# Overview on the European nuclear supply chain

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*Canada-Romania Partnership in Nuclear Technologies - 03.03.2021*

# FORATOM

**FORATOM** - the voice of the European nuclear industry in energy policy discussions with EU Institutions & other key stakeholders.

## 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

* Topic overseen by ENISS

Legal aspects

# 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

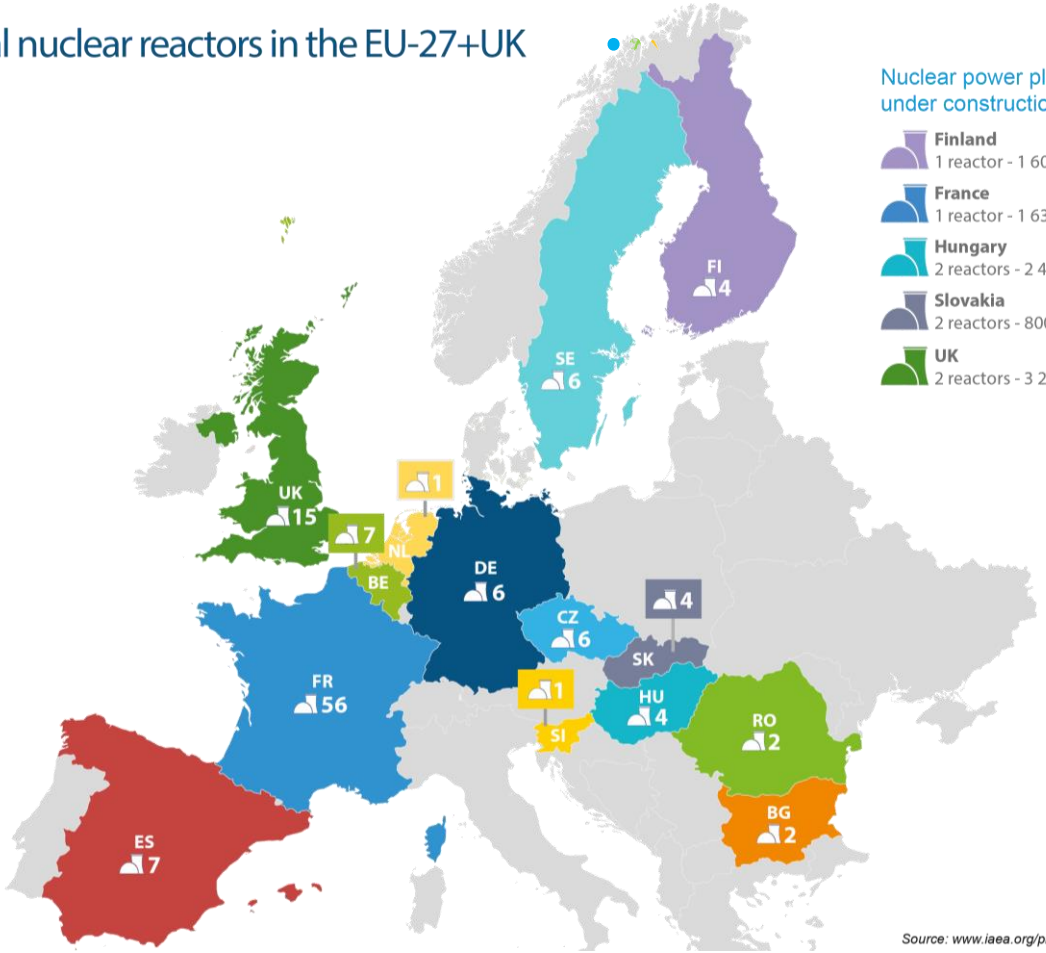
CEZ (Czech Republic), Fermi Energa (Estonia), Nuvia (France), PGE EJ 1 (Poland) and Urenco (Global) are Corporate Members

# Nuclear energy in EU27+UK

## 121 Operational nuclear reactors in the EU-27+UK

### Nuclear share of electricity

- **71% France** 56 reactors - 61 370 MW
- **55% Slovakia** 4 reactors - 1 814 MW
- **49% Hungary** 4 reactors - 1 902 MW
- **42% Sweden** 6 reactors - 6 869 MW
- **38% Belgium** 7 reactors - 5 918 MW
- **36% Slovenia** 1 reactor - 688 MW
- **34% Bulgaria** 2 reactors - 1 966 MW
- **34% Czech Republic** 6 reactors - 3 932 MW
- **33% Finland** 4 reactors - 2 764 MW
- **19% UK** 15 reactors - 8 918 MW
- **20% Spain** 7 reactors - 7 121 MW
- **18% Romania** 2 reactors - 1 300 MW
- **12% Germany** 6 reactors - 8 113 MW
- **3% Netherlands** 1 reactor - 482 MW




### Nuclear power plants under construction

- **Finland** 1 reactor - 1 600 MW
- **France** 1 reactor - 1 630 MW
- **Hungary** 2 reactors - 2 400 MW
- **Slovakia** 2 reactors - 800 MW
- **UK** 2 reactors - 3 200 MW

**EU ELECTRICITY PRODUCTION**

**26%**

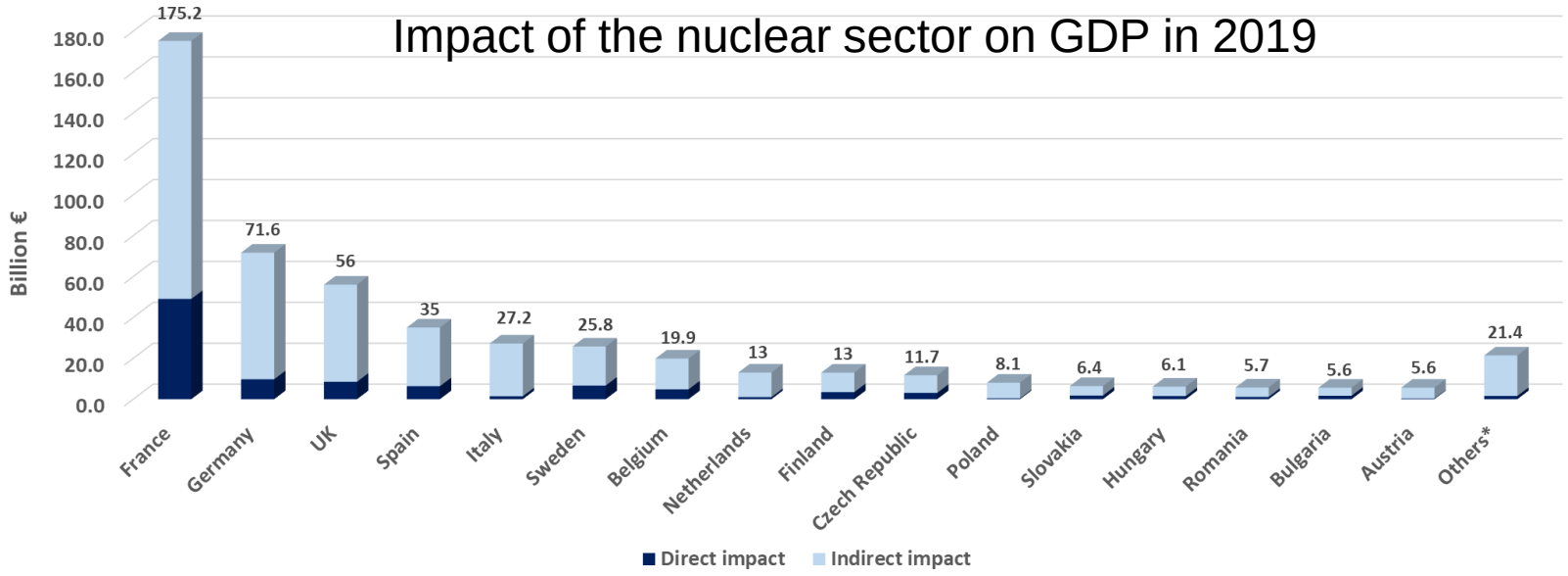
**EU LOW-CARBON ELECTRICITY**

**50%**

*Source: www.iaea.org/pris, 2020*

# Nuclear energy's economic impact (EU27+UK) - GDP

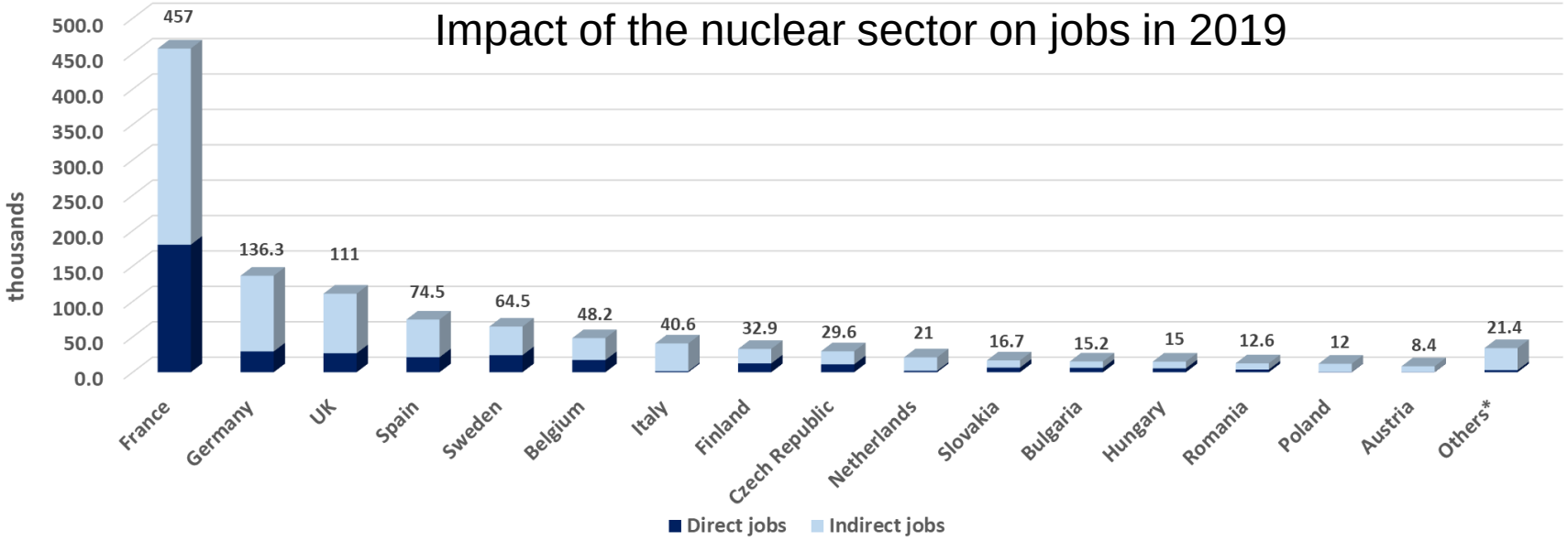
| 2019 | 2050 |
|---|---|
| • **€507.4 billion** GDP (120 GW) | • **€576 billion** GDP* (150 GW) |




***Source: Deloitte study "Nuclear energy: powering the economy – carbon-free growth, jobs and leadership in innovation"***
**** Others = Ireland, Denmark, Greece, Slovenia, Portugal, Luxembourg, Croatia, Lithuania, Latvia, Estonia, Cyprus, Malta combined***

# Nuclear energy's economic impact (EU27+UK) - Jobs

| 2019 | 2050 |
|---|---|
| • **1,129,900** jobs (120 GW) | • **1,321,600** jobs (150 GW) |

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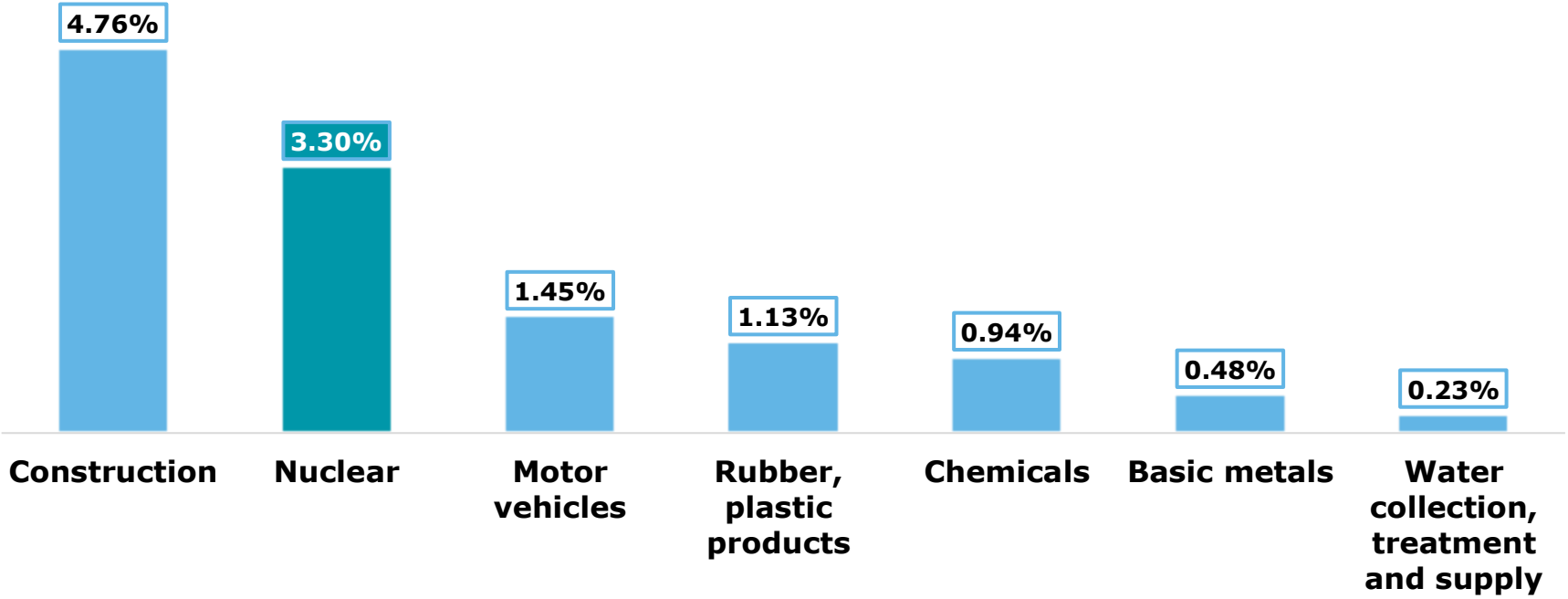
**** Others = Ireland, Denmark, Greece, Slovenia, Portugal, Luxembourg, Croatia, Lithuania, Latvia, Estonia, Cyprus, Malta combined***

# Share of the nuclear industry and other economic sectors in the EU GDP

The nuclear sector has a significant current share in EU GDP, compared to other economic sectors




*Source: Deloitte study "Nuclear energy: powering the economy – carbon-free growth, jobs and leadership in innovation"*

# European Supply Chain Optimisation Guideline Project

- The safe and reliable operation of the European nuclear fleet (average age 35 years) requires the **availability of appropriate supply chain options**.
- The number of supply chain options have decreased in the last few decades. FORATOM published a report in June 2020 and in later 2020 launched a project to address the issue.
  - The European nuclear industry could leverage modern, high-quality and proven products manufactured by well-established suppliers to other industries which also require high quality items.
  - The delivery of a European guideline which provides a harmonised methodology for use of non-nuclear high-quality industrial grade items would enable consistency across Europe and support the wider use of best practice.
  - Planned enagement during the project with WENRA, IAEA, licencees and suppliers, all key to success
  - The project and guidance will be finalised in early 2022

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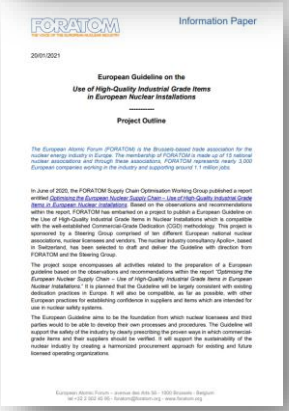
OPTIMISING THE EUROPEAN NUCLEAR SUPPLY CHAIN

USE OF HIGH-QUALITY INDUSTRIAL GRADE ITEMS IN EUROPEAN NUCLEAR INSTALLATIONS

FOREWORD

June 2020



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Information Paper

20/01/2021

European Guideline on the

*Use of High-Quality Industrial Grade Items in European Nuclear Installations*

Project Outline

*The European Atomic Forum (FORATOM) is the Brussels-based trade association for the nuclear energy industry in Europe. The membership of FORATOM is made up of 13 national nuclear associations and through these associations, FORATOM represents nearly 3,000 European companies working in the industry and supporting around 1.1 million jobs.*

In June of 2020, the FORATOM Supply Chain Optimisation Working Group published a report entitled *Optimising the European Nuclear Supply Chain – Use of High-Quality Industrial Grade Items in European Nuclear Installations*. Based on the observations and recommendations within the report, FORATOM has embarked on a project to publish a European Guideline on the Use of High-Quality Industrial Grade Items in Nuclear Installations which is compatible with the well-established Commercial-Grade Dedication (CGD) methodology. This project is sponsored by a Steering Group comprised of ten different European national nuclear associations, nuclear licensees and vendors. The nuclear industry consultancy Apollo+, based in Switzerland, has been selected to draft and deliver the Guideline with direction from FORATOM and the Steering Group.

The project scope encompasses all activities related to the preparation of a European guideline based on the observations and recommendations within the report "*Optimising the European Nuclear Supply Chain – Use of High-Quality Industrial Grade Items in European Nuclear Installations*." It is planned that the Guideline will be largely consistent with existing dedication practices in Europe. It will also be compatible, as far as possible, with other European practices for establishing confidence in suppliers and items which are intended for use in nuclear safety systems.

The European Guideline aims to be the foundation from which nuclear licensees and third parties would to be able to develop their own processes and procedures. The Guideline will support the safety of the industry by clearly prescribing the proven ways in which commercial-grade items and their suppliers should be verified. It will support the sustainability of the nuclear industry by creating a harmonized procurement approach for existing and future licensed operating organizations.

# Thank you

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