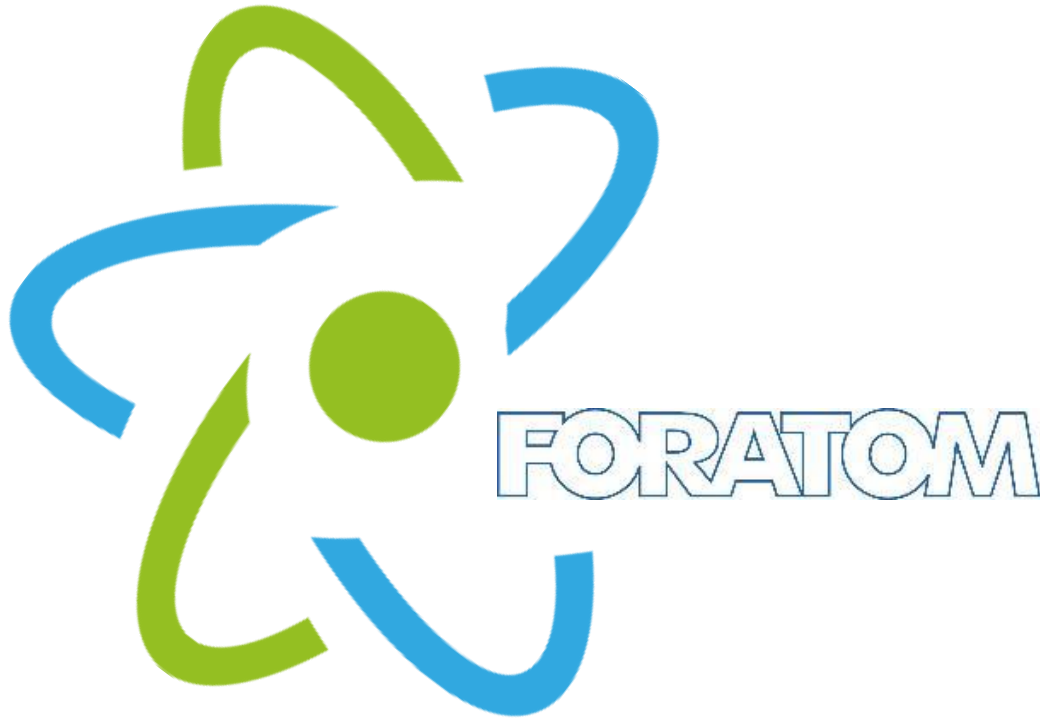
Highlights



- The EU has made it clear that the recovery package will need to be Taxonomy compliant.
 - It is therefore essential that nuclear be included in the Taxonomy
 - This also puts forward an argument against the exclusions (ie, if investments need to be taxonomy compliant, then there is no need to add a list of exclusions)
- Significant attention is being dedicated to health matters. This provides the sector with an opportunity to highlight the contribution on nuclear to medical diagnosis and treatment
 - The industry should furthermore look into developing a potential argument regarding the risk of the taxonomy negatively affecting essential cancer treatments.



Thank you



International approaches of public financing towards nuclear power R&D in forward looking ambitious projects



Strategic areas for short, medium & long-term nuclear innovation

over €1.3bn in 2019



Maintaining R&D programmes & near-term innovation

€1bn per year



SMRs, advanced materials manufacturing, digitalization, large nuclear systems & component testing facilities, advanced fuel R&D programmes

“Heavy investments” in R&D, but difficult to precisely estimate



Euratom + Member states national programmes

