Infos day Horizon Europe

# Atelier : Appels Energie&batterie 2024

Cluster 5

**19/04/2023**

# Légende

RIA → **TYPE D'ACTION**

€

6 M€ → **BUDGET / PROJET**

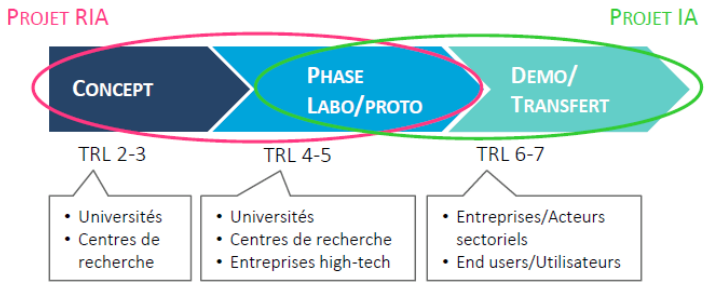
29.09.21 → **DEADLINE**

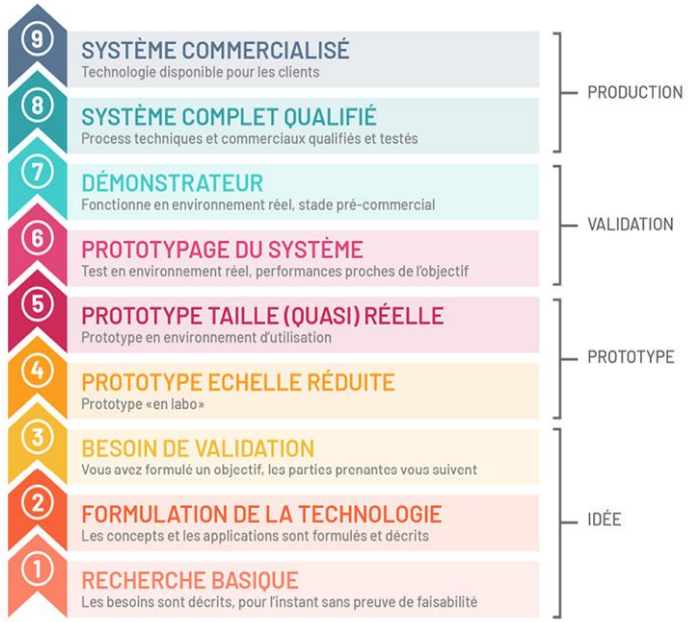
4 → **NB PROJETS FINANCÉS**

3-5 → **TRL TECHNOLOGY EDGINESS LEVEL**

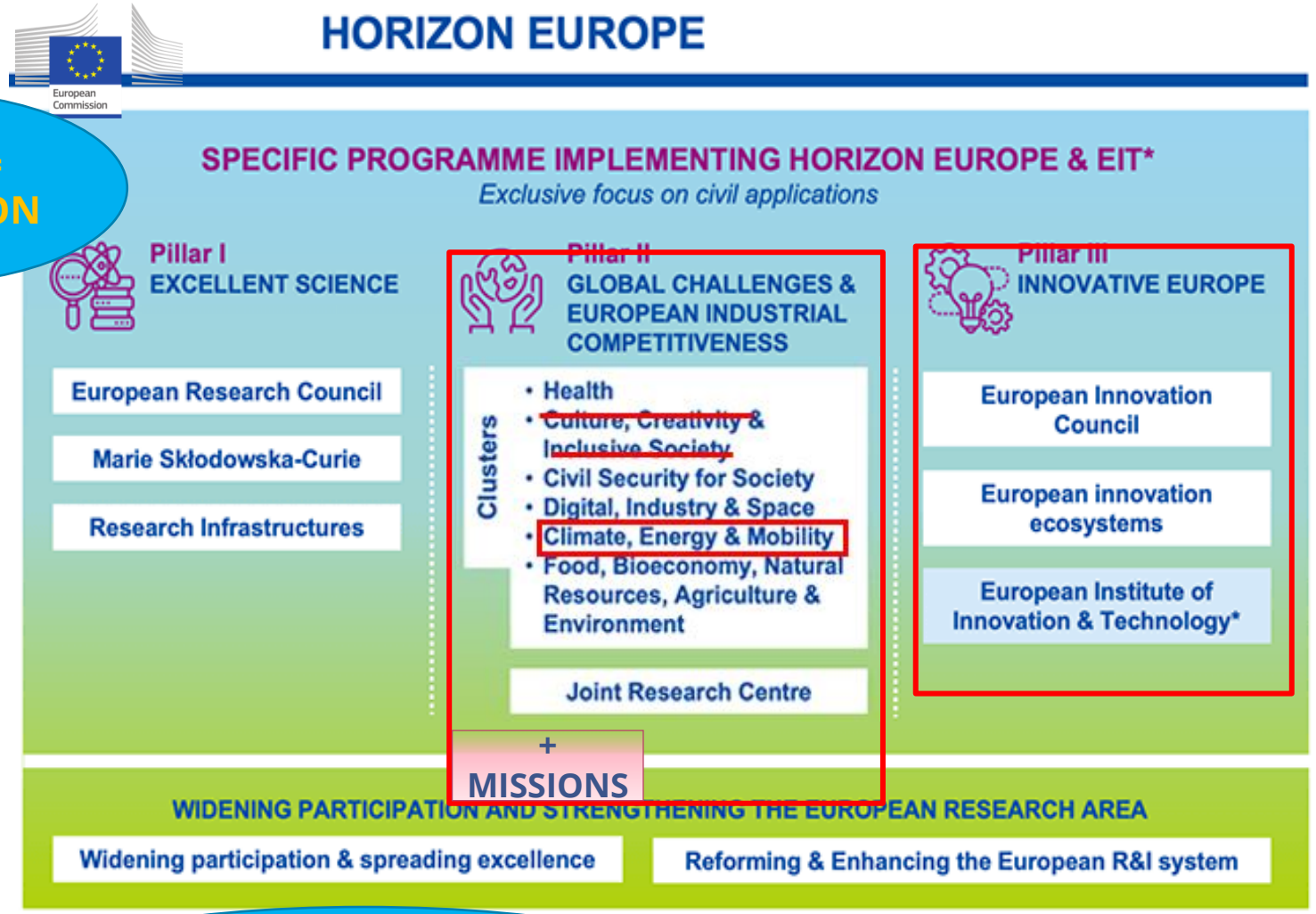
| | | |
|---|---|---|
| RIA | RESEARCH & INNOVATION ACTIONS | 100% FUNDING |
| IA | INNOVATION ACTIONS | 70% FUNDING: ENTREPRISES |
| | | 100% FUNDING - NON PROFIT ORGANISATIONS |
| CSA | COORDINATION & SUPPORT ACTIONS | 100% FUNDING |

- **ECHELLE DE TRL**
  - Maturité technologie
  - 1 projet / 1 techno = 1degré de TRL
  - 1 techno = plusieurs briques techno
    - 1 brique = 1 degré de TRL



**BUDGET = €95,5 BILLION**




**PURPOSE: REACH OBJECTIVES OF EUROPEAN GREEN DEAL**

Strategic Planning and Programming (EC)

STRATEGIC PLAN

WORK PROGRAMME

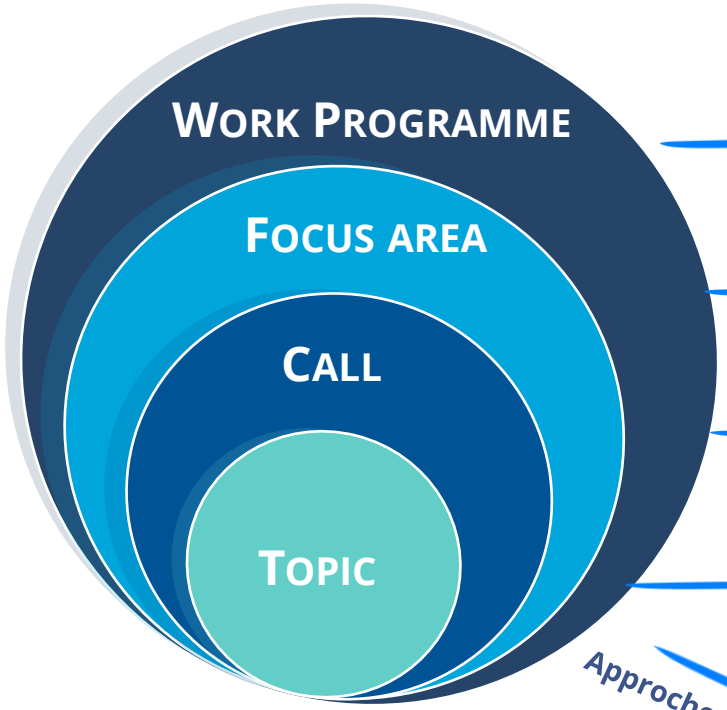
| | |
|---|---|
| **EU POLICY PRIORITIES** | Overall priorities of the European Union (Green Deal, Fit for the Digital Age,…) |
| **KEY STRATEGIC ORIENTATIONS** | Set of strategic objectives within the EC policy priorities where R&I investments are expected to make a difference |
| **IMPACT AREAS** | Group of expected impacts highlighting the most important transformation to be fostered through R&I |
| **EXPECTED IMPACTS = DESTINATIONS** | Wider long term effects on society (including the environment), the economy and science, enabled by the outcomes of R&I investments (long term). It refers to the specific contribution of the project to the work programme expected impacts described in the destination. Impacts generally occur some time after the end of the project. |
| **EXPECTED OUTCOMES = TOPICS** | The expected effects, over the medium term, of projects supported under a given topic. The results of a project should contribute to these outcomes, fostered in particular by the dissemination and exploitation measures. This may include the uptake, diffusion, deployment, and/or use of the project's results by direct target groups. Outcomes generally occur during or shortly after the end of the project. |
| **PROJECT RESULTS** | What is generated during the project implementation. This may include, for example, know-how, innovative solutions, algorithms, proof of feasibility, new business models, policy recommendations, guidelines, prototypes, demonstrators, databases and datasets, trained researchers, new infrastructures, networks, etc. Most project results (inventions, scientific works, etc.) are 'Intellectual Property', which may, if appropriate, be protected by formal 'Intellectual Property Rights' |

PROJECT PROPOSALS

Application process (researchers)

# Lecture d'un topic

**HORIZON-CL4-2022-DIGITAL-EMERGING-02-06**




EU policy priorities: Cadre légal et financier

Destination : Stratégie Européenne (ex: Green Deal) à long terme

Outcome : Impacte du projet à moyen terme

Scope : délivrable du projet à court terme

Approche Top-down

**INFORMATION DRAFT APPEL** → **IDENTIFICATION TOPIC RÔLE/CHAÎNE R&D** → **CONSORTIUM** → **RÉDACTION** → **SOUMISSION**

→ Go/ No Go →

Analyse

Identifier partenaires

Structurer le projet
Faire relire par le NCP

# Cross-sectoral solutions for the climate transition

## A competitive and sustainable European battery value chain

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|---|---|---|---|---|
| | | 2024 | | |
| **Opening: 07 Dec 2023 Deadline(s): 18 Apr 2024** | | | | |
| **HORIZON-CL5-2024-D2-01-02** | IA | 21.00 | Around 7.00 | 3 |
| **HORIZON-CL5-2024-D2-01-03** | IA | 5.00 | Around 5.00 | 1 |
| **Opening: 07 May 2024 Deadline(s): 05 Sep 2024** | | | | |
| **HORIZON-CL5-2024-D2-02-01** | IA | 8.00 | Around 8.00 | 1 |
| **HORIZON-CL5-2024-D2-02-02** | RIA | 15.00 | Around 5.00 | 3 |
| **HORIZON-CL5-2024-D2-02-03** | IA | 16.00 | Around 8.00 | 2 |
| **HORIZON-CL5-2024-D2-02-04** | IA | 15.00 | Around 7.50 | 2 |

Batteries will enable the rollout of zero-emission mobility and renewable energy storage, contributing to the European Green Deal and supporting the UN SDGs. The JU name Batt4EU aims to establish world-leading sustainable and circular European battery value chain to drive transformation towards a carbon-neutral society

# Cross-sectoral solutions for the climate transition

## A competitive and sustainable European battery value chain

| Topics | Synergie | Implementation | Modèle de financement |
|---|---|---|---|
| HORIZON-CL5-2024-D2-01-02 | India, Africa and Australia. | 1 business case | Lump Sum |
| HORIZON-CL5-2024-D2-01-03 | HORIZON-CL5-2022-D2-01-08 | 1 business case | Regular |
| HORIZON-CL5-2024-D2-02-01 | HORIZON-CL5-2023-02-01 ; HORIZON-CL5-2024-02-02 ; HORIZON-CL5-2023-01-01 | 1 business case | Regular |
| HORIZON-CL5-2024-D2-02-02 | | 1 business case | Regular |
| HORIZON-CL5-2024-D2-02-03 | | 1 business case | Regular |
| HORIZON-CL5-2024-D2-02-04 | HORIZON-CL5-D2-2022-01-07 | 1 business case | Regular |

**Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.**

# HORIZON-CL5-2024-D2-01-02: Non-Li Sustainable Batteries with European Supply Chains for Stationary Storage (Batt4EU Partnership)

IA (60%)

~7 M€

18 APRIL 2024

3 PROJETS

➔7

## Scope

Non-lithium-based batteries have the potential to provide solutions for integration of renewables by providing energy storage solutions. Projects may target any stationary storage applications, from a few kWh in small-scale domestic behind-the-meter units, to many MWh in large utility-scale. Total cost (€/kWh/cycle) and safety are critical to proving technological and commercial viability. BMS development is within scope where relevant but should not be the main focus of the project.

## Expected outcomes

Projects are expected to contribute **to all of** the following outcomes:

- Reducing strategic dependencies for critical raw materials by promoting resource efficiency to make EU economy stronger and resilient in regard to the twin transition;
- Development of post-lithium cell chemistries with target cell- and system-level cost (projected storage costs of less than 0.05 €/kWh/cycle by 2030), safety, energy density and power metrics suitable for the selected stationary energy storage markets (up to 8 hours) ;
- Demonstration of system operated in end-user conditions for at least 3,000 hours and 5,000 lifes cycles ;
- Minimises the impact of possible international trade disruptions and customs tariffs, taking account of the requirements for a range of stationary storage use cases.
- A defined concept for demonstrable, highly sustainable, circular manufacturing for the selected battery type,

# HORIZON-CL5-2024-D2-01-03: Development of technical and business solutions to optimise the circularity, resilience, and sustainability of the European battery value chain (Batt4EU Partnership)

RIA

~5 M€

18 APRIL 2024

1 PROJET

➔5

## Scope

The pretreatment process (mechanical, thermal and chemically) is the first and indispensable step in recycling Lithium-ion batteries (LIBs) and were tested at least at lab-scale. Current EOL LIB recycling technologies are focused on improving the recovering efficiency of Cobalt that is the most valuable material. However, other no-Co battery contents need to be extracted (low-density plastics, metal shells and foils, binders, separators, organic solvents, Li salt, etc ) to promote environmental protection and sustainability.

## Expected outcomes

Projects are expected to contribute **to all of** the following outcomes:

- Reducing strategic dependencies for critical raw materials by promoting resource efficiency to make EU economy stronger and resilient in regard to the twin transition;
- Advancing circular and sustainable design and business practices relating to advanced batteries and associated value chains (materials/components circularity, added-value remanufacturing, refurbishing, repairing and recycling) ;
- Improving the life cycle sustainability performance of batteries produced in the EU in terms of reducing environmental impacts and maximising socio-economic benefits;
- Enabling tools and best practice for multiple industry sectors in order to improve the European industrial ambitions and global leadership beyond batteries;

# HORIZON-CL5-2024-D2-02-01: Sustainable high-throughput production processes for stable lithium metal anodes for next generation batteries (Batt4EU Partnership)

IA

~8 M€

5 SEPT 2024

1 PROJET

➔7

## Scope

Li metal anodes will be needed for the Gen 4b, Gen 4c and Gen 5 batteries, it is important to create a European production chain for their manufacturing. Extensive cell design and development are out of the scope.

- Sustainable, cost-efficient and large-scale production of Li-metal foils and/ or electrodes (extrusion, comparison extrusion / electrostatic spray, rolling and co-rolling), demonstrated up to pilot level during the project;
- Optimisation and understand of the passivation of Li metal films linked with the dry room conditions and requirements (high passivation and lower quality dry room, or low passivation and higher quality dry room)

## Expected outcomes

Projects are expected to contribute **to all of** the following outcomes:

- Reduction of strategic dependencies for critical raw materials and energy consumption/carbon footprint of processing 10% lower than SoA;
- Throughput of Li foil and/or electrode production to support cell manufacturing that contribute to a competitive price of 75€/kWh at pack level.
- Processing of Li (Metal) and Li electrodes within cell assembly at industrial scale;
- Ensure stability of Li during handling, processing and operation using coatings or other protective technologies. Homogeneous Li films with thickness below 20µm, contributing towards energy density levels of 400-500 Wh/kg.
- Developed process compatible with recycling targets: 70% of Li metal in battery waste, (90% Li metal for production scrap).

# HORIZON-CL5-2024-D2-02-02: Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)

RIA

~5 M€

5 SEPT 2024

3 PROJETS

➔4

## Scope

The request for higher gravimetric and volumetric energy densities, lower costs, higher sustainability, ubiquitous raw materials with high and improved safety has triggered research into Generation 5 batteries for mobility applications and relevant manufacturing techniques and compatibility with existing lithium-ion production infrastructure. Projects are expected to cover **at least three of the following bullet points**:

### ➢ Improvement of material:

- coating materials for metallic anode protection;
- high chemical and thermal stability to reduce toxicity;
- new cell technologies with higher capacities;
- electrodes-electrolyte compatibility with additives;
- understanding of the chemical and/or electrochemical reaction mechanisms;
- Improve the insertion cathode with high charge-storage capacity;
- safe and non-toxic materials, efficient/sustainable catalysts for polysulfide conversion in Metal-S batteries;
- oxygen evolution/reduction reactions in rechargeable Metal-air batteries)

### ➢ Design and manufacturing:

- Innovative cell design ensuring high performances;
- relevant manufacturing processes compatible with lithium-ion production infrastructure and production lines;
- Design production with low environmental impact, low energy consumption;
- safe and healthy environment for workers.

# HORIZON-CL5-2024-D2-02-02: Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)

RIA

~5 M€

5 SEPT 2024

3 PROJETS

1➔4

## Expected outcomes

Projects are expected to contribute to **at least one** of the following outcomes:

- Conversion systems based on metallic anodes with enhanced safety, delivering on cost, performance, sustainability, recyclability and feasibility of the scale-up of the manufacturing processes;
- Metallic anode protection and/or activation for conversion systems (polymer, ceramic and hybrid electrolytes);

In addition, projects are expected to contribute to creating rechargeable batteries that will work in realistic environments, are recyclable and with low environmental impact:

- A safe behaviour at cell level: expected EUCAR Hazard level below 4;
- Specific energy at cell level targeting 500 Wh/kg, and volumetric energy density at cell level targeting 600 Wh/l;
- Charge and discharge at 2 <10, 800+ cycles at 50%DoD or 400 cycles at >80%DoD;
- Cost at cell level < 75 euro/kWh.

# HORIZON-CL5-2024-D2-02-03: Size & weight reduction of cell and packaging of batteries system, integrating lightweight and functional materials, innovative thermal management and safe by design approach (Batt4EU Partnership)

IA

~8 M€

5 SEPT 2024

2 PROJETS

➔7

## Scope

Projects should achieve size and weight reduction by integrating different technologies:

- Integration of advanced cell technologies/generations, sensing technologies (thermally, mechanically);
- The use of lightweight and multi-functional materials (including, but not limited to, the use of nanomaterials) and lightweight structures for battery casing;
- Adopting innovative packaging approaches to enable smart battery cell concepts. Approaches to reduce the complexity of HV and BMS architecture and substitution by alternatives;

## Expected outcomes

Projects are expected to contribute to the following outcomes:

- An increase of the net useful mass and volumetric energy density of the battery system between 10% and 30% compared to the state-of-the-art battery systems
- The improvement of the safety by design measures throughout the battery lifetime and during operation.
- Deliver innovative thermal management to increase performance over the complete operational conditions and to enable fast charging requirements 10%-80% in 10 minutes maximum.

# HORIZON-CL5-2024-D2-02-04: Accelerated multi-physical and virtual testing for battery aging, reliability and safety evaluation (Batt4EU Partnership)

IA

~7,5 M€

5 SEPT 2024

2 PROJETS

➔6

## Scope

Current test strategies are still very time consuming and costly. This call aims to reduce the development cost and time to market of battery systems by accelerated multi-physical (electric, thermal, mechanical, …) and virtual testing on potential failure modes, ageing and misuse on the safety and reliability of battery cells, modules and systems levels. Proposals can address mobile as well as stationary applications

## Expected outcomes

Projects are expected to contribute the following outcomes:

- Development of simplified test strategies reducing the number of test and their complexity while improving battery safety and reliability.
- Deriving advanced operating profiles for testing and development of novel X-in-the-Loop (XiL) test environments
- Application of AI to the collected data at laboratory to redefine designed test matrix in order to improve the potential conclusions, to reduce the testing time and effort;
- Development of virtual methods to reduce the complexity of testing sample to sub-system DUTs (device under test)
- Supporting the uptake of zero emission vehicles and the deployment of stationary energy storage systems (ESS) through safer and cost-effective battery systems.
- Standardisation of battery system testing & validation approaches focusing on the fusion of physical and virtual test methodologies.

# Sustainable, secure and competitive energy supply

- Global leadership in renewable energy, energy system, grid&storage

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|---|---|---|---|---|
| | | 2024 | | |
| **Opening: 12 Sep 2023 Deadline(s): 30 Jan 2024** | | | | |
| **HORIZON-CL5-2024-D3-01-01** | IA | 24.00 | Around 12.00 | 2 |
| **HORIZON-CL5-2024-D3-01-14** | RIA | 13.00 | Around 4.00 | 3 |
| **HORIZON-CL5-2024-D3-01-15** | RIA | 16.00 | Around 5.00 | 3 |
| **Opening: 07 May 2024 Deadline(s): 05 Sep 2024** | | | | |
| **HORIZON-CL5-2024-D3-02-07** | CSA | 3.00 | Around 3.00 | 1 |

Renewable energy technologies encompass renewable electricity, renewable heating and cooling and renewable fuel technologies expected to build a climate-neutral future. It is imperative to enhance affordability, security, sustainability, and efficiency for more established renewable energy technologies to decreasing the EU's dependence on fossil fuels in the PV, wind energy, shipping, aviation and heat pumps sector.

# Sustainable, secure and competitive energy supply

- Global leadership in renewable energy, energy system, grid&storage

| Topics | Synergie | Implementation | Modèle de financement |
|---|---|---|---|
| HORIZON-CL5-2024-D3-01-01 | | 1 business case | Regular |
| HORIZON-CL5-2024-D3-01-14 | | at least two pilots | Regular |
| HORIZON-CL5-2024-D3-01-15 | | 1 business case | Lump Sum |
| HORIZON-CL5-2024-D3-02-07 | International cooperation with the Mediterranean Region | 1 business case | Lump Sum |

**Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.**

# HORIZON-CL5-2024-D3-01-01: Alternative equipment and processes for advanced manufacturing of PV technologies

RIA

~12 M€

30 JAN 2024

2 PROJETS

➔7

## Scope

Photovoltaic power generation is pivotal in the transition to a clean energy system and the achievement of a climate-neutral economy. To ensure security of supply, retaining the whole value chain in EU Member States/Associated countries Proposals are expected to:

- Demonstrate alternative processes and equipment for PV manufacturing with reduced CAPEX, OPEX, energy and material consumption and implement Industry 4.0 concepts.
- Increase the productivity and sustainability of large-scale PV manufacturing equipment and processing,
- Involve multidisciplinary consortia including industrial partners.

## Expected outcomes

Projects are expected to contribute to the following outcomes:

- Establishing a solid European PV innovation and production base ;
- Reduce the CAPEX and OPEX in the PV solar production chain, ultimately leading to cheaper modules and lower LCOE;
- Reinforce the sustainability of the European PV value chain building a secure, resilient, and diverse domestic energy sector industrial base.

# HORIZON-CL5-2024-D3-01-14: Condition & Health Monitoring in Power Electronics (PE) - Wide Band Gap PE for the energy sector

RIA

~4 M€

30 JAN 2024

3 PROJETS

➔6

## Scope

Projects are expected to implement both a practical demonstration and R&I, methodologies and tools involving the activities :

- Condition and Health Monitoring (C&HM) ;
- Stress Steering;
- Wide Band Gap and Ultra-Wide Bandgap PE:

## Expected outcomes

Projects are expected to contribute to all the following outcomes:

- Anticipate failures of Power Electronics (PE) (SiC MOSFETS and Schottky diodes, ) in wind farms and converters of the DC grid;
- Techniques to set the equipment in limp mode to enable to withstand the stress until next maintenance.
- Demonstration of Condition and Health Monitoring (C&HM) for converters of wind turbines generators and HVDC/MVDC converter
- Development of new semiconductor power device technology in Wide Bandgap (WBG) and ultra-wide Bandgap (UWBG) semiconductors : with better performance metrics, e.g., lower conduction losses, higher blocking voltage, better surge current capability, higher switching frequencies and better short-circuit capability.
- Availability of more efficient Power Electronics components for the development of new generation of inverters, converters, etc
- Reduced space occupancy aiming mainly at offshore applications.
- Improved cost efficiency of power devices and semiconductor fabrication processes.

# HORIZON-CL5-2024-D3-01-15: HVAC, HVDC and High-Power cable systems

RIA

~5 M€

30 JAN 2024

3 PROJETS

➔5

## Scope

Projects are expected to implement **at least three** of the activities in (1) for one or more subtopics (A, B, C) or (2) for one or more subtopics (D, E, F) and the practical validation in (3)

- 1. R&I, methodologies and tools involving the activities listed below.

A. Innovation in cable systems

B. Predictive models for cable system ageing (fraction-of-life lost, remaining life), life and reliability

C. Monitoring and fault location systems

- 2. Investigation and development of potential replacement of HVAC overhead lines with HVDC or High-Power cable solutions to increase capacity transfer without the need of building new infrastructures but reusing existing right of ways.

D. Cost-Benefit Analysis for different options of HVAC OHL conversion

E. Technical innovations and design methodologies of hybrid HV AC/DC overhead lines

F. Pan-European grid studies and unification of voltage level of the converted OHLs from HVAC to HVDC

- 3. Test and validation of the activities developed in (1) consisting of at least one of the activities described in each subtopic A, B, C or (2) consisting of at least one of the activities

# HORIZON-CL5-2024-D3-01-15: HVAC, HVDC and High-Power cable systems

RIA

~5 M€

30 JAN 2024

3 PROJETS

➔5

## Expected outcomes

Projects are expected to contribute to **at least three** of the following outcomes:

- High Voltage, Extra High Voltage or High Power/superconducting cable systems, including dynamic AC – DC cables.
- Better performing, more environmentally friendly materials for cable and accessory insulation.
- Improved tools for remote monitoring, repair and maintenance of equipment.
- Assessment of the feasibility of new cable system technologies.
- Increased reliability of HVDC or High-Power cable systems while reducing the environmental
- Reduced cost of HVDC or High-Power cables, reducing the visual impact and improves social acceptability compared to AC overhead lines.
- Replacement of HVAC overhead lines with HVDC or with High-Power cable systems to avoid building new lines or reinforcing the grid. Increased power transfer over the same corridor and same or smaller right of ways.
- Methodology development of the OHL conversion from AC to DC with minimal line outage
- Contribution to the emergence of standards for DC OHLs in Europe
- Benefits of power dense technology options and avoidance of grid reinforcement.

# HORIZON-CL5-2024-D3-02-07: Resource Efficiency of PV in Production, Use and Disposal

CSA

~3 M€

5 SEPT 2024

1 PROJET

NA

## Scope

Identify the main areas of improvement for the environmental footprint and resource efficiency of PV  Using Life Cycle Assessment (LCA), efficiency use of critical materials, renewable energy technology and modern eco-friendly technologies. The use of local materials to reduce transport costs in systems needs to be increased, the use of hazardous materials needs to be avoided.

## Expected outcomes

Projects are expected to contribute to **all** of the following outcomes:

- Reduce the environmental footprint associated to PV technology deployment across all the phases of the system lifetime (production, transport, installation and end of life).
- Define design and processing guidelines to optimally address circularity of PV systems for one or several PV technologies (silicon, thin film, organic PV, perovskite PV, etc.).

# Efficient, sustainable and inclusive energy use

- Highly energy-efficient and climate neutral European in building stock& Industry

| Topics | Type of Action | Budgets (EUR million) | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|---|---|---|---|---|
| | | 2024 | | |
| **Opening: 7 Dec 2023 Deadline(s): 18 Apr 2024** | | | | |
| **HORIZON-CL5-2024-D4-01-03** | IA | 16.00 | Around 5.30 | 3 |
| **HORIZON-CL5-2024-D3-02-02** | RIA | 8.00 | Around 4.00 | 2 |

Renewable energy technologies encompass renewable electricity, renewable heating and cooling and renewable fuel technologies expected to build a climate-neutral future. It is imperative to enhance affordability, security, sustainability, and efficiency for more established renewable energy technologies to decreasing the EU's dependence on fossil fuels in the PV, wind energy, shipping, aviation and heat pumps sector.

# Efficient, sustainable and inclusive energy use

- Highly energy-efficient and climate neutral European in building stock& Industry

| Topics | Synergie | Implementation | Modèle de financement |
|---|---|---|---|
| HORIZON-CL5-2024-D4-01-03 | | 1 business case<br>2 alternative heat sources<br>3 industrial application | Lump Sum |
| HORIZON-CL5-2024-D4-02-02 | | at least three prototypes | Regular |

**Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.**

# HORIZON-CL5-2024-D4-01-03: Alternative equipment and processes for advanced manufacturing of PV technologies

IA

~5 M€

18 APR 2024

3 PROJETS

6➔8

## Scope

Alternative forms of energy such as for example ultrasound, microwaves, plasma, infrared, visible and ultraviolet radiations, etc, are unconventional and contactless heat sources, that create the possibility of new, efficient and flexible processes by reducing fossil fuel imports dependency, maximising primary energy savings and CO2 emission. Further research and upscaling work is necessary to demonstrate their potential to be deployed on an industrial scale

.

## Expected outcomes

***Electrification of furnaces to heat large volumes at very high temperatures is not in the scope of this topic,***

Projects are expected to contribute to all of the following outcomes:

- Cost effective and improved designs for at least two alternative heat sources technologies.
- Integration and demonstration of the system at industrial scale of at least one alternative heat source technology in at least on industrial process;
- Make a preliminary estimation of the future equipment cost for at least one alternative heat source technology, in a total of at least three industrial applications to evaluate their economic potential.
- Make an analysis of the potential industrial deployment and related benefits (technical, economic, climatic, environmental) of at least one alternative heat source technology in three industrial sectors,

# HORIZON-CL5-2024-D4-02-02: Robotics and other automated solutions for assembly, renovation and maintenance in a sustainable built environment (Built4People Partnership)

RIA

~4 M€

18 APR 2024

2 PROJETS

➔5

## Scope

- There is a growing need for the development of robotic and automated solutions to support sustainable building construction, renovation and maintenance processes that are less disruptive, cleaner and faster.
- Develop approaches that use digitally assisted design to improve resource efficiency and safety, reduce waste, and reduce construction time.
- Investigate the use of automated support to augment workers' capability and safety (e.g., lift robots, exoskeletons, automated construction site monitoring, use of augmented and virtual reality).
- Investigate the use of automated technologies for surveying, inspection and monitoring of the site.
- Test and validate the prototyped solutions in at least three prototypes to assess the proposed approaches for a variety of buildings typologies representative of the European building stock.

## Expected outcomes

Projects are expected to contribute to all of the following outcomes:

- Reduction of construction and renovation time on-site (at least 40% reduction).
- Reduction of errors in construction and renovation works.
- Improved resource efficiency.
- Reduction of construction and renovation costs.
- Reduction of greenhouse gas emissions resulting from, and improved energy efficiency of the works on-site.
- Reduced environmental impact of construction works, including pollution, particulate matter232 and noise, in the immediate vicinity.
- Reduction of waste generated from the works on-site.

# Programme Euratom

- €583 million for actions in fusion research and development
- €266 million for actions in nuclear fission, safety and radiation protection
- €532 million for actions undertaken by the Joint Research Centre (JRC)

**THE NEW PROGRAMME CONTAINS FIVE MAIN NOVELTIES:**

## Simplification

- The structure of specific objectives has been streamlined and the number of objectives have been reduced.

## Education and Training.

- maintain and develop further nuclear expertise and knowledge in Europe. Nuclear researchers will be eligible to the Postdoctoral Fellowships of the Marie Skłodowska Curie actions to enhance the mobility of nuclear scientists.

## Synergies with Horizon Europe.

- The Euratom Research and Training Programme uses mainly the same instruments and rules for participation as Horizon Europe.

## Synergies between actions

- Closer coordination and co-design of Work Programmes will allow nuclear researchers to better access to JRC expertise and its research infrastructure.

## Focus on health issues.

- addresses research on cross-sectorial fertilisation and non-power applications. An emblematic example is the use of ionising radiation to support safe and optimised medical procedures, contributing to Europe's Beating Cancer action

# Programme Euratom

**MOST OF THE EURATOM PROGRAMME WILL BE IMPLEMENTED THROUGH 3 EUROPEAN PARTNERSHIPS:**

**Small modular reactors (SMRs) have a great potential to provide safe and flexible nuclear power generation options.**

**The Euratom Program supports innovations that improve decommissioning of Nuclear Power Plants.**

**Develop tools and guidelines for treatments reducing patients' doses**

## EUROfusion

Fusion has the potential to provide a safe, cost-efficient and sustainable carbon-free solution to European and global energy needs. The EU is part of a **unique energy project called ITER,** which aims to build the world's biggest fusion machine. European fusion laboratories collaborate through a consortium called **EUROfusion - the European Consortium for Development of Fusion Energy** - in line with the long-term strategy set out in the European research roadmap to realise fusion energy. By fostering innovation and international collaborations, **the Partnership creates economic growth and job opportunities** while putting the EU in the lead of global fusion research.

## European Partnership in radioactive waste management

The European Partnership in radioactive waste management will build on the successful ongoing **European Joint Programme in radioactive waste management, EURAD.** The Partnership is a step change in the European collaboration towards safe radioactive waste management (RWM), including the geological disposal repositories. Through the development of a robust and sustained science and technology, the Partnership will support timely implementation of RWM activities. The Partnership will be aligned with the Radioactive Waste and Spent Fuel Management Directive. **It will ensure responsible and safe management of spent fuel and radioactive waste to avoid** imposing undue burdens on future generations.

## European Partnership in radiation protection and detection of ionising radiation

The European Partnership for research in radiation protection and detection of ionising radiation will build on and further develop the research priorities identified in **the roadmap prepared by the 2015-2020 European Joint Programme for the integration of radiation protection research, CONCERT.** The Partnership will provide solutions and recommendations for protecting people and the environment from the potentially harmful effects of ionising radiation in all exposure situations. The Partnership will be aligned with the Basic Safety Standards Directive. **It will improve the quality of life and health of European patients through the development of new and optimised diagnostic and cancer therapies involving radiation sources.**

# Programme Euratom

## Nuclear safety

| Topics | Type of Action | Budgets (EUR million) 2023/2024/2025 | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|---|---|---|---|---|
| **Opening: 4 Apr 2023 Deadline(s): 8 Nov 2023** | | | | |
| **HORIZON-EURATOM-2023-NRT-01-01** | RIA | 5.30/5.34/9.36 | Around 5.00 | 4 |
| **HORIZON-EURATOM-2023-NRT-01-02** | IA | 4.00/4.00/7.00 | Around 15.00 | 1 |
| **HORIZON-EURATOM-2023-NRT-01-03** | RIA | 3.20/3.20/5.60 | Around 4.00 | 3 |
| **HORIZON-EURATOM-2023-NRT-01-04** | COFUND | 10.59/6.88/2.53 | Around 20.00 | 1 |
| **HORIZON-EURATOM-2023-NRT-01-05** | RIA | 1.33/1.33/2.34 | Around 5.00 | 1 |
| **HORIZON-EURATOM-2023-NRT-01-06** | RIA | 1.07/1.06/1.87 | Around 4.00 | 1 |

Pursue nuclear research (fusion and fission) and training activities, with an emphasis on the continuous improvement of nuclear safety, security and safeguards, radioactive waste management and radiation protection, as well as to complement the achievement of Horizon Europe's objectives.

# Programme Euratom

## Nuclear safety

| Topics | Synergie | Implementation | Modèle de financement |
|---|---|---|---|
| HORIZON-EURATOM-2023-NRT-01-01 | | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-02 | EURAD-2 partnership. | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-03 | EURAD-2 partnership. | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-04 | ORIENT-NM project, | maximum amount granted/ third party is EUR 300 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-05 | EURAD-2 partnership. | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-06 | | maximum amount granted/ third party is EUR 300 000 | Regular |

**Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.**

# HORIZON-EURATOM-2023-NRT-01-01: Safety of operating nuclear power plants and research reactors

RIA

~5 M€

8 Nov 2023

4 PROJETS

➔?

## Scope

Proposals should address challenges related to ageing management and/or the evaluation of safety margins of the reactors' fleet and the fact that the current and planned innovative fleet will consist mainly of Light Water-cooled Reactors.

## Expected outcomes

Projects are expected to contribute to some all of the following outcomes:

- Develop and/or deploy solutions for ageing management and/or the evaluation of reactors' safety margins using, where appropriate, cross-cutting technologies like digitalisation, modelling and simulation;
- Further develop and validate advanced structural integrity assessment methods and evaluate defect tolerance and safety margins in aged and potentially degraded plants;
- Quantify the safety margin in state-of-the-art integrity assessment methodologies on key nuclear components under real loading conditions;
- Draw up best practice guidance for developed assessment methods, disseminate the project outputs and
- develop competences and ensure continuity in short- to long-term research;
- Implementing, on the part of licence holders and regulators, the requirements of the Nuclear Safety Directive, Basic Safety Standards Directive and Radioactive Waste Management Directive.

# HORIZON-EURATOM-2023-NRT-01-02: Safety of light water small modular reactors (LW-SMRs)

IA

~15 M€

8 Nov 2023

1 PROJET

➔?

## Scope

Research proposals should address safety aspects on integration of LW-SMRs in the hybrid energy system, including the evaluation of optimal electric grid management and safety by design.

- core/fuel (including fuel qualification);
- nuclear steam supply system integrated vessel and its internals;
- demonstration of natural circulation passive safety systems also in transient conditions;
- streamlined harmonised licensing;
- severe accident analysis; and emergency preparedness and response;
- human and environmental radiation protection;
- safety, security and safeguard interfaces from the early design stage;

modularity, human factors and hybridisation/(co)generation of heat/H2 production/desalination.

## Expected outcomes

Projects are expected to contribute to some all of the following outcomes:

- Ensure that LW-SMRs are designed, sited, constructed, commissioned, operated and decommissioned in line with the requirements of the Nuclear Safety Directive, Basic Safety Standards Directive and Radioactive Waste Management Directive,
- Establish a shared and coherent approach among regulators to safety requirements ( corephysics and thermal hydraulics, radiation protection specificities, monitoring )for LW-SMRs, further improving safety across the Community.
- Support safety innovation and competencies in LW-SMRs while allowing some Member States to contribute to the energy transition

# HORIZON-EURATOM-2023-NRT-01-03: Safety of advanced and innovative nuclear designs

RIA

~ 4 M€

8 Nov 2023

1 PROJET

➔?

## Scope

Demonstrate the safety of advanced systems that offer increased sustainability, new non-electricity applications and flexibility in terms of adaptation to the energy mix with intermittent/variable sources. These advanced reactor technologies could also be deployed as small modular reactors, combining their specific properties and advanced coolant technologies.

## Expected outcomes

Projects are expected to contribute to some all of the following outcomes:

- Achieving a scientific consensus to ease the understanding and appropriation by the regulators of any innovative reactor concepts and their associated fuel cycles.
- Cover the viability phase of advanced technologies, when basic concepts are tested under relevant conditions.
- Further investigate safety aspects of selected advanced reactor systems and the use of non-water coolants and fluid fuel designs, higher operational temperatures also related to the option of industrial process heat production and H2 generation and higher reactor power density
- Investigate safety aspects of operational flexibility in an integrated energy system, for example by design and safety demonstration of intermediate heat storage facilities or other means.

# HORIZON-EURATOM-2023-NRT-01-04: Co-funded European partnership for research in nuclear materials

COFUND (55 %)

~ 20 M€

8 Nov 2023

1 PROJET

➔?

## Scope

This action should contribute significantly to the development of materials to ensure the highest safety standards and reducing the time-to-market for the various types of materials and related advanced manufacturing techniques, by bringing together European entities that have a national mandate for research in materials science and deal with nuclear materials. An accurate materials health monitoring method to be applied during the operation is needed, as well as advanced predictive methodologies that blend modern digital techniques. Physics-based models should also be developed.

## Expected outcomes

Project results are expected to contribute to all of the following expected outcomes (16 in total):

- Boost knowledge about the durability of the main structural materials used in the nuclear island,
- Improve knowledge about advanced nuclear fuels with optimised performance for different reactor cores,
- increased safety and lower spent fuel long-term toxicity.
- Develop and qualify materials for core applications, advanced fuel elements, including enhanced accident tolerant fuels and/or enhanced performance fuels.
- Improve knowledge about the degradation of secondary structural materials such as concrete or polymers and how nuclear materials behave at high temperatures and in conditions of strong degradation
- Develop methodologies for identifying innovative materials solutions that are applicable to both nuclear fission and fusion domains.
- Improve research collaboration on materials of common interest with other domains beyond nuclear;
- Further develop and optimise modern non-destructive examination techniques needed for the accurate health monitoring of relevant structures;
- Develop and improve predictive methodologies for materials behaviour under different irradiation conditions
- Develop enhanced standardised experimental techniques necessary to streamline experimental approaches for irradiated materials based on a traceability chain
- Improve nuclear data/reference data, design codes and standards relevant for nuclear materials and fuel performance codes
- Improve the quality of modern education methods and the training of scientists and nuclear industry specialists in connection with nuclear materials.

# HORIZON-EURATOM-2023-NRT-01-05: Partitioning and transmutation of minor actinides towards industrial applications

RIA

~ 5 M€

8 Nov 2023

1 PROJET

➔?

## Scope

This action aims to strengthen important Euratom research undertaken in previous programmes and make real advances towards demonstration of P&T processes – a key component of future fuel cycle strategies to some Member States, whether critical or sub-critical ADS advanced and innovative reactor systems. This research will improve the safety of processes by using state-of-the-art P&T technology towards a closure of the nuclear fuel cycle.

- separation technologies;
- fuel fabrication;
- transmutation systems;
- fuel reprocessing;
- fuel technological aspects (particularly for MA-loaded fuels), including transportation, cooling and handling.

## Expected outcomes

Projects are expected to contribute to all of the following outcomes:

- Reduce the long-lived components of radioactive waste and ease its management by developing EU competencies and expertise in partitioning and transmutation (P&T) and actinide fuel fabrication processes;
- Address the Nuclear Safety Directive62, Basic Safety Standards Directive63 and Radioactive Waste Management Directive64 requirements on P&T and improve the sharing of best practices between the European nuclear actors;
- Address the safety aspects of optimising fuel cycles regarding the use of resources and reducing radioactive waste with a direct impact on fuel composition, fuel treatment and recycling.

# HORIZON-EURATOM-2023-NRT-01-06: Improved nuclear data for the safety of energy and non-energy applications of ionising radiation

RIA

~ 4 M€

8 Nov 2023

1 PROJET

➔?

## Scope

Beyond the needs for advanced and innovative nuclear designs and fuels, the use and needs of nuclear data for accelerator-related applications and for the production and use of isotopes (in fission, fusion, health, environmental monitoring, etc.) keeps growing.

## Expected outcomes

Projects are expected to contribute to all of the following outcomes:

- Assess the state of nuclear data libraries and computer simulation tools to advise on strategic actions in order to preserve and develop Euratom capacities;
- Provide reliable nuclear data for neutron or charged particles induced reactions cross-sections, decay and structure data, and computer simulation tools for different nuclear energy and non-energy applications, mainly applied to the fields of fission and fusion safety, radiation protection, waste management, innovative nuclear systems and sustainable fuel cycles;
- Support access to key experimental infrastructures that address specific measurement capabilities and methodologies to preserve know-how in computer applications, nuclear data evaluation, validation of data and models, and to improve education & training and knowledge sharing.

# Programme Euratom

- Radioactive waste management/decommissionning and nuclear science application&protection

| Topics | Type of Action | Budgets (EUR million) 2023/2024/2025 | Expected EU contribution per project (EUR million) | Indicative number of projects expected to be funded |
|---|---|---|---|---|
| **Opening: 4 Apr 2023 Deadline(s): 8 Nov 2023** | | | | |
| **HORIZON-EURATOM-2023-NRT-01-07** | IA | 1.66/1.66/0.68 | Around 2.00 | 2 |
| **HORIZON-EURATOM-2023-NRT-01-08** | IA | 1.87/1.86/3.27 | Around 2.00 | 1 |
| **HORIZON-EURATOM-2023-NRT-01-09** | RIA | 1.87/1.86/3.27 | Around 7.00 | 3 |
| **HORIZON-EURATOM-2023-NRT-01-10** | IA | 1.87/1.86/3.27 | Around 2.33 | 2 |
| **HORIZON-EURATOM-2023-NRT-01-11** | CSA | 0.40/0.40/0.20 | Around 1.00 | 1 |

Pursue nuclear research (fusion and fission) and training activities, with an emphasis on the continuous improvement of nuclear safety, security and safeguards, radioactive waste management and radiation protection, as well as to complement the achievement of Horizon Europe's objectives.

# Programme Euratom

- Radioactive waste management/decommissionning and nuclear science application&protection

| Topics | Synergie | Implementation | Modèle de financement |
|---|---|---|---|
| HORIZON-EURATOM-2023-NRT-01-07 | | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-08 | | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-09 | | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-10 | PIANOFORTE partnership | maximum amount granted/ third party is EUR 60 000 | Regular |
| HORIZON-EURATOM-2023-NRT-01-11 | SAMIRA and REPowerEU | JTI | Regular |

**Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.**

# HORIZON-EURATOM-2023-NRT-01-07: Innovative technologies for safety and excellence in decommissioning, including robotics and artificial intelligence

IA

~ 2 M€

8 Nov 2023

2 PROJETS

➔?

## Scope

Decommissioning is currently recognised as a fixed part of the nuclear facilities' life cycle. This cannot be neglected when implementing a sustainable energy future. This also reflects the public interest and the contemporary principle of environmental sustainability related to any industrial activity. The thematic areas that should be prioritised are in situ waste characterisation and segregation, robotics and remote systems, difficult to measure radionuclides, clearance of surfaces and structures, cost estimation and knowledge management.

## Expected outcomes

Projects are expected to contribute to all of the following outcomes:

- Improve safety in the decommissioning of nuclear systems, minimising operational waste, dismantling waste and improving the environmental remediation of nuclear facilities;
- Fulfil decommissioning requirements of the Nuclear Safety Directive65, Basic Safety Standards Directive and Radioactive Waste Management Directive;
- Contribute to excellence in decommissioning, while developing cutting-edge technological innovation, competitive and resilient industry initiatives, future-proof jobs and skills for a fair transition.

# HORIZON-EURATOM-2023-NRT-01-08: Safety of low enriched fuel for research reactors - securing the supply of medical radioisotopes

IA

~ 7 M€

8 Nov 2023

1 PROJET

➔?

## Scope

Action should improve HPRR and MPRR operational safety and serve for state-of-art licensing procedures by developing, verifying and validating advanced modelling and simulation tools in relation to neutronics, thermal hydraulics and the mechanical stability of reactor cores using codes developed in Europe.

- Euratom research will be driven by further development and qualification work by European HPRR and MPRR operators to enable their research reactors to be converted from highly enriched uranium to low-enriched uranium, and/or to ensure the supply of alternative fuels, including reactor-specific prototype demonstrations.
- To secure the supply of HALEU, it is necessary to carry out R&D on the metallisation of low-enriched uranium by alternative methods to provide options to potential future EU manufacturers

## Expected outcomes

Projects are expected to contribute to all of the following outcomes:

- Develop competencies and ensure continuity in the EU's excellence in research reactors while contributing to Europe's Beating Cancer Plan and implementing the Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA);
- Support the future of European **high-performance research reactors (HPRRs)** and medium power research reactors (MPRRs) as world-leading neutron sources and reliable production facilities for medical radioisotopes;
- Address the relevant requirements of the Nuclear Safety Directive, Basic Safety Standards Directive and Radioactive Waste Management Directive, and improve the sharing of best practices between relevant European nuclear actors

# HORIZON-EURATOM-2023-NRT-01-09: Nuclear and radiation techniques for EU strategic autonomy, circular economy and climate change policies

RIA

~ 2.33 M€

8 Nov 2023

1 PROJET

5➔7

## Scope

The potential for innovative ionising radiation applications is enormous and should support the EU's strategic autonomy, circular economy and climate change policies. The areas are extensive and concern applications of charged particle beams (accelerators), x-rays, radioisotopes (alpha, beta and gamma emitters) and neutrons. This action could focus on closer-to-the-market activities, including prototyping, testing, demonstrating, piloting and scaling up new or improved products, processes or services.

## Expected outcomes

Project results are expected to contribute to some of the following expected outcomes:

- Contribute to the EU's strategic autonomy by demonstrating concepts and solutions using nuclear and radiation techniques for producing critical raw materials, recovering rare-earth metals (lanthanides) from any waste, including radioactive waste and spent fuel, and exploring their market potential;
- Contribute to the EU's circular economy by demonstrating concepts and solutions using nuclear and radiation techniques to reduce, recycle and reuse non-radioactive waste from domestic and industrial sources and explore their market potential;
- Contribute to climate change adaptation by demonstrating concepts and quality assured services for applications of nuclear and radiation techniques to monitor climate change and pollution of ecosystems and explore their market potential.

# HORIZON-EURATOM-2023-NRT-01-10: Harnessing innovation in nuclear science, technology and radiation protection

IA

~ 3.50 M€

8 Nov 2023

2 PROJETS

5➔7

## Scope

This action aims to bring innovation, including via cross-fertilisation with other scientific and technical sectors, to radiation protection. The proposals should :

- Complement, without duplicating, the research challenges addressed in the PIANOFORTE research roadmap.
- Address the development of new quality assured nuclear techniques or optimisation of existing ones in the medical field.
- Address the safety challenges related to developing and implementing non-electric applications for nuclear energy.

## Expected outcomes

Project results are expected to contribute to some of the following expected outcomes:

- Bring a breakthrough innovation in radiation protection and emergency preparedness to improve protection against ionising radiation;
- Address safety aspects of alternative applications of nuclear energy (e.g. hydrogen production, process heat for energy-intensive industries, district heating and desalinisation),
- Develop new nuclear techniques or optimise existing ones in the medical field, addressing in particular safety and radiation protection aspects.
- Support the development of European production of stable isotopes used in novel nuclear medicine therapies,
- Bring innovation in communication about nuclear applications and their risks to ensure informed decisions by stakeholders, civil society and decision-makers.

# HORIZON-EURATOM-2023-NRT-01-11: Preparatory phase for a European production capability to secure a supply of high-assay low-enriched uranium (HALEU) fuel

CSA

~ 1 M€

8 Nov 2023

1 PROJET

NA

## Scope

This action should provide catalytic and leveraging support for a preparatory phase aiming at bringing the project to a level of maturity required to potentially enable construction work to start on the EU's production capability. The preparatory phase should aim at optimal coordination, cross-border operation and possible integration of national research actions of trans-European interest in the field and include: A strategic work, a management work, governance work, financial work, legal work, technical work. After 2 years, a successful preparatory phase should lead to the implementation of joint programmes based on public-public and public-private partnerships.

## Expected outcomes

Project results are expected to contribute to some of the following expected outcomes:

- Security of supply, long-term availability, accessibility and strategic autonomy from 2030-35 onwards of High Assay Low Enriched Uranium (HALEU) fuel and targets, in metallic form.
- Support the EU's production capability and long-term supply of HALEU (high-assay low-enriched uranium) for European research reactors and the production of medical radioisotopes;
- Implementing the requirements of the Nuclear Safety Directive and improving the sharing of short- to long-term best practices between European nuclear actors;
- To contribute to addressing key challenges of Horizon Europe missions and EU priorities in the energy and health sectors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# What's next?

[Site Internet NCP Wallonie](#) ☞ APPELS À PROPOSITIONS

**Liste des appels Energy 2022-2023**

| Topic ID | Topic + lien web | Deadline | Origin | NCP |
|---|---|---|---|---|
| **Destination 3 – Sustainable, secure and competitive energy supply** | | | | |
| **Global leadership in renewable energy** | | | | |
| HORIZON-CL5-2022-D3-02-01 | Digital solutions for defining synergies in international renewable energy value chains | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Thomas Chauvaux |
| HORIZON-CL5-2022-D3-02-02 | AU-EU Energy System Modelling | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Jean-Jacques Lemaire |
| HORIZON-CL5-2022-D3-02-03 | Innovative renewable energy carrier production for heating from renewable energies | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-04 | Technological interfaces between solar fuel technologies and other renewables | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-05 | Renewable energy carriers from variable renewable electricity surplus and carbon emission | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-06 | Direct renewable energy integration into process energy demands of the chemical industry | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-07 | Renewable energy incorporation in agriculture and forestry | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |
| HORIZON-CL5-2022-D3-02-08 | Demonstration of complete value chains for advanced biofuel and non-biological renewabl | 27-oct.-22 | Cluster 5: Climate, Energy and Mobility | Mathias LUCAS |

Industry | Mobility | Space | Energy | Climate, Envi | EIC | EIE | EU Missions | Explorer

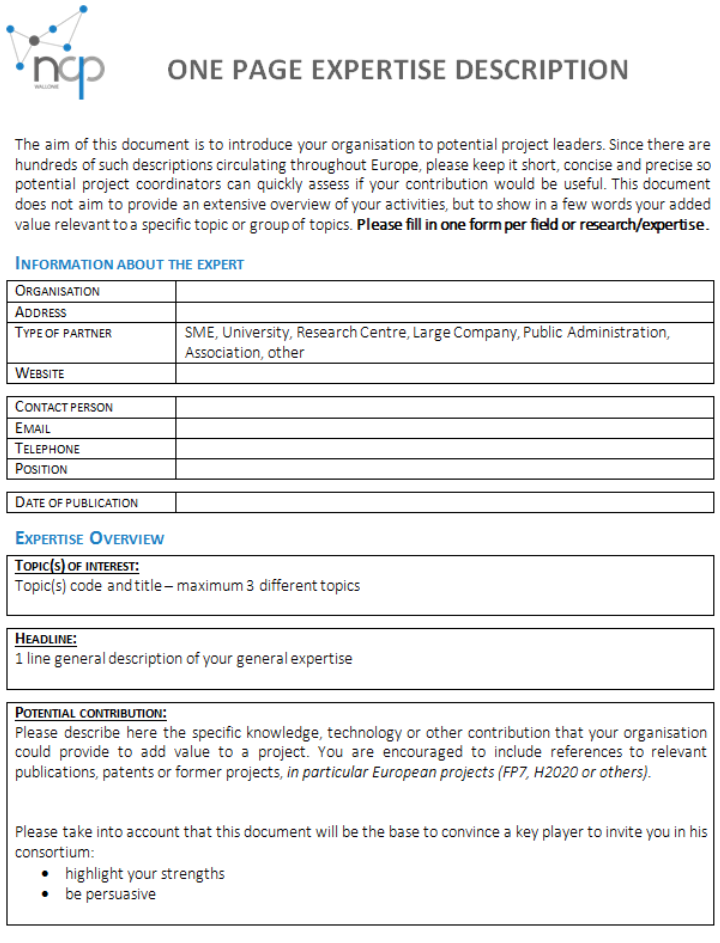
# What's next?

## Fiche du NCP Wallonie « One page expertise description »

Données administratives

Topic Identifié

Contribution **CONCRÈTE** au projet / Valeur ajoutée



ONE PAGE EXPERTISE DESCRIPTION

The aim of this document is to introduce your organisation to potential project leaders. Since there are hundreds of such descriptions circulating throughout Europe, please keep it short, concise and precise so potential project coordinators can quickly assess if your contribution would be useful. This document does not aim to provide an extensive overview of your activities, but to show in a few words your added value relevant to a specific topic or group of topics. **Please fill in one form per field or research/expertise.**

INFORMATION ABOUT THE EXPERT

| | |
|---|---|
| ORGANISATION | |
| ADDRESS | |
| TYPE OF PARTNER | SME, University, Research Centre, Large Company, Public Administration, Association, other |
| WEBSITE | |
| CONTACT PERSON | |
| EMAIL | |
| TELEPHONE | |
| POSITION | |
| DATE OF PUBLICATION | |

EXPERTISE OVERVIEW

**TOPIC(S) OF INTEREST:**
Topic(s) code and title – maximum 3 different topics

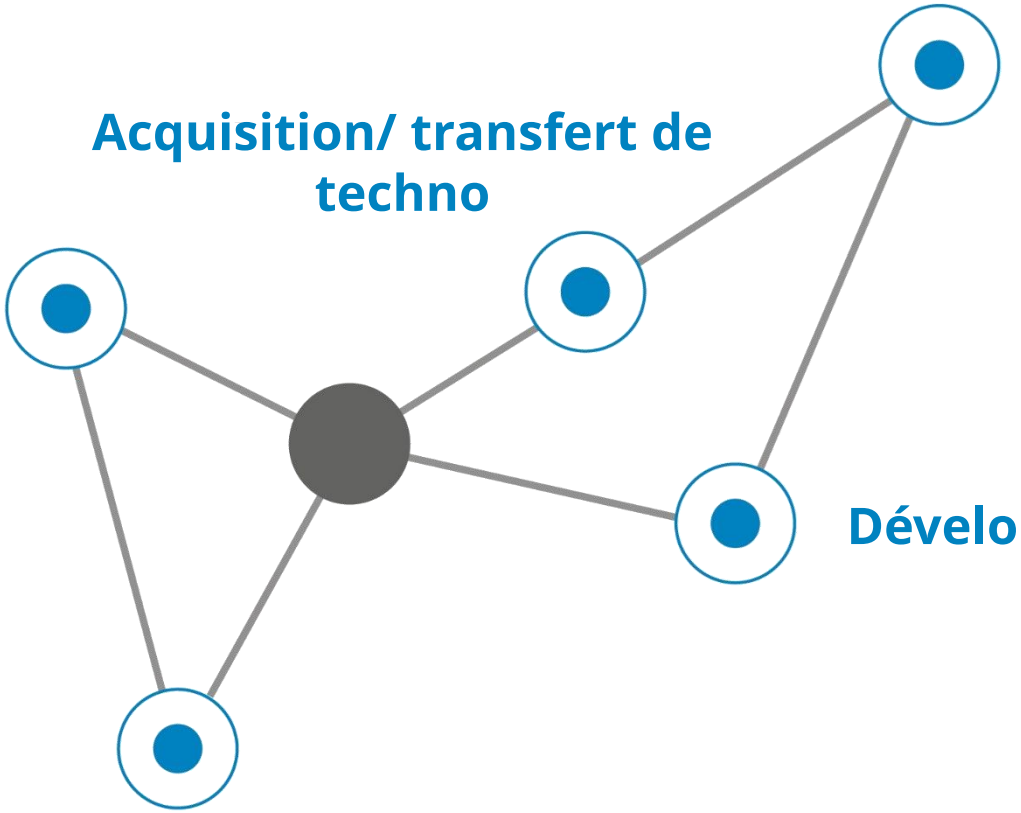
**HEADLINE:**
1 line general description of your general expertise

**POTENTIAL CONTRIBUTION:**
Please describe here the specific knowledge, technology or other contribution that your organisation could provide to add value to a project. You are encouraged to include references to relevant publications, patents or former projects, *in particular European projects (FP7, H2020 or others).*

Please take into account that this document will be the base to convince a key player to invite you in his consortium:

- highlight your strengths
- be persuasive

# CONCLUSION


Développer votre équipe/ compétences
Acquisition/ transfert de techno
Levier financier/ technologique
Développer votre business
Gagner en visibilité

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# HORIZON-CL5-2024-D2-01-01: Advanced sustainable and safe pre-processing technologies for End-of-Life (EoL) battery recycling (Batt4EU Partnership)

IA (60%)

~7 M€

18 APRIL 2024

3 PROJETS

➔5

## Scope

The pretreatment process (mechanical, thermal and chemically) is the first and indispensable step in recycling Lithium-ion batteries (LIBs) and were tested at least at lab-scale. Current EOL LIB recycling technologies are focused on improving the recovering efficiency of Cobalt that is the most valuable material. However, other no-Co battery contents need to be extracted (low-density plastics, metal shells and foils, binders, separators, organic solvents, Li salt, etc ) to promote environmental protection and sustainability.

## Expected outcomes

Projects are expected to contribute **to all of** the following outcomes:

- Reducing strategic dependencies for critical raw materials by promoting resource efficiency to make EU economy stronger and resilient in regard to the twin transition;
- Improve cooperation between EU recyclers and battery manufacturing towards zero-waste concept by developing holistic, materials and energy efficient recycling processes that can increase the content of recovered mass;
- Circularity of battery materials, where also non-metallic elements (electrolyte, solvent, salts and polymers) are recycled back to use (as raw materials or valuable chemicals);
- Environmentally processes for battery pre-treatment of the main elements to decrease the CO2 footprint;
- Safe technologies to improved recovery yield, quality and purity level of the recycled/recovered materials.