HORIZONT EURÓPA PÁLYÁZATI LEHETŐSÉGEK -5. KLASZTER

MEGÚJULÓ ENERGIÁK

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2024. Október. 18.

Nemzeti Kutatási, Fejlesztési
és Innovációs Hivatal

A 3 felhíváscsomag: határidők

- **Sustainable, secure and competitive energy supply (HORIZON-CL5-2024-D3-02)** 04 February 2025 17:00:00 Brussels time (eredeti határidő: január 21.)

- **Efficient, sustainable and inclusive energy use (HORIZON-CL5-2024-D4-02)** 04 February 2025 17:00:00 Brussels time (eredeti határidő: január 21.) **Built4People Partnerség**

A Funding and Tenders portálon találják a mindenkori aktuális információkat, a beadási határidők módosításaival kapcsolatosan is! A Munkaprogramhoz képest változásokat tartalmazhat a kiírásokra vonatkozóan is a Funding and Tenders Portal.

- **Clean Energy Transition Partnerség (CETP)** Joint Call 2024 | CETPartnership **1. pályázási szakasz: 2024. november 21. A felhívások NEM a Funding and Tenders Portálon, csak a CETP honlapján!**

Horizont Európa – Klasztertípusú felhívások

HORIZON-CL5-2024-D3-02 (Sustainable, secure and competitive energy supply)

- Pályázási időszak: 2024.09.17-**2025.02.04**. (!)
- Felhívások száma: (13)
- **€138.6 million**
- Innovation Actions (HORIZON IA), Research and Innovation Actions (HORIZON RIA), Coordination and Support Actions (HORIZON CSA).
- Területek: napenergia, szélenergia, széndioxid, bioenergia, digitalizáció

RIA, IA, CSA

- **Research and innovation action (RIA)** that establishes new knowledge and/or explores a new or improved technology, product, process, service or solution. **The EU funding covers up to 100% of the project costs.**

- **Innovation action (IA)** that produces plans or designs for new or improved products, processes or services including prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. **The EU funding covers up to 70% of the project costs.**

- **Coordination and support action (CSA)** that improve cooperation between legal entities from the EU and associated countries to strengthen the European Research Area including, for example, standardisation, dissemination, awareness-raising, communication and networking activities, policy dialogues, mutual learning or studies. **The EU funding covers up to 100% of the project costs.**

HORIZON-CL5-2024-D3-02 (Sustainable, secure and competitive energy supply) – a szakpolitikai háttér

A felhívások a **fenntartható, biztonságos és versenyképes energiaellátáshoz** kapcsolódó tevékenységek kutatás-fejlesztési hátterének támogatását biztosítják az alábbi területeken: energiarendszerek, energiahálózatok és energiatárolás; széndioxid hasznosítás. A támogatások célja az energiahálózatok korszerűsítése az energiahálózatok összekapcsolása érdekében, beleértve a keresleti szektor fokozatos átállását a villamos energiára (épületek, közlekedés, ipar), **a klíma-semleges energiahordózók bevonásával,** mint amilyen a hidrogén.

Az innovatív energiatárolási megoldások (beleértve a vegyi, mechanikus, villamos és termál tárolást) kulcs elemei a célként kitűzött energiahálózatoknak és a KF célja ezeknek a technológiáknak az ipari léptékű és háztartási hasznosításának az elősegítése.

Elvárt eredmények/Main expected impacts:

- elérhető (megfizethető), biztonság, fenntartható megújuló energiatechnológiák és szolgáltatások, amelyek versenyképesek a globális értékláncon szintjén és hozzájárulnak a piacok növekedéséhez, főként azzal, hogy elősegítik a megújuló technológiák és szolgáltatások diverzifikációját/sokszínűségét.
- költséghatékony, folytonos és megfizethető energiaszolgáltatás biztosítása az ipar és háztartások számára, változatos megújuló energiák biztosításával. Ehhez hozzátartozik az okos és kiber-biztonságos energiahálózat és a termelők, fogyasztók, hálózatok és infrastruktúra üzemeltetők közötti együttműködés optimalizálása.
- a széndioxid leválasztás, felhasználás és tárolás (CCUS) fejlesztése és felgyorsítása, mint a CO_2 kibocsátást csökkentő opció a villamos-energia termelésben, illetve a CO_2 ipari alkalmazása, beleértve a termékké alakítását.

Global leadership in renewable energy

A megújuló energiatechnológiák körébe tartozik a megújuló villamosság, megújuló fűtés és hűtés és a megújuló üzemanyagok. Ezek helyettesítik a fosszilis energiát az energiatermelésben, fűtés- hűtés szektorban, közlekedésben, mezőgazdaságban és az iparban. A megújuló energiák köre tovább bővíthető a szél, fotovillamosság, napenergia, bioenergia és vízenergia technológiák fejlesztésével. A megújuló üzemanyagok ott kulcsfontosságúak, például közlekedés, energia-intenzív ipar, ahol a villamosítás nem megoldható technikailag vagy túl költséges lenne.

A megújuló energiák kutatás-fejlesztési támogatásának további célja a technológiák környezeti fenntarthatóságának javítása.

Az említett technológiáknak jelentős nemzetközi piaci potenciálja is van, amely erősíti az EU versenyképességét. Ebben áll a kapcsolódási pont a versenyképességgel.

Main expected impacts:

- Folytonos fenntartható megújuló energiák és megújuló üzemanyag technológiák **elérhetővé tétele** a fosszilis energia leváltása érdekében 2025-re, figyelembe véve a jövő klímaváltozásait, anélkül, hogy mindez a környezet és természeti erőforrások rovására történne;
- **Alacsonyabb költségek és jobb hatékonyság** elérése az értékláncon belül;
- Kockázatmentessé tétele a megújuló energiáknak és megújuló üzemanyag technológiáknak a kereskedelmi hasznosítás érdekében (2030);
- Jobb beépítése a fenntartható megújuló energiáknak és megújuló üzemanyag technológiáknak a gazdaság minden ágazatába, digitális technológiák révén;
- Az energia függetlenség és biztonság fokozása az EU-ban a zöld átállás felgyorsításával;
- Megfizethető, biztonságos és fenntartható energia megoldások a gáz ellátás diverzifikálása érdekében (bio metán);
- Nemzetközi együttműködések erősítése az európai technológia export növelése érdekében;
- A megújuló energiák és megújuló üzemanyag értéklánc fenntarthatóságának növelése, tekintettel a körforgásos, társadalmi, gazdasági és környezetvédelmi követelményekre;
- Hatékonyabb piacosítása a megújuló energiáknak és a megújuló üzemanyag technológiáknak a forgalmazás érdekében.

Energy systems, grids and storage/Main expected impacts:

- Az **energia rendszer megbízhatóságának növelése** új vagy továbbfejlesztett technológiákkal, a rendszer ellenőrzés és stabilitás növelése érdekében nehéz körülmények között is;
- Az energia rendszer megbízhatóságának és **rugalmasságának növelése** annak érdekében, hogy **egyidejűleg összehangoltan tudjanak működni különféle energiahordozókkal működő energiarendszerek;**
- Innovatív **adatvezérelt** szolgáltatások, amelyek **bevonják a fogyasztókat** a zöld energiára történő áttérésre. Olyan energia rendszerrugalmasság, amely lehetővé teszi a fogyasztók számára a **hozzáférést az új energiaszolgáltatásokhoz;**
- Jobb energiatárolás és energiavektor technológiák, főleg olyan technológiák, amelyek a villamos energia és hő hosszú távú tárolását biztosítják.
- **Magasabb interoperabilitás** megvalósítása, **fokozottabb adathozzáférés és könnyebb adatcsere**; Hatékonyabb és hatásos megoldások az off-shore energia szállításra és zökkenőmentes beépítésére, szupervezető technológiák, és egyéb megoldások révén (power electronics and hybrid Alternate Current – Direct Current grid solutions as well as MT HVDC (Multi Terminal High Voltage Direct Current)
- **Jobb rendszerrugalmasság adat-megosztás révén**, jobb előreláthatósága a befektetések megtérülésének a megújuló energiák területén;
- Az **új digitális technológiák felgyorsítása** (from early-adoption to upscaling) az energiaszektorban;
- **Kiber-biztonsági** és adatvédelmi eszközök és technológiák kifejlesztése;
- **IT technológiák általi** rendszerszintű energia **menedzsment.**

Carbon Capture, Utilisation and Storage (CCUS)/Main expected impacts:

- Gyors megteremtése az infrastruktúrának, főleg a CCUS hub-ok és klaszterek létrehozása;
- Tudásmegosztás és best practice megosztása, különös tekintettel a döntéshozók és befektetők bizalmának növelése érdekében;
- Bizonyított megvalósíthatósága a CO2 leválasztás, hasznosítás ás tárolás ipari hasznosításának, a technológiák ipari léptékű demonstrálása;
- Költségcsökkentés a széndioxid értéklánc mentén, mivel a leválasztás költségei még mindig akadályt jelentenek a széleskörű hasznosításhoz;
- Innovatív technológiák a széndioxid átalakításhoz, amelyek csökkentik szükségességét a sűrítésnek és/vagy tisztításnak;
- Megfelelő keretek kidolgozása a tárolás és felhasználás mérésére, monitoringjára és ellenőrzésére; a technológia közérdekű felvásárlására;
- További kutatások a DACCS ás BECCS leválasztási technológiák területén.
- A széndioxid hasznosítási technológiák környezeti hatások és kockázatok felmérése rövid, közép és hosszútávon, figyelembe véve a 'Do Not Significant Harm' elvet.
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A felhívások:

- HORIZON-CL5-2024-D3-02-01: Digital tools for CSP and solar thermal plants; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-02: Development of next generation synthetic renewable fuel technologies; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-03: Development of smart concepts of integrated energy driven bio-refineries for co-production of advanced biofuels, bio-chemicals and biomaterials; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-04: Critical technologies for the future ocean energy farms; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-05: PV-integrated electric mobility applications; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-06: Innovative, Community-Integrated PV systems; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-07: Resource Efficiency of PV in Production, Use and Disposal; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-08: Minimisation of environmental, and optimisation of socio-economic impacts in the deployment, operation and decommissioning of offshore wind farms; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-09: Demonstrations of innovative floating wind concepts; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-10: Market Uptake Measures of renewable energy systems; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-11: CCU for the production of fuels; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-12: DACCS and BECCS for CO2 removal/negative emissions; EU Funding & Tenders Portal (europa.eu)
- HORIZON-CL5-2024-D3-02-13: Support to the activities of the SET Plan Key Action area Renewable fuels and bioenergy; EU Funding & Tenders Portal (europa.eu)

HORIZON-CL5-2024-D3-02-01:

Digital tools for CSP and solar thermal plants

Innovation Action (IA) | 3M EUR/project | 2 to be funded | Deadline 4 February 2025

Expected Outcome:

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

- Improved performance of concentrated solar power (CSP) plants.
- Improved performance of concentrated and/or non-concentrated solar thermal heat and/or cold plants.
- Reduced operation and maintenance costs of CSP plants.
- Reduced operation and maintenance costs of concentrated and/or non-concentrated solar thermal heat and/or cold plants.
- Reinforced role of CSP plants in the power market.
- Reduced greenhouse gas emissions.
- Achievement of the CSP targets of the Strategic Energy Technology Plan.

HORIZON-CL5-2024-D3-02-01:

Digital tools for CSP and solar thermal plants

Scope

- Support will be given to the **innovative application of digital tools** (or to the **application of innovative digital tools, or both**) in the following areas: (i) CSP and/or (ii) solar thermal heat and/or cold. Any type of application of the digital tools is in the scope (e.g., component control, performance measurement, self-diagnostic, ancillary services to the power system, digital twins, etc.). **Artificial intelligence t**echniques are also in the scope.
- Proposals are expected to bring and demonstrate measurable benefits of the proposed digital tools in terms of operation, maintenance, and flexibility of the plant.
- Where applicable, the digital tools should support night baseload generation from thermal energy storage.
- Where applicable, the demonstration should span a continuous interval of at least six months covering all possible incidence angles of the direct solar radiation.

HORIZON-CL5-2024-D3-02-02:

Development of next generation synthetic renewable fuel technologies

Research Innovation Action (RIA) | 12:00 M/ 4M EUR/project | 3 to be funded | Deadline 4 February 2025

Project results are expected to contribute to **all of the following expected outcomes**:

- Increase availability of disruptive emerging synthetic renewable fuel technologies.
- Accelerate the readiness of cost-effective and highly performing future technologies of synthetic renewable fuels for all economy sectors.
- Reinforce the European scientific basis and European technology export potential for synthetic renewable fuel technologies.

Scope:

Development of next generation technologies for the production of novel synthetic renewable liquid and gaseous fuels from **CO2,** and/or **renewable carbon**, **nitrogen, hydrogen or their compounds and from renewable energy**. **Process energy will also be renewable**. Synergies with other renewable energy technologies can be explored. Focus should be on the high source to product conversion efficiency, process energy efficiency and carbon emission neutrality from the overall production. Overall, proposals are expected to improve competitiveness and minimize GHG emissions in the production process. **Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy (e.g., electricity, direct sunlight, heat) are in scope.** The new technologies should also address uses in fuel cells for all transport modes for electricity generation from renewable fuels used as renewable energy carriers with high conversion efficiency and low pollution. An assessment of the sustainability and the GHG emissions should be made based on a Life Cycle Analysis.

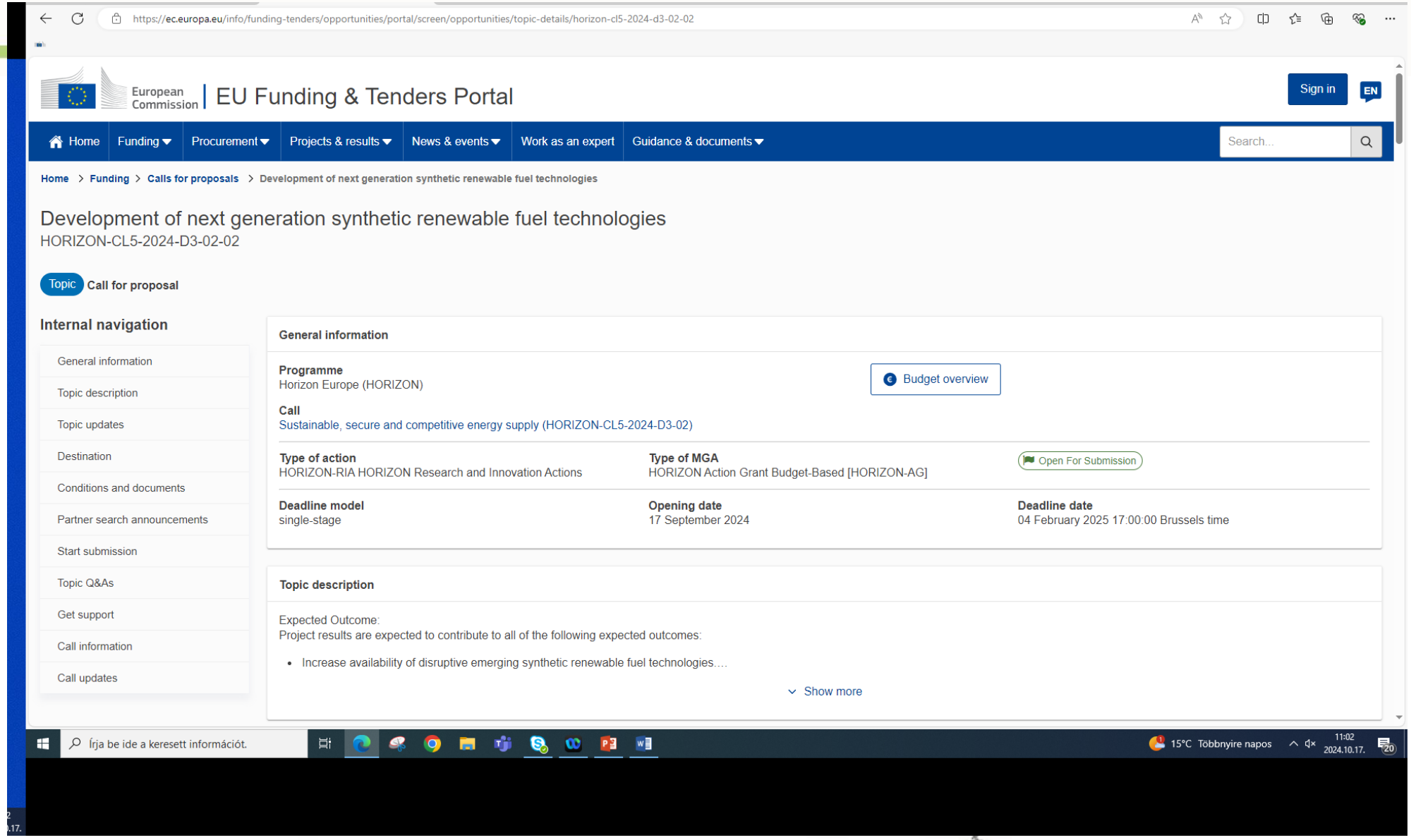
Projects should collaborate if appropriate with the Clean Hydrogen Joint Undertaking on aspects that require integration of hydrogen and are expected to contribute and participate to the activities of the TRUST database and the hydrogen observatory.

Tisztázott szakmai kérdések a felhívás kapcsán:

- HORIZON-CL5-2024-D3-02-02: The topic mentions: "Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy […] are in scope". What does "renewable hydrogen ionic compounds" refer to? The Renewable hydrogen ionic compounds are understood as ionic compounds formed between at least two elements, one of which is hydrogen.
- HORIZON-CL5-2024-D3-02-02: What is the meaning of "synthetic renewable fuels"? The topic explains what these fuels are: "*Development of next generation technologies for the production of novel synthetic renewable liquid and gaseous fuels from CO2, and/or renewable carbon, nitrogen, hydrogen or their compounds and from renewable energy.*"
- HORIZON-CL5-2024-D3-02-02: If a fuel is produced from carbon and hydrogen via organic residues (wastewater treatment plant sludge, organic fraction of solid municipal waste), is it considered a synthetic renewable fuel, or is it excluded from the topic? As regards hydrogen, the topic states "*Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy (e.g., electricity, direct sunlight, heat) are in scope*". CO2 can be of any origin as far as it is energy neutral, although preferably renewable or from DAC. Carbon as an element should be renewable (see question on "synthetic renewable fuels definition). Process energy should be renewable (requirement under scope).
- HORIZON-CL5-2024-D3-02-02: Does the word "novel" refer to a new, non-existing fuel? Or does it mean a novel technology for the production of fuels? The topic expects activities to achieve TRL 3-4 by the end of the project , thus "novel" refers mainly to the production pathway. Without being excluded, non-existing fuels would require activities of more fundamental research.
- HORIZON-CL5-2024-D3-02-02: If a fuel is produced using ONLY the CO2 and the hydrogen contained in biogas obtained from biomass, is this fuel acceptable or excluded from this topic? Using only biogas constituents is not sufficient from a technical point of view, as biogas contains typically 40% CO2 and less than 1% hydrogen. Extra hydrogen and energy would be needed. Therefore the topic specifies "*Process energy will also be renewable. …Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy (e.g., electricity, direct sunlight, heat) are in scope.*"

Tisztázott szakmai kérdések a felhívás kapcsán:

- HORIZON-CL5-2024-D3-02-02: Can hydrogen extracted from CH4 be considered as hydrogen from renewable origin when CH4 can be processed via dry reforming to produce synthesis gas for subsequent production of methanol? The topic specifies "*Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy (e.g., electricity, direct sunlight, heat) are in scope*", exemplifying the expected hydrogen production pathways as a non-biological renewable energy carrier. Although biomass extracted hydrogen cannot be strictly excluded here, it does not fall under the current legal definition of RFNBOs.
- IS AEM (Anion Exchange Membrane) Electrolyser technology considered as novel technology given the previous calls (FCH-02-4-2019; HORIZON-JTI-CLEANH2-2024-01-02)? The topic requires production of novel **synthetic** renewable liquid and gaseous fuels and not hydrogen: "*Development of next generation technologies for the production of novel synthetic renewable liquid and gaseous fuels from CO2, and/or renewable carbon, nitrogen, hydrogen or their compounds and from renewable energy*". The topic also points out the novelty of the pathways: "*Overall, proposals are expected to improve competitiveness and minimize GHG emissions in the production process. Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy (e.g., electricity, direct sunlight, heat) are in scope*". Therefore, elementary advances of the state-of-the-art in any of the production scope are outside the topic's ambitions and expectations.



Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal

Felhívással kapcsolatos tartalmi kérdések esetén:

A pályázók a felhívással kapcsolatos tartalmi kérdéseket intézhetik:

a) a Bizottsághoz a Funding and Tenders Portalon keresztül, vagy
b) megküldik az NPC-nek, aki továbbítja azt Brüsszelbe az NCP koordinátornak (ez a gyorsabb út)

HORIZON-CL5-2024-D3-02-03:

Development of smart concepts of integrated energy driven bio-refineries for co-production of advanced biofuels, bio-chemicals and biomaterials

Reesearch Innovation Action (IA) | 7 M EUR | 3,5 M EUR/project | 2 to be funded | Deadline 4 February 2025

Expected Outcome:Project results are expected to contribute to **all of the following expected outcomes**:

- Expand the portfolio of cost-effective advanced biofuel production concepts through energy-driven biorefineries.
- Reduce cost, improve efficiency, support de-risking, to accelerate the availability of competitive and zero-waste advanced biofuel production concepts.
- Contribute to the Mission Innovation 2.0 mission of Integrated Biorefineries.
- Optimize resource efficiency, energy output and total products value from biomass
- Reinforce the European scientific basis and European export potential for renewable fuel production solutions through international collaborations.

Scope: Development of zero-waste and neutral or negative carbon emission energy-efficient biorefinery concepts for enabling the production of low-cost advanced biofuels through co-production of added value bio-based products and bioenergy. Conversion of biogenic wastes and residues as well as algae and aquatic biomass through chemical, biochemical, electrochemical, biological, thermochemical pathways or combinations of them in highly circular processes are in scope. The integration design is expected to include mass and energy flows, addressing the process heat and power needs by the use of co-produced bio-heat and bio-power, capturing and reusing biogenic effluent gases and sequestering biogenic emissions, for example in the form of biochar as soil amendment, such as to maximize overall material and energy efficiencies. An assessment of the feedstock cost supply at regional and local level and improvement of feedstock mobilisation patterns including via enabling technologies, such as digitalisation, should be included. Socioeconomic and environmental sustainability including circular economy, social, economic and environmental aspects are expected to be assessed on a life-cycle analysis basis. The advanced biofuels cost should aim to be reduced at parity with marketed biofuel equivalents or in the absence of these competitive to the fossil fuel equivalents. Technology validated in relevant environment is required. International cooperation with Mission Innovation countries is expected. Proposals should provide information and assessment about the economic feasibility and the potential of scaling-up the technology at commercial scale as appropriate.

Synergies are possible with topic HORIZON-CL6-2023-ZEROPOLLUTION: Innovative technologies for zero pollution, zero-waste biorefineries (RIA) and respective cooperation activities are encouraged.

Tisztázott szakmai kérdések a felhívás kapcsán:

- HORIZON-CL5-2024-D3-02-03: "Conversion of biogenic wastes and residues as well as algae and aquatic biomass". Has the "as well" to be read as "and" or as "and/or"? Is it mandatory to work with both types of feedstock or will one of them suffice?:"*as well*" should be read "*and/or*". Therefore, it is not mandatory to work with both types of feedstock but it is possible to do so.
- HORIZON-CL5-2024-D3-02-03: What is the meaning of "integrated biorefineries" as stated in the title? The integration aspect is presented in the scope sentence: "*Development of zero-waste and neutral or negative carbon emission energy-efficient biorefinery concepts for enabling the production of low-cost advanced biofuels through coproduction of added value bio-based products and bioenergy*" where a range of products including energy is sought to minimise any mass and energy waste.
- HORIZON-CL5-2024-D3-02-03: Are plants grown on marginalised lands considered as residues and thus as suitable/eligible feedstock? The topic does not mention marginal lands energy crops. To be eligible, these should be included in the Annex IX Parts A and B of the revised Renewable Energy Directive.
- HORIZON-CL5-2024-D3-02-03: Is it mandatory to produce "bioenergy" in addition to biofuels? Should bioenergy be a final output of the biorefinery or an intermediate output to feed the conversion process? The topic requests:" *The integration design…., addressing the process heat and power needs by the use of co-produced bio-heat and bio-power, capturing and reusing biogenic effluent gases and sequestering biogenic emissions, for example in the form of biochar as soil amendment, such as to maximise overall material and energy efficiencies.*" Bioenergy is one of the outputs of the integrated biorefinery, that can be used both for internal use in the process and output, depending on the integration design.
- HORIZON-CL5-2024-D3-02-03: Is it mandatory to address more than one type of pathway (e.g., thermochemical and biological)? Or is it possible to address only one type of pathway? The topic states " *Conversion of biogenic wastes and residues as well as algae and aquatic biomass through chemical, biochemical, electrochemical, biological, thermochemical pathways or combinations of them in highly circular processes are in scope*". Although not mandatory to address many pathways, it is possible to address combinations.

Tisztázott szakmai kérdések a felhívás kapcsán:

- HORIZON-CL5-2024-D3-02: Could you clarify what should be done to address the expected outcome "Contribute to the Mission Innovation 2.0 mission of Integrated Biorefineries."? Mission Innovation 2.0 mission of Integrated Biorefineries aims at developing and demonstrating innovative solutions to accelerate the commercialisation of integrated biorefineries. Developing zero-waste and neutral or negative carbon emission energy-efficient biorefinery concepts under this topic, in potential collaboration within international members of the mission, is contributing to the mission's goal.
- What is the definition of "biomaterials" in the context of the topic? The topic addresses biomass conversion in biorefineries, thus biomaterials include bio-polymers, bio-plastics, bio-composites, and other materials derived from renewable biological sources intended for broader industrial applications.

HORIZON-CL5-2024-D3-02-04:

Critical technologies for the future ocean energy farms

Resaearch Innovation Action (IA) | 8.00 M EUR | 4M EUR/project | 2 to be funded | Deadline 4 February 2025

Project results are expected to contribute to all of the following expected outcomes: increased performance of ocean energy technologies with the focus on sustainability, operation and maintenance of ocean energy devices, improved knowledge on how to operate ocean energy devices, their availability, maintainability, reliability, survivability, and sustainability, reduction of LCOE.

Scope: projects are expected to address at least one of the following areas

- Components and systems used in ocean energy devices need to be resistant to corrosion and the heavy loads they are subject to. Develop new sustainable materials with improved fatigue, damping, stiffness, sustainability and bio-fouling management or other cost-reducing characteristics. Materials such as reinforced concrete, polymers, composites, and concrete-steel/composite-steel hybrids systems have demonstrated some advantages such as reduced costs. Demonstrating the potential benefits of these new sustainable materials in ocean energy converters, moorings and foundations whilst ensuring structural integrity, durability and circularity is required.
- Advance the design of sustainable tailored mooring and connection of electrical or other power transmission systems for floating or subsea wave and tidal devices. Advance combined mooring and electrical connectors or hydraulic power transmission to reduce component cost and number of connection operations, included in systems for sharing an anchor between devices in arrays. Develop novel systems for safe and quick connection/disconnection that do not require large vessels and/or diving teams.

Folytatás:

- Instrumentation for condition monitoring and predictive maintenance of ocean energy devices. Apply recent advances in condition and structural health monitoring from other sectors to ocean energy – particularly those currently developed for offshore wind. Apply latest sensor technology to existing ocean energy deployments. Document and share experience on sensors performance and reliability, and methods for adapting them to the harsh ocean energy environment. Improve transmission or storage of data collected from sensors, such as underwater data transmission.
- **Artificial Intelligence (AI)** in ocean energy technology development. Develop or apply advanced simulation of ocean energy systems. Use of big data with analysis of data streams, application of big data methods and machine learning, including artificial intelligence, or digital twin models for the design, installation, operation and decommissioning of ocean energy devices.
- Improvements in the discrete technology areas should be developed holistically – e.g. work on monitoring instrumentation should be consistent with work on moorings & connections. **The innovative technologies should not significantly harm the environment (DNSH principle),** have low impact on ecosystem biodiversity and consider potential mitigation measures. Projects should use the **precautionary principle** to elaborate proposals for acceptable harm and what low impact on biodiversity mean.
- It is expected that key performance indicators are used based on international recognised metrics.

HORIZON-CL5-2024-D3-02-05:

PV-integrated electric mobility applications

Innovation Action (IA) | 14.0 M EUR | 7M EUR/project | 2 to be funded | Deadline 4 February 2025

Project results are expected to contribute to **all of the following expected outcomes**:

- Open new market opportunities for Vehicle-Integrated Photovoltaics (VIPV) in road transport.
- Reduce usage of the electricity grid and increase the range of electric vehicles.
- Cost and energy efficient climate-neutral road transport.

Scope: PV technology can contribute to improved features of electric mobility systems not just in terms of CO2 (and air-pollution) emissions reduction but also regarding product aesthetics and user experiences. Proposals are expected to:

- 1. Demonstrate Vehicle Integrated PV concepts (VIPV),
- Including different cell, interconnection and encapsulation technologies (with high efficiency under lower and varying lighting conditions) having a flexible design (size, shape/curvature, lightweight, aesthetics) and antifouling property, with PV providing a significant part of the vehicle's energy consumption under various climatic conditions.
- Considering cost optimisation and environmental friendliness of VIPV integration that meets automotive specifications and safety/repair/maintenance standards (crash, emergency, resistance, reliability, long-lasting lifetime and high number of lifecycles) for various types and vehicle uses (including the provision of grid services);

- With a vehicle usage model that maximises the ratio of using solar power and performance for VIPV, considering various light intensity variations, climatic conditions and uses while minimising energy losses.
- Involving multidisciplinary consortia including at least one vehicle manufacturer.

2. Demonstrate PV Charging Stations (EVs, electric buses, etc.) able to provide a significant part of the charging demand despite the PV intermittence, guarantee the balance of the public grid, and reduce the public grid energy cost, with optimal charging/discharging start time for EVs, through its arrival time, departure time, initial and final state of charge (SOC), to achieve peak shaving, valley filling and other types of grid services, while reducing the costs of energy from the public grid.

- A plan for the exploitation and dissemination of results should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination. The exploitation plan should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan) indicating the possible funding sources to be potentially used (in particular the Innovation Fund).
- Applicants can seek possibilities of involving the EC JRC. The JRC may provide characterisation, validation and certification of the performance of photovoltaic solar devices. It may also perform pre-normative research to develop appropriate characterisation methods for such devices as a precursor to the adoption of international standards as well as addressing stability, lifetime and environmental issues. This task shall be performed within the European Solar Test Installation (ESTI) an accredited ISO17025 calibration laboratory for all photovoltaic technologies.

Tisztázott szakmai kérdések a felhívás kapcsán:

- HORIZON-CL5-2024-D3-02: What vehicles (size) are preferred to demonstrate Vehicle Integrated PV concepts (VIPV)? Preferably passenger (EVs) or light duty commercial vehicles (ELCVs).
- HORIZON-CL5-2024-D3-02: Is retrofitting considered for developing Vehicle integrated photovoltaics? Ideally, specifically designed vehicles should be used, but retrofitting can also be considered.
- HORIZON-CL5-2024-D3-02-05: Are proposals expected to address solutions for either one of the two scope areas or both ((1) demonstrate VIPV….(2) Demonstrate PV Charging stations….)? The scope of the topic includes two research areas (VIPV and PV charging stations) and the expected outcomes rely on both areas. It is therefore anticipated that proposals will address both areas. It is up to the proposers however to decide how to address the research challenges so as to produce all of the expected outcomes.

HORIZON-CL5-2024-D3-02-06:

Innovative, Community-Integrated PV systems

Innovation Action (IA) | 10.M EUR | 5M EUR/project | 2 to be funded | Deadline 4 February 2025

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

- Increase the profitability and penetration of PV systems in renewable energy communities.
- Engage actively citizens and communities in the clean energy transition in particular through the uptake of energy cooperatives and the development of decentralized platforms.

Scope:

Proposals are expected to demonstrate a community-aggregated system to facilitate the energy transition to a low carbon economy. Through this approach solutions can effectively address the need for overcoming energy poverty, support energy democracy, and expand cooperative solutions for the collective benefit of providers and users. Peer to peer trading and use can be made feasible and emerging solutions highly attractive and implementable.

- Planning, plant optimisation tools, advanced installation criteria, construction issues to increase yield and thus economic performance of PV systems in the built environment.
- Implementation of collective self-consumption schemes, design, simulation, integration with storage, interaction with electric mobility and interaction with the electrical grid to provide power flexibility.
- Effective protocols and robust communication and cooperation between the various required levels of control that is cyber secure, offering the benefits of advanced smart power electronics, sensors and intelligent systems.
- **This topic requires the effective contribution of Social Science and Humanities (SSH) disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH** expertise, in order to produce meaningful and significant effects enhancing the **societal impact** of the related research activities. Social innovations should also be considered, notably as new tools, ideas and methods leading to active citizen engagement and as drivers of social change, social ownership, and new social practices. International cooperation with the Mediterranean Region is encouraged.

HORIZON-CL5-2024-D3-02-07:

Resource Efficiency of PV in Production, Use and Disposal

Coordination and Support Actions **(CSA)** | 3M EUR | 3M EUR/project | 1 to be funded | Deadline 4 February 2024

Project results 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.).

Scope: In order to identify the main areas of improvement for the environmental footprint and resource efficiency of PV, it is necessary to regard the technology's entire lifecycle. Using Life Cycle Assessment (LCA), important knowledge can be gained as to which processes and materials contribute most to the overall environmental footprint. The lifecycle-thinking also aids in identifying key candidates to reduce the use of resources from the design phase. Although it seems self-explanatory that reduction/substitution or efficient use of critical materials lead to improved environmental impact, it is of course essential that these do not adversely affect the function of the technology.

- For a renewable energy technology to be successful, it needs to have a strong net positive energy balance. This implies that the energy payback time of systems needs to be short, the carbon footprint needs to be reduced, the use of local materials to reduce transport costs in systems needs to be increased, the use of hazardous materials needs to be avoided, and systems and system components need to be designed in a way that encourages recycling and decreases material usage.
- Modern eco-friendly technologies and long lasting, repairable products are required in combination with sound circular economy approaches to process the huge stock of valuable resources at the end of life.
- International cooperation with the Mediterranean Region is encouraged.

HORIZON-CL5-2024-D3-02-08:

Minimisation of environmental, and optimisation of socio-economic impacts in the deployment, operation and decommissioning of offshore wind farms

Research Innovation Action (RIA) | 10.0 M EUR | 3M EUR/project | 2 to be funded | Deadline 4 February 2025

Expected Outcome:

- If the project is on the first action 1) than the project results are expected to contribute to at least three of the outcomes a), b), and c). If the project is on the second action 2) than the project results is expected to contribute at least two of the outcomes a), b) and d)
- Enhanced sustainability by addressing economic, social and environmental aspects (air pollution, waste management, health and safety, job opportunities, wildlife concerns, etc.) of offshore wind farms (a).
- Enhanced **overall sustainability of large-scale production of offshore wind farms** based on mainstreamed Life Cycle Analysis addressing **social, economic and environmental aspects,** as well as improved circularity of offshore wind turbines (b).
- **Improved understanding on the negative and positive impacts** of offshore wind farms throughout their lifetime (c).
- Innovative and cost-effective solutions for the construction and decommissioning of offshore wind farms **aiming also the minimisation of the potential impacts to biodiversity and protected species and habitats (d).**

Scope:

The aim is to develop and promote the use of modelling tools and objective holistic assessment metrics for realistic in-depth analysis of (cumulative) impacts of wind installations on the environment and on local communities and to integrate these in design tools for the deployment and decommissioning of offshore wind farms. It will be as well necessary to find innovative solutions to minimize the environmental impact during all stages of the life cycle of offshore wind farms but especially for the construction and decommissioning phase. An assessment framework for installations is needed with nature inclusive design options valuing 'created habitats' vs 'natural habitats'.

- The actions are expected to address **one of the following actions:**
- **Action 1:** develop design tools which can be used for the planning of offshore floating and fixed-bottom wind farms with the focus to minimize the overall life-cycle environmental impacts (noise, impact on seabed, visual effect, effects on marine life and other species) including floating turbines (e.g. the environmental impacts of fixing/anchoring techniques), reducing carbon footprint of the offshore wind plants across the life cycle, from construction to end of life and reduce the environmental impact in each consecutive step. The tool should make use of existing data of environmental impact studies and should be easy to customise considering different sea basin biodiversity characteristics and new available data. For that reason, a strong participation/commitment of industry players is required to ensure that inventory data from industry of the components is used in the analyses and validation of the tools. The action will deliver recommendations for implementable, simple and measurable criteria to assess at the tendering stage of future project, considering the sustainability and environmental (positive and negative) impacts of offshore wind farms.
- **Action 2)** develop innovative and cost-effective solutions (innovative processes, planning processes, supply chains, materials for construction, ….) for all phases of the life cycle of offshore wind farms but especially for the installation, construction and decommissioning phase of offshore wind farms with the aim to reduce the environmental impact as much as possible in these stages of the life cycle of offshore wind farms.
- In order to increase the integration of the design tools and the innovative solutions, it is important that consortia engage all different stakeholders like regulatory bodies, industry, governments and citizens.
- This R&I need is identified in the offshore renewable energy strategy (COM(2020) 741 final) that commits the Commission to 'carry out an analysis of costs and impacts of the decommissioning of offshore installations, with a view to assessing whether, both for the dismantling of the existing installations and for future decommissioning activities, EU-wide legal requirements are needed to minimise environmental, safety, economic impacts'.

Tisztázott szakmai kérdések a felhívás kapcsán:

Under topic HORIZON-CL5-2024-D3-02-08, would it be possible to undertake both actions (1 and 2) described in the topic's scope? It is, in principle, possible for an applicant to undertake both actions 1 and 2. It will mean that all the expected outcomes have to be addressed. It has to be noted that undertaking both actions will not give the proposal a competitive advantage to proposals that are undertaking only 1 action.

HORIZON-CL5-2024-D3-02-09:

Demonstrations of innovative floating wind concepts

Innovation Action (IA) | 30.0 MEUR | 15.0 M EUR/project | 2 to be funded | Deadline 4 February 2025

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

- Increased knowledge about design, construction, assembly and operation and maintenance of floating wind farms.
- **Improved overall constructability, reliability, installability, operability and maintainability** of floating offshore wind systems.
- Demonstrated **efficient, low-cost and sustainable emerging technologies for floating wind turbines**; reduction of the LCoE.
- Reinforced European offshore wind turbine **value chain and skills.**
- Data for future **optimisation of industry scale** commissioning of the floater, mooring and anchor system.

Projects are expected to:

- Do the design optimisation of a full floating system, facilitate the execution of the project addressing space needs in ports, vessels, etc., supply chain development
- Demonstrate innovative floating vertical or horizontal axis offshore wind energy platforms (4 MW or higher total capacity for horizontal and 2 MW or more for vertical axis) in real sea conditions for long periods of time (12-24 months), collect data for future improvement design of the concept, to accurate predict future floating wind energy production and providing valuable learnings regarding performance, reliability, availability, maintainability, survivability and environmental impact. The wind energy system should be grid connected.
- **Develop and implement pilot projects for floating wind by identifying the best existing practices and the remaining knowledge gaps.**
- Proposals are expected to address also industrial design and manufacturing processes, circularity of (critical) raw materials, scalability, installation methods, transport, operation & maintenance, supply chains and the related digital infrastructures.
- Projects are requested to demonstrate the technologies at sea while respecting existing environmental regulatory framework. Present an environmental monitoring plan to be implemented during the demonstration action. Data on environmental monitoring have to be shared with EMODNET, the IEA Wind Task 34 on the Environmental Impact of Wind Energy Projects, IEA Wind Task 49 on Floating Offshore Wind and IEA OES Environmental Task 4.
- The project has to include a clear go/no go moment ahead of entering the deployment phase. Before this go/no-go moment, the project has to deliver the detailed engineering plans, a techno-economic assessment, including key performance indicators based on international recognized metrics, a complete implementation plan and all needed permits for the deployment of the project and a plan to achieve certification by an independent certification body before the end of the action. The project proposal is expected to clearly demonstrate a proposed pathway to obtaining necessary permits for the demonstration actions and allow for appropriate timelines to achieve these. The project is expected also to demonstrate how it will get a financial close for the whole action. Independent experts will assess all deliverables and will advise for the go/no-go decision.

- Plan for the exploitation and dissemination of results for proposals submitted under this topic should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination. The exploitation plans should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan) indicating the possible funding sources to be potentially used (in particular the Innovation Fund).
- **The selected projects are expected to contribute to the BRIDGE initiative[1],** actively participate to its activities and allocate up to 2% of their budgets to that end. Additional contributions to the 'Alliance for Internet of Things Innovation' (AIOTI) and other relevant activities (e.g. clusters of digital projects and coordinating actions) might be considered, when relevant.
- This R&I need is identified in the offshore renewable energy strategy (COM(2020) 741 final) that commits the Commission to 'develop new wind, ocean energy and solar floating technology designs, for example through Horizon Europe'.

Tisztázott szakmai kérdések a felhívás kapcsán:

HORIZON-CL5-2024-D3-02-09 : Clarification on the sentence: "The selected projects are expected to contribute to the BRIDGE initiative, actively participate to its activities and allocate up to 2% of their budgets to that end. Additional contributions to the 'Alliance for …". The aim of the Bridge initiative is to increase the impact of projects in 2 ways:

- to exchange experiences and best practices among projects so that they can build on each other's work and cooperate across projects;
- to provide input to EU-level policy discussions based on coordinated and aggregated feedback from projects so that policy actions benefit from project experience and evidence.

  Projects are expected to support the provision of advice and evidence for EU policy making by taking an active role in at least one of the Bridge working groups, by contributing to its annual work programme and related reports. They would also be expected to participate in the Bridge annual general assembly and, more generally, by sharing experiences and best practices with the other Bridge member projects. Applicants could already specify in their application the activities and the fields of interests for the cooperation with the Bridge initiative. Applicants are not expected to contact the Bridge secretariat during the proposal preparation but only when the project has been awarded.

- HORIZON-CL5-2024-D3-02-09 : Do the pilot projects referred to in the third bullet point of the scope correspond to parts of the overall demonstrator, or to separate research and development projects carried out in parallel with or downstream from the main demonstrator? The pilot projects, to which reference is made, are part of the overall demonstrator.

HORIZON-CL5-2024-D3-02-10:

Market Uptake Measures of renewable energy systems

Coordination and Support Actions **(CSA)** | 8.0 M EUR |2M EUR/project | 4 to be funded | Deadline 4 February 2025

Project results are expected to contribute to at least two of the following expected outcomes:

- **Facilitate the wider uptake of renewable energy systems** (RES) in the energy, industrial and residential sectors leading to an increased share of renewable energy in the final energy consumption by 2030 and beyond.
- Contribute to **provide open source validated tools and methodologies for policy makers and stakeholders** for developing more informed RES policy and for analysing the market dynamics when including all renewable energies.
- Contribute to the **development of markets and respective financial frameworks** that can operate in an efficiently and incentive-compatible manner while accommodating massive shares of renewables.
- **Improve social acceptability** of renewable energy facilities and installations.

Scope:

The proposal is expected to develop solutions addressing at least 2 of the expected outcomes either for the entire renewable energy market or focusing on a specific energy sector, such as electricity, heating, cooling or renewable fuels. Proposals can also address issues within a specific geographical region such as urban and peri-urban areas. Issues related to acceptability of RES technologies due to ecologic, economic and social aspects are expected to be addressed. Self-consumption issues can be addressed too. International aspects, such as collaboration with third countries and promoting solution in new markets, can be addressed as well.

The proposed solution can be developed to address a local challenge but needs to have wide potential for reapplication. The solution is expected to have a long-term viability and not be limited to an ad-hoc fix. The methodologies applied may be inspired by successful approaches already tested in other fields or contexts.

For all actions, the consortia have to involve relevant stakeholders (**e.g. businesses, public authorities, civil society organisations**) **and market actors** who are committed to adopting/implementing the results. The complexity of these challenges and of the related market uptake barriers may call for multi-disciplinary approaches, which **requires contributions from the social sciences and humanities**. Where relevant, local, regional specificities, socio-economic, gender-related, spatial and environmental aspects will be considered from a life-cycle perspective.

Proposals are encouraged to address social acceptability through the assessment of the environmental economic and social impacts associated with the development of these renewable energies and through the adequate involvement of stakeholders in decision-making processes.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects for understanding and addressing societal barriers to the uptake of renewable energy systems.

Where relevant, proposals are expected to also assess the legal, institutional, and political frameworks at local, national and European level and examine how, why and under what conditions these could act as a barrier or an enabler.

HORIZON-CL5-2024-D3-02-11:

CCU for the production of fuels

Innovation Action (IA) | 15.0 MEUR | 7M EUR/project | 2 to be funded | Deadline 4 February 2025

Expected Outcome:
Conversion of captured CO2 is not only a means to replace fossil fuels, but also a promising solution for seasonal energy storage. There are still some scientific and technological challenges to overcome to be able to exploit CO2 as a fuel feedstock, the main challenge being that the utilisation of CO2 is limited by the highly energy intensive conversion process. New solutions for the conversion of captured CO2 from different sources to fuels will create new markets for innovative industrial sectors and diversify the economic base in carbon-intensive regions, as well as contribute to achieving a Circular Economy.
The project should evaluate the possibility for industrial CO2 use/reuse through the combination of processes (industrial symbiosis) and the efficient integration of CO2 capture and conversion to combine and/or reduce stages.

Proposals will aim at the development of energy-efficient and economically and environmentally viable CO2 conversion technologies, including energy storage and/or displacement of fossil fuels that allow for upscalingin the short to medium term. Proposals have to define ambitious but achievable targets for energy requirements of the conversion process (including catalytic conversion), production costs and product yields that will be used to monitor project implementation. Proposals have to include the potential for the proposed CCU solution(s) as CO2 mitigation option through conducting an LCA (Life Cycle Assessment) in line with guidelines developed by the Commission, such as the Innovation Fund GHG methodology and the relevant ISO standards and the EU Taxonomy Regulation.

Scope:

Technology development has to be balanced by an assessment of the societal readiness towards the proposed innovations. **Relevant end users and societal stakeholders** (**such as civil society organisations, non-governmental organisations, and local associations**) **will be identified in the proposal,** and involved in deliberative activities, so as understand and address their concerns and needs. **This will be analysed during the project using appropriate techniques and methods from the social sciences and humanities**, in order to create awareness, gain feedback on societal impact and advancing society's readiness for the proposed solutions. **Projects, therefore, could consider the inclusion of relevant SSH expertise** in order to enhance the societal impact of the related research activities. Projects should also explore the socio-economic and political barriers to acceptability and awareness with a view to regulatory or policy initiatives and include aspects of circularity and best use of resources.

Proposals are expected to bring technologies that have reached at least TRL 4-5 to TRL 6-7.

Plan for the exploitation and dissemination of results for proposals submitted under this topic should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination.
The exploitation plans should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan, financial model) indicating the possible funding sources to be potentially used (in particular the Innovation Fund).

Projects are strongly encouraged to join the EU CCUS knowledge sharing project network.
Projects **should collaborate if appropriate with the Clean Hydrogen Joint Undertaking** on aspects that require integration of hydrogen and are expected to contribute and participate to the activities of the TRUST database and the hydrogen observatory.
This topic is complementary to the call CL4- Destination 1 Energy Intensive Industries on CCU.

HORIZON-CL5-2024-D3-02-12:

DACCS and BECCS for CO2 removal/negative emissions

Innovation Action (IA) | 15 M EUR| 5-7 M EUR/project | 3 to be funded | Deadline 4 February 2025

Expected Outcome:

The European Union aims at reducing its net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels, and at achieving carbon neutrality by 2050. Under the European Green Deal, the Commission has also adopted a zero-pollution action plan, with a zero-pollution ambition, and a Biodiversity Strategy. In view of achieving these ambitious targets it is appropriate to further explore the development of direct air carbon capture and storage (DACCS) and bioenergy carbon capture and storage (BECCS) as CO2 capture technologies in combination with CO2 storage, duly assessing their impacts on other environmental challenges.

- The project is expected to develop highly innovative CCUS /carbon negative technologies leading to CO2 removal. It should enable the cost-effective deployment of technologies such as DACCS and/or BECCS ideally linking them to industrial clusters with special emphasis of these technologies to safe CO2 underground storage and CO2 utilisation.
- Project results are expected to contribute to at least one of the following expected outcomes:
- Improve existing or develop new materials for DACCS and/or BECCS technologies; or
- Address potential barriers to the incorporation of DACCS and/or BECCS technologies in existing CC(U)(S) concepts; or
- Make DACCS and/or BECCS technologies a viable option to make the EU carbon neutral by increasing the TRL levels and reducing cost of the different technological options

This topic focusses on DACCS and BECCS, which are technologies that can help reaching climate neutrality by 2050 by creating the carbon sinks required to balance out residual emissions in 2050.

Scope:

The objective of this topic is to further the technological development of DACCS and BECCS, and addressing the environmental, social and economic challenges and benefits with the view of establishing this concept as a viable technology to fight climate change.
The potential technologies require major technological breakthroughs.
Projects should substantiate the potential for the proposed solutions in the area(s) of DACCS and/or BECCS as CO2 mitigation option by conducting an LCA in conformity with guidelines developed by the Commission, such as the Innovation Fund GHG methodology and the relevant ISO standards and the EU Taxonomy Regulation. This life cycle consideration should include the sustainability of biomass and the renewable origin of electricity but also assess other environmental dimensions (requirements for land, water; impacts on air and water quality, biodiversity; distances to major storage clusters, leakages etc.).
Technology development has to be balanced by an assessment of the societal readiness towards the proposed innovations. Relevant end users and societal stakeholders (such as civil society organisations, non-governmental organisations, and local associations) will be identified in the proposal and involved in deliberative activities to understand and address their concerns and needs. This will be analysed during the project using appropriate techniques and methods from the social sciences and humanities, in order to create awareness, gain feedback on societal impact and advancing society's readiness for the proposed solutions.

Projects, therefore, **could consider the inclusion of relevant SSH expertise in order to enhance the societal impact of the related research activities**.
Projects should also explore the socio-economic and political barriers to acceptability and awareness with a view to regulatory or policy initiatives and include aspectsof circularity and best use of resources.
Plan for the exploitation and dissemination of results for proposals submitted under this topic should include a strong business case and sound exploitation strategy, as outlined in the introduction to this Destination. The exploitation plans should include preliminary plans for scalability, commercialisation, and deployment (feasibility study, business plan, financial model) indicating the possible funding sources to be potentially used (in particular the Innovation Fund).
Proposals that include research into the use of direct air capture and BECCS for enhanced oil recovery will not be considered. Proposals are expected to take into account the related activities within the EU ETS Innovation Fund and the EU Catalyst Partnership. **International cooperation with Mission Innovation countries is encouraged in line with the Carbon Dioxide Removal Mission (CDR Mission). [1].**
Successful projects will be encouraged to join the EU CCUS knowledge sharing project network.

HORIZON-CL5-2024-D3-02-13:

Support to the activities of the SET Plan Key Action area Renewable fuels and bioenergy

Coordination and Support Actions(CSA) | 0.6 M EUR | Around 0.6 M EUR/project | 1 to be funded | Deadline 4 February 2025

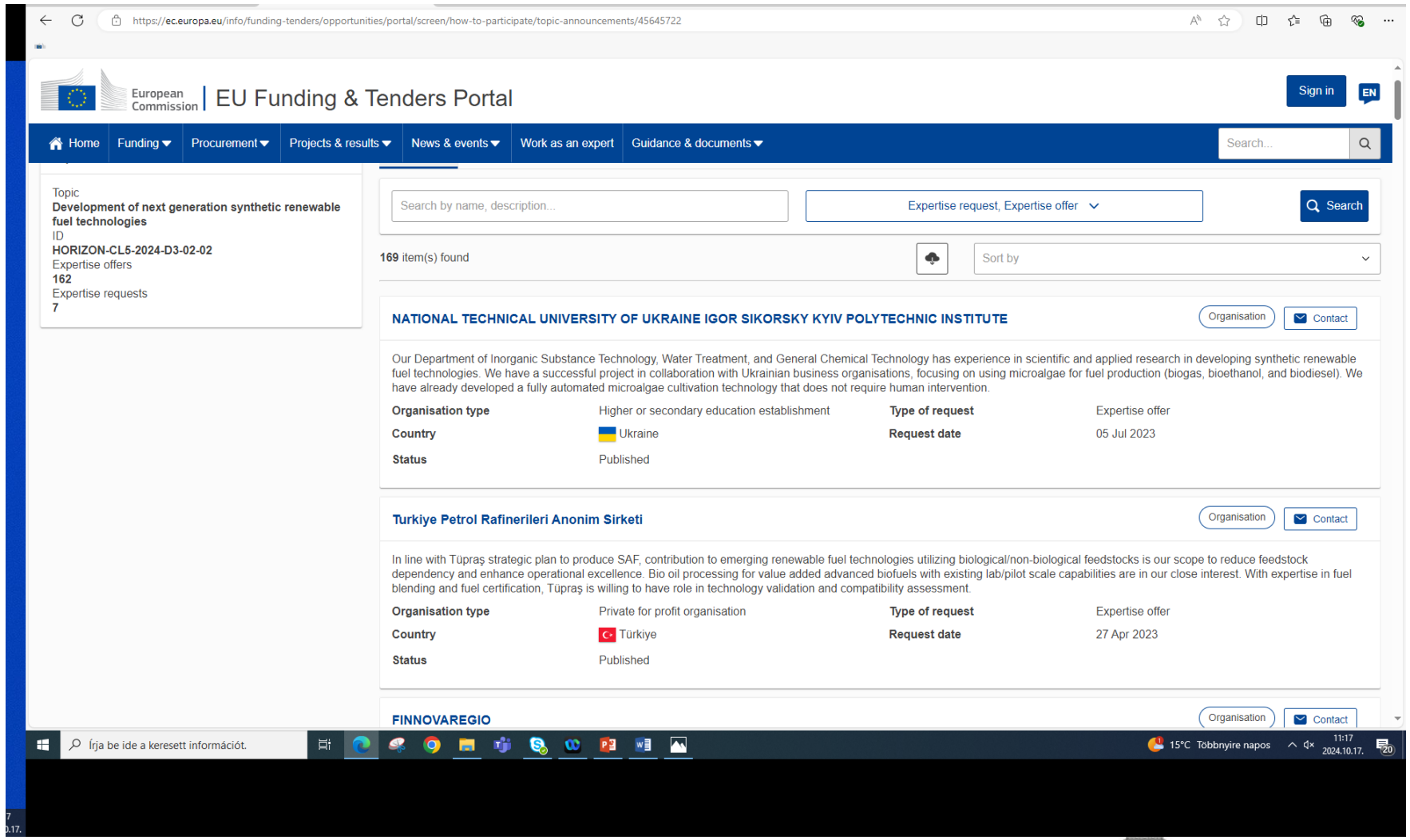
Project results are expected to contribute to all of the following expected outcomes:

- Increase availability of disruptive emerging synthetic renewable fuel technologies.
- Accelerate the readiness of cost-effective and highly performing future technologies of synthetic renewable fuels for all economy sectors.
- Reinforce the European scientific basis and European technology export potential for synthetic renewable fuel technologies.

Scope:

Development of next generation technologies for the production of novel synthetic renewable liquid and gaseous fuels from CO2, and/or renewable carbon, nitrogen, hydrogen or their compounds and from renewable energy. Process energy will also be renewable. Synergies with other renewable energy technologies can be explored. Focus should be on the high source to product conversion efficiency, process energy efficiency and carbon emission neutrality from the overall production. Overall, proposals are expected to improve competitiveness and minimize GHG emissions in the production process. Pathways via production of renewable hydrogen or renewable hydrogen ionic compounds from all forms and origins of renewable energy (e.g., electricity, direct sunlight, heat) are in scope. The new technologies should also address uses in fuel cells for all transport modes for electricity generation from renewable fuels used as renewable energy carriers with high conversion efficiency and low pollution. An assessment of the sustainability and the GHG emissions should be made based on a Life Cycle Analysis.

Projects should collaborate if appropriate with the Clean Hydrogen Joint Undertaking on aspects that require integration of hydrogen and are expected to contribute and participate to the activities of the TRUST database and the hydrogen observatory.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Topic
Development of next generation synthetic renewable fuel technologies
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169 item(s) found
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Organisation
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Our Department of Inorganic Substance Technology, Water Treatment, and General Chemical Technology has experience in scientific and applied research in developing synthetic renewable fuel technologies. We have a successful project in collaboration with Ukrainian business organisations, focusing on using microalgae for fuel production (biogas, bioethanol, and biodiesel). We have already developed a fully automated microalgae cultivation technology that does not require human intervention.
Organisation type
Higher or secondary education establishment
Type of request
Expertise offer
Country
Ukraine
Request date
05 Jul 2023
Status
Published
Turkiye Petrol Rafinerileri Anonim Sirketi
Organisation
Contact
In line with Tüpraş strategic plan to produce SAF, contribution to emerging renewable fuel technologies utilizing biological/non-biological feedstocks is our scope to reduce feedstock dependency and enhance operational excellence. Bio oil processing for value added advanced biofuels with existing lab/pilot scale capabilities are in our close interest. With expertise in fuel blending and fuel certification, Tüpraş is willing to have role in technology validation and compatibility assessment.
Organisation type
Private for profit organisation
Type of request
Expertise offer
Country
Türkiye
Request date
27 Apr 2023
Status
Published
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Organisation
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HORIZON-CL5-2024-D3-02-03	178	8	0
HORIZON-CL5-2024-D3-02-04	169	12	0
HORIZON-CL5-2024-D3-02-05	162	10	0
HORIZON-CL5-2024-D3-02-06	192	12	0
HORIZON-CL5-2024-D3-02-07	149	6	0
HORIZON-CL5-2024-D3-02-08	183	7	0
HORIZON-CL5-2024-D3-02-09	121	6	0
HORIZON-CL5-2024-D3-02-10	224	9	0
HORIZON-CL5-2024-D3-02-11	162	7	0
HORIZON-CL5-2024-D3-02-12	125	5	0
HORIZON-CL5-2024-D3-02-13	79	1	0

Built4People Partnership Built4People – European partnership under Horizon Europe

Efficient, sustainable and inclusive energy use (HORIZON-CL5-2024-D4-02) Pályázási időszak: 2024.09.17-2025.02.04.

- **€50 million** EUR
- Felhívások száma: (5), támogatott projektek száma felhívásonként 2
- Terület: épületenergetika
- Fókusz: a körforgásos gazdaság elősegítése és a digitalizáció előmozdítása
- Támogatott kutatásfejlesztési formák: Innocation Actions (IA) and Research and Innovation Actions (RIA).
- TRL: 4 felett (4-5; 5-6; 6-8)

Built4 People (Built4People Home - Built4People)

Közös programozáson alapuló partnerség: **Európai Bizottság** + iparági szereplők szervezeteinek tömörülési között létrejött kezdeményezés (**ECTP és WorldGBC Europe**).

ECTP= European Construction and Sustainable Built Environment Technology Platform (ECTP) Home: ECTP; Több mint 150 tagja van az építő iparból és más területekről az teljes épített környezet értéklánc mentén 24 országból (nagy vállalatok, KKV-k, egyetemek, kutató intézetek, szakmai testületek) **Egy ipar vezette platform, amelyet az Európai Bizottság kulcs szereplőnek ismert el az innováció és versenyképesség előmozdítása terén.**

WorldGBCEurope= World Green Building Council Europe https://worldgbc.org/europe/

Az európai regionális hálózat 20 nemzeti zöld építési tanácsot, 8 regionális partnert és közel 5000 tagot számlál uniós tagállamokból és nem uniós európai országokból. **HuGBC- Magyar Környezettudatos Építés Egyesülete**

HORIZONT EURÓPA program keretében működik, HE alapból van finanszírozva, **pályázatértékelés és implementálás a HE szabályoknak megfelelően;**

Célja: felgyorsítani az emberközpontú innovációkat, egy fenntartható épített környezet biztosítása érdekében.

A partnerség katalizálja az átmenetet az embercentrikus, klímasemleges, fenntartható, okos épített környezet felé.

A partnerség működése

- **Built4People Partnership Board:** (**Európai Bizottság+ ECTP és WorldGBC Europe** képviselői)
- **Built4People Stakeholders Forum:** (szakma képviselőinek fóruma, **ajánlásokat fogalmaz meg a kutatásfinanszírozási szükségletekre és célokra vonatkozóan** a Strategic Research and Innovation Agenda (SRIA) és a HE célkitűzései mentén.
- **Built4People State Representative Groups:** az uniós tagállamok és társult országok küldöttjeinek testülete, véleményezési hatáskörrel.

2024 –es őszi felhívások: Built4People

- **HORIZON-CL5-2024-D4-02-01:** Industrialisation of sustainable and **circular** deep renovation workflows (Built4People Partnership)
- **HORIZON-CL5-2024-D4-02-02:** Design for adaptability, re-use and deconstruction of buildings, in line with the principles of **circular economy** (Built4People Partnership)
- **HORIZON-CL5-2024-D4-02-03:** BIM-based processes and digital twins for facilitating and optimising **circular** energy renovation (Built4People Partnership)
- **HORIZON-CL5-2024-D4-02-04:** Design for adaptability, re-use and deconstruction of buildings, in line with the principles of **circular economy** (Built4People Partnership)
- **HORIZON-CL5-2024-D4-02-05:**Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts (Built4People Partnership)

HORIZON-CL5-2024-D4-02-01:

Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)

Innovation Action (IA) | TRL (6-8) | 16 M EUR| 8M EUR/project | 2 to be funded | Deadline 4 February 2025

- Expected Outcome:Project results are expected to contribute to all of the following expected outcomes:
- Streamlining resource-efficient nearly zero-energy performance renovation processes.
- Renovations with reduction of at least 30 % waste, 25% cost, and 30% work time (to 1-2 days per dwelling/building unit), compared to current deep renovation processes.
- Reduced energy performance gap between as-built and as-designed (difference between theoretical and measured performance), and higher construction quality.
- Innovative, tailored business models for deep renovation, generating economies of scale and contributing to an increased rate of renovation.
- Improved comfort, Indoor Air Quality and Indoor Environmental Quality.

Scope:

- Proposals are expected to address all of the following:
- Investigate innovative approaches for industrialised deep circular renovation, covering the whole workflow from design through to off-site prefabrication, installation, construction on-site and strategies for maintenance, operation and end of life.
- Ensure the proposed approaches aim to achieve the highest level of energy performance (at least NZEB level) with a view toward zero-emission buildings, ensuring a high level of indoor environment quality, keeping costs in an attractive range for owners and investors.
- Make use of innovative processes and technologies, including those delivered by previous research, such as design based on circularity principles, prefabricated components, and digital tools that allow to optimise workflows (cost, time, quality, resource use).
- Demonstrate a seamless integration of the proposed approaches with state-of-the-art digital technologies for construction and renovation (Building Information Modelling, Digital Twins, etc.).
- Select processes and technologies that can be easily tailored to give a maximum potential for rapid and broad deployment at European level.
- Investigate innovative business models (e.g. as-a-service models), accounting for potential market and regulatory barriers, in view of mass deployment and Europe-wide impact.
- Apply the proposed workflows to at least three demonstrations to assess the proposed approaches for different buildings typologies representative of the European building stock, ensuring the most adequate coverage of the respective climatic conditions. The demonstrations can be either single buildings or clusters of buildings, and at least one of the demonstrations has to address residential buildings.
- Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters.
- This topic implements the co-programmed European Partnership on 'People-centric sustainable built environment' (Built4People). As such, projects resulting from this topic will be expected to report on results to the European Partnership 'People-centric sustainable built environment' (Built4People) in support of the monitoring of its KPIs.

Tisztázott szakmai kérdések

- What does the sentence “Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters” concretely entails? The B4P projects are required to contribute to the B4P Partnership in two ways:-Projects must identify relevant activities in line with the partnership objectives and then, for reporting purposes, provide the B4P partners with the necessary information and data on the contribution of the projects to the overall partnership key performance indicators. This aspect will be explained in more detail during the kick-off meeting of the selected projects.-In parallel, projects may have to participate in events aiming at strengthening innovation clusters, for example by sharing their experience, by presenting their activities and showcasing the results of the projects. These contributions do not require specific percentage of the proposal budget to be allocated for Built4People-related activities.

HORIZON-CL5-2024-D4-02-02:

Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)

Research Innovation Action (RIA) | TRL 4-**5** | 4M EUR/project | 2 to be funded | Deadline 4 February 2025

Project results are expected to contribute to all of the following expected 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 matter[1] and noise, in the immediate vicinity.
- Reduction of waste generated from the works on-site.

Proposals are expected to address all of the following:

- Investigate the use of robotic systems (including those used for 3D printing) and automation for construction and deep renovation, in order to reduce time of construction and renovation works, reduce construction errors, as well as facilitate maintenance, also minimising the impact of the works on the surrounding built environment.
- Explore the potential for lower construction costs through automation and robotics resulting from increased speed, improved resource efficiency and avoidance of errors.
- Develop robotic and automated design and construction techniques that increase energy efficiency and reduce greenhouse gas emissions from construction and renovation works on-site.
- Develop approaches that use digitally assisted design to improve resource efficiency and safety, reduce waste, and reduce construction time.
- Investigate the use of automated technologies for surveying, inspection and monitoring of the site.
- 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).
- 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. These prototypes should be validated in a lab or another relevant environment. The testing and validation are expected to address both new construction and renovation.
- Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters.
- This topic implements the co-programmed European Partnership on 'People-centric sustainable built environment' (Built4People). As such, projects resulting from this topic will be expected to report on results to the European Partnership 'People-centric sustainable built environment' (Built4People) in support of the monitoring of its KPIs.
- Selected proposal(s) could consider the involvement of the European Commission's Joint Research Centre (JRC). The JRC may provide support in research activities related to robotics and other automated solutions for new construction and renovation of buildings.

HORIZON-CL5-2024-D4-02-03:

BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)

Innovation Action (IA) | TRL 6-8 | 4M EUR/project | 2 to be funded | Deadline 4 February 2025

Project results are expected to contribute to <u>all of the following expected outcomes:</u>

- Reduced buildings construction and renovation time and costs.
- Increased buildings material reuse and recycling.
- Improvement of buildings performance (energy, sustainability including whole life-cycle carbon and the potential to store carbon in built works, comfort, health and well-being, and accessibility).
- Enhanced, interoperable and accessible buildings information across the lifecycle.
- Improvement of interoperability with existing Building Information Modelling (BIM) and Digital Twin solutions.
- Broader application of BIM and Digital Twin solutions, in particular within SMEs.

Scope

Proposals are expected to address all of the following:

- Develop and integrate solutions based on BIM and Digital Twins to support the whole buildings life cycle from design to deconstruction and reuse, including operation.
- Ensure the solutions developed address all the following aspects:
  - Supporting optimal, adaptable and reversible building design for energy efficiency, circularity and sustainability.
  - Allowing to track buildings materials and construction products, and supporting cost-effective deconstruction and reuse, recycling and recovery of building materials at end of life.
  - Integrating buildings monitoring data (e.g. from sensors and IoT devices) into an interoperable Digital Twin for automated, optimised building performance monitoring and management, and preventive maintenance.
  - Enabling buildings data interoperability, quality and integrity across the life cycle, in particular to reliably assess and track building performance over the lifecycle, enabling tailored data access for all life cycle's stakeholders (architects, engineering companies, contractors, building owners, financing institutions, etc.).
  - Relying where possible on open BIM standards and linking, where relevant, to digital logbooks and relevant initiatives (e.g. the Smart Readiness Indicator under the Energy Performance of Buildings Directive).
  - Easiness of use and cost effectiveness, in particular for SMEs and companies with limited experience in digital solutions, and high potential for replication and commercialisation.
- Apply the solutions delivered on a set (at least two) of real-life residential and non-residential building construction and renovation projects which, taken together, allow to demonstrate the potential of the solutions across all aspects listed in the topic and across the life cycle.
- Ensure that the demonstrations of the solutions delivered:
  - Cover at least two different countries, with diverse climatic conditions.
  - Involve local and regional values chains, in particular SMEs, based on participatory approaches to increase innovation acceptability.
  - Result in clear and, where relevant, quantified and measurable indicators on the improvements due to the use of the solutions, for all aspects listed in the topic and across the life cycle.
- Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters.
- This topic implements the co-programmed European Partnership on 'People-centric sustainable built environment' (Built4People). As such, projects resulting from this topic will be expected to report on results to the European Partnership 'People-centric sustainable built environment' (Built4People) in support of the monitoring of its KPIs.

HORIZON-CL5-2024-D4-02-04:

Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)

Innovation Action (IA) | TRL **5-6** | 4M EUR/project | 2 to be funded | Deadline 4 February 2025

Project results are expected to contribute **to all of the following expected outcomes**:

- Improved adaptability of buildings and building units to new uses.
- Increased reuse and recycling of building elements and products.
- Extended service life of buildings.
- Increased awareness on best practices for design for adaptability, reuse and deconstruction.

Scope: Based on the integration of innovative tools, products and techniques, to enable construction and renovation that embeds the principle of extending the service life of buildings, and facilitate adaptability to changing user needs (e.g. for optimal use of indoor space or to improve working and living conditions), reuse, and deconstruction, in a life-cycle optimisation and circular economy perspective.

- Proposals are expected to address all of the following:
- Validate construction and renovation solutions based on the integration of innovative tools, products, techniques, processes and methods, that facilitate deconstruction and reuse, based on life-cycle approaches across the value chain.

- Ensure the solutions validated:
- Consider the adaptability and reversibility of buildings and building units to changing uses, and to other relevant factors (e.g. evolution of surroundings).
- Improve the ease of reuse of construction elements and products from existing buildings, also facilitating recycling when reuse is not possible.
- Develop building elements and products that can be disassembled and reused, including those made from CO2-storing materials such as sustainably sourced long-lived bio-based materials and products and, innovative lower emission materials /aggregates.
- Address all components of buildings, including structural elements, envelopes, interior fixtures and fittings, and technical building systems.
- Are rooted in local and regional value chains, based on participative approaches for social acceptability of innovation, in particular with regard to the workforce's practices and skills.
- Can flexibly adapt to local / regional sourcing of innovative products and materials to increase replication.
- Address climate change mitigation, minimising emissions.
- Allow to minimise any negative impacts of pollution and biodiversity loss from renovation and construction works.

- **Validation of the solutions in a relevant environment (real-life or close to real-life) that:**
  - Covers residential and non-residential projects, half of which at least should be renovation projects.
  - Covers at least two different countries, with diverse climatic conditions.
  - Involves local and regional values chains, in particular SMEs, based on participatory approaches to increase innovation buy-in from users.
  - Results in clear and, where relevant, quantified and measurable indicators on the improvements due to the use of the solutions.
- Deliver guidance and recommendations for technology providers, regulatory authorities, certification and standardisation bodies, and define and implement ambitious dissemination actions, to promote the approaches demonstrated and support their replication.
- Where relevant, contribute through specific and targeted actions to standardisation and regulatory evolutions that can foster reuse and deconstruction of buildings materials and products.
- Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters.
- **This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts**, institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities.
- This topic implements the co-programmed European Partnership on 'People-centric sustainable built environment' (Built4People). As such, projects resulting from this topic will be expected to report on results to the European Partnership 'People-centric sustainable built environment' (Built4People) in support of the monitoring of its KPIs.
- Selected proposal(s) could consider the involvement of the European Commission's Joint Research Centre (JRC). The JRC may provide support in research activities related to the design for adaptability, design-for-deconstruction and re-use of building elements for both new construction and renovation of buildings.

Tisztázott szakmai kérdések a felhívás kapcsán:

- HORIZON-CL5-2024-D4-02-04: Is the project expected to develop solutions: for the future disassembly of future projects/buildings, for the integration of reused building materials in today's construction and renovation projects, or both? The topic text does not specifically refer to 'disassembly'. However, the topic text requires proposals, among others, to validate construction and renovation solutions that '(…) *facilitate* ***deconstruction*** *and* ***reuse*** (…)', '(...) *improve the* ***ease of reuse*** *of* ***construction elements and products*** *from existing buildings* (…)' and '(…) *can flexibly* ***adapt to local / regional sourcing of*** *innovative products and* ***materials*** *to increase replication.* (…)'. Experts will assess whether the proposed solutions and environment are in line with the call text and of sufficient ambition. They will also assess the expected impact of the proposal using the standard evaluation criteria, in particular regarding the pathways to achieve the expected outcomes and impacts specified in the work programme, as well as the likely scale and significance of the contributions from the project, and the suitability and quality of the measures to maximise expected outcomes and impacts.
- HORIZON-CL5-2024-D4-02-04: **Would a virtual environment be acceptable as a close-to-real-life environment to validate the solutions?** The topic text requires, among others, that the solutions are validated in residential and non-residential projects, **half of which should be renovation projects**. Additionally, the validation of the solutions should cover at least two different countries, with diverse climatic conditions. When proposing the use of a virtual environment, applicants have to demonstrate that they will still meet all validation requirements of the call text and achieve at least TRL 5 at the end of the project.
- HORIZON-CL5-2024-D4-02-04: "Develop building elements and products that can be disassembled and reused.": What TRL level is expected at the start and at the end? Also, what is the connection between this requirement and the following one in the text? The Commission Services cannot provide further elaboration on the topic text. Regarding the expected TRL, the topic text indicates that activities are expected to achieve a TRL 5-6 by the end of the project. There is no indication of a start TRL. It is up to the participants to decide how they approach the validation requirements at TRL 5-6. Proposals are expected to address both aspects, i.e. solutions that address all components of buildings and that are validated at TRL 5-6 by the end of the project.
- What does the sentence "Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters" concretely entails? ,The sentence could be read as such: "*Contribute to the* ***objectives*** *of the Built4People* ***partnership*** *and to the Built4People network of innovation clusters*".The B4P projects are required to contribute to the B4P Partnership in two ways:-Projects must identify relevant activities in line with the partnership objectives and then, for reporting purposes, provide the B4P partners with the necessary information and data on the contribution of the projects to the overall partnership key performance indicators. This aspect will be explained in more detail during the kick-off meeting of the selected projects.-In parallel, projects may have to participate in events aiming at strengthening innovation clusters, for example by sharing their experience, by presenting their activities and showcasing the results of the projects. These contributions do not require specific percentage of the proposal budget to be allocated for Built4People-related activities.

HORIZON-CL5-2024-D4-02-05:

Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts (Built4People Partnership)

Innovation Action (IA) | TRL 6-8 | 5M EUR/project | 2 to be funded | Deadline 4 February 2025

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

- **Greater engagement of representative groups of end users as well as citizens of the impacted urban context.**
- Increased acceptability and uptake of sustainable deep renovation solutions in the built environment.
- Reduced energy and mobility poverty.
- Increase in plans for **climate neutral and sustainable, aesthetic and inclusive built environments** with enhanced climate adaptation and resilience (e.g. based on nature-based solutions).
- Enhanced climate change adaptation and resilience in built environments.

Scope

- The transition to a climate-neutral society requires that Europe's building stock also becomes climate-neutral. At the same time, Europe's building stock has to become climate resilient. This requires a comprehensive approach beyond individual buildings, namely at the level of neighbourhoods or urban districts. However, the decarbonisation of the built environment and its adaptation to a changing climate and to societal needs in terms of comfort, accessibility, inclusiveness, and aesthetics cannot happen without active participation of the buildings' users and occupants, individual / collective property owners, and energy communities as beneficiaries of the value chain. Professionals, such as project developers, architects, engineers, building owners, planners and statutory authorities, require solutions that develop, analyse, model, visualise and present a multitude and complex set of information in such a way that facilitates such co-design processes.

- **This topic focuses on the development of digital solutions for a stronger participation of end users, citizens and other relevant stakeholders in the design, planning and management of the renovation of existing buildings, neighbourhoods and / or districts.**

Proposals are expected to address one or both of the following points:

- Digital solutions that facilitate participative design and planning through visualisation, analysis and engagement with data that is directly relevant to building users as well as citizens in the surrounding urban area (including e.g. immersive and interactive technologies, Virtual Reality / Augmented Reality, simulations and scenario modelling).
- Digital solutions that allow to analyse and model different scenarios for to-be-renovated buildings, neighbourhoods and / or districts in terms of energy use and generation; users' health and wellbeing; impact on the energy grid; provisions for active and electric mobility, and sustainable delivery solutions; life-cycle environmental and micro-climatic impacts, and; socio-economic impacts for citizens, building users, owners and occupiers.

In addition, proposals are expected to address all of the following:

- Address aspects of climate-neutrality and climate-resilience, respecting the 'energy efficiency first' principle.
- Ensure the digital solution complements, builds on and/or uses existing tools (including, where relevant, on conventional, low-tech ones) and standards recognised by the market.
- Engage citizens (seeking coverage of different genders and social characteristics), end users of the tools and other relevant stakeholders involved in the design, planning and management of urban development projects in the development process of the digital solution.
- Ensure the digital solution offers different means to exchange information and provide input that are tailored to the specific needs of laypersons, including vulnerable, minority and disadvantaged groups as well as persons with disabilities and older persons.
- Demonstrate the prototype in at least three real-life urban development projects to apply, evaluate and refine the digital solution and inform its market launch and / or commercialisation strategy.
- Ensure the project's dissemination activities include actions that contribute to the activities of the NEB Community, and to sharing information, best practices and results within the NEB Lab.
- Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters.

This topic requires the effective contribution of SSH disciplines and the involvement of SSH experts, institutions as well as the inclusion of relevant SSH expertise (including social innovation), in order to produce meaningful and significant effects enhancing the societal impact of the related research activities.

This topic implements the co-programmed European Partnership on 'People-centric sustainable built environment' (Built4People). As such, projects resulting from this topic will be expected to report on results to the European Partnership 'People-centric sustainable built environment' (Built4People) in support of the monitoring of its KPIs.

Partner search: Funding and Tenders Portal

Call	expertize offered	expertize requested	From Hungary
HORIZON-CL5-2024-D4-02-01	187	13	0
HORIZON-CL5-2024-D4-02-02	190	12	0
HORIZON-CL5-2024-D4-02-03	220	7	0
HORIZON-CL5-2024-D4-02-04	207	12	1
HORIZON-CL5-2024-D4-02-05	301	15	0

Clean Energy Transition Partnerség (CETP)

Joint Call 2024 | CETPartnership

Beadási határidő:

1. szakasz (2024. november 21. 14:00 CET)

Widening! : 1. szakasz nyertesei új konzorciumi tagokat toboroznak a nem eligble tagok helyett (lehetőség csatlakozni alulreprezentált országokból) – 2025 február

Láthatóság fontossága:

Home | Clean Energy Transition Partnership (b2match.com)

2. szakasz (2025. április 2. 14:00 CET)

Clean Energy Transition Partnerség (CETP)

Joint Call 2024 | CETPartnership

A CETP közös finanszírozású partnerség a Horizont Európa támogatási program keretében

Az Európai Bizottság és a partnerországok között jött létre; nemzetközi és nemzeti/partnerországi követelmények mentén.

A partnerország saját pályázóit támogatja; az EU további **30% -ot** (**top –up funding**) ad hozzá, idén több mint 1 000 000 000 EUR.

Idei magyar költségvetés: 1 165 000 EUR (ebből kb. 5 projekt támogatható)

Projektenként max. 300 000 EUR; **partnerenként** max. 150 000; **konzorciumvezetőként** max. 200 000 pályázható

Pályázati eljárás

Pályázati feltételek:

- Nemzetközi pályázati felhívás (nemzetközi, amely tartalmazza a nemzeti (magyar) feltételeket is)
- A magyar forráslehívás feltételei az NKFIH honlapján

(Általános Pályázati Útmutató A Nemzeti Kutatási, Fejlesztési és Innovációs Alapból Meghirdetett Innovációs Támogatás Nyújtására Irányuló Pályázati Felhíváshoz az NKFIH honlapon)

Pályázati forma: 2 lépcsős pályázás: (1) rövid pályázat (pre-proposal)

(2) teljes pályázat (full-proposal)

A *teljes pályázat benyújtásának előfeltétele az első szakaszban való részvétel !*

Pályázati felületek: **EU-s (angolul) –elérhető a CETP honlapján**

Pályázatok értékelése : alkalmassági (eligibility) vizsgálat mindkét szakaszban, a nemzeti hatóság csak ebben vesz részt, az érdemi értékelést 3 független nemzetközi szakértő végzi.

A nemzetközi együttműködés partnerei 2024-ben

- EU-s tagállamok **(IGEN):** Ausztria, Belgium, Csehország, Dánia , Észtország, Franciaország, Németország, Görögország, Magyarország, Írország, Litvánia, Olaszország, Lettország, Málta, Hollandia, Lengyelország, Portugália, Románia, Spanyolország, Svédország.
- EU-s tagállamok (**NEM**): Szlovákia, Horvátország, Szlovénia, Bulgária.
- Társult országok: Ciprus, Norvégia, Svájc, UK
- Nem EU-s partnerországok: USA, Kanada (Alberta), Izrael (TBC), India, Tunézia, Törökország, Dél-Korea (új)

Idéntől UK is partnerország (társult minőségben)!

Kiknek szól a CETP? célcsoportok, akik pályázhatnak

Célcsoportok: egyetemek, kutatóintézetek, piaci szereplők (KKV-k, nagyvállalatok), önkormányzatok, szakmai szervezetek, NGO-k, érdekképviseleti szervezetek (felhívásonként változó!)

A nemzetközi pályázati kiírás határozza meg, hogy milyen összetételű konzorciumoktól várnak pályázatokat az adott területen a kutatási célok leghatékonyabb megvalósításához.

Konzorcium építés: min. 3 különböző országból, min. 2 uniós tagállamból vagy társult országból kell tagokat tartalmazzon a konzorcium és 1 partner hozzájárulása nem lehet több mint 75%.

Támogatja és előmozdítja a tudományos szféra – közszféra - piaci szféra közötti együttműködést az innovációs célkitűzések megvalósítása érdekében.

Modellváltó egyetemek is pályázhatnak: ők a 30%-os top-up uniós támogatás helyett, ezt az összeget magyar forrásból kapják.

A támogatás mértéke magyar vállalatoknál (nemzeti feltétel szerint)

Vállalkozás típusa	Alapkutatás	Ipari/Alkalmazott Kutatás	Kísérleti fejlesztés/ Innováció
Nagyvállalat	100%	65%	40%
Közepes vállalat	100%	75%	50%
Kisvállalat	100%	80%	60%

A támogatás mértéke más entitásoknál (magyar feltételek szerint)

Egyetemek, kutatóintézetek, önkormányzatok (önkormányzati vállalatok), egyéb non –profit szervezetek: **100%**

A modellváltó egyetemek/kutatóintézetek is!

Milyen típusú kutatásfejlesztéseket támogat a CETP?

(a) technológiai alapkutatások

(b) technológiai megoldás piacra vitele

(c) hasznosítás hatékonyságát növelő megoldások

Viszont, a nemzetközi pályázati kiírás és a nemzeti feltételek alapján is változó, hogy egy adott témakörben milyen típusú kutatások kaphatnak támogatást! Sőt, ez **partnerországonként is változó**!

Magyarország mindhárom típust támogatja, mind a 9 TRL szinten.

A CETP összehasonlítása a HE pályázati felhívásokkal

CETP sajátosságai a HE –n belül:

a) **A felhívások csak a CETP honlapján érhetők el** nem pedig a Funding and Tenders portálon, úgyszintén az aktuális információk;

b) Pályázási felület: CETPartnership Submission Platform (mur.gov.it);

c) A támogatott területek sok esetben azonosak;

d) A tagállami prioritások jobban előtérbe kerülnek a partnerség esetében;

e) A pályázatok értékelési módszertana hasonló (excellence/kiválóság, impact/hatás; quality and effectiveness of implementation/a megvalósítás minősége és hatékonysága);

f) Kevésbé erős a verseny a CETP –nél mint a klasztertípusú HE pályázatoknál;

g) Kisebb konzorciumok, kisebb költségvetéssel a CETP pályázatoknál a nemzeti költségvetési korlátokból adódóan.

CETP 2024 Call – idei felhívások

CM2024-01 Energy data spaces and interoperability

CM2024-02 Energy system flexibility: renewables production, storage and system integration

CM2024-03A Advanced renewable energy (RE) technologies for power production (ROA)

CM2024-03B Advanced renewable energy (RE) technologies for power production (IOA)

CM2024-04 Carbon capture, utilisation and storage (CCUS)

CM2024-05 Hydrogen and renewable fuels

CM2024-06 Heating and cooling technologies

CM2024-07 Geothermal energy technologies

CM2024-08 Integrated regional energy systems

CM2024-09 Integrated industrial energy systems

CM2024-10 Clean energy integration in the built environment

Magyar részről prioritások nincsenek, mind a 11 felhívás bármelyikén lehet pályázni!

Cégek részvételi lehetőségei a CETP 2024-es felhívásában

CM2024-01 Energy data spaces and interoperability (consortium possessing the necessary expertise across relevant disciplines);

CM2024-02 Energy system flexibility: renewables production, storage and system integration (private for-profit companies, system operators, SMEs, spin-off companies);

CM2024-03A Advanced renewable energy (RE) technologies for power production (ROA) (private for-profit companies such as: SMEs, spin-off companies, large companies, technology providers);

CM2024-03B Advanced renewable energy (RE) technologies for power production (IOA) (private for-profit companies such as SMEs, spin-off companies, large companies, technology providers);

CM2024-04 Carbon capture, utilisation and storage (CCUS) CM2024-08 Integrated regional energy systems (private for-profit companies: infrastructure providers and operators)

CM2024-05 Hydrogen and renewable fuels (private for-profit companies)

CM2024-06 Heating and cooling technologies (private for-profit companies:small, middle-sized, and large companies)

CM2024-07 Geothermal energy technologies (industrial involvement in project activities)

CM2024-09 Integrated industrial energy systems (private for-profit companies, such as industrial companies, suppliers of technology and services)

CM2024-10 Clean energy integration in the built environment (private for-profit companies (small and medium-sized enterprises (SMEs))

Felhívások, ahol követelmény az ipar bevonása (Call Modul Requirement)

- CM2024-03A/03B Advanced renewable energy (RE) technologies for power production: **projects applying as IOA shall comprise at least one industry partner / private for-profit companies**
- CM2024-04 Carbon capture, utilisation and storage (CCUS**): proposals must demonstrate the interest of industry partner(s) by actively involving them in the project**
- CM2024-05 Hydrogen & renewable fuels**: industrial involvement in research and innovation activities**;
- CM2024-06 Heating and cooling technologies**:industrial involvement in project activities;**
- CM2024-07 Geothermal energy technologies: **industrial involvement in project activities;**
- CM2024-09 Integrated industrial energy systems: **at least one industrial end-user must participate in the project**

Megközelítés és elvárások szintű változások 2023 –hoz képest

- „Energy Data Space and Interoprability”, mint új téma.
- Széles spektrumú (az energetika több területét lefedő) felhívások, különböző területeken várnak technológiai újításokat;
- Magasabb TRL szintek, viszont rugalmasabb megfogalmazásban;
- A pályázók köre bővül: új elem a secondary education institution;
- **Több pályázati lehetőség cégeknek, mint eddig!**

A pályázat módosítása a pályázási folyamat során

- 1. szakaszt követően lehetőség lesz a nem alkalmas (non eligible) partnerek cseréjére (max. 25% hozzájárulást érinthet - man/month) nyertes projektekben az alulreprezentált partnerországokból **(widening)**
- 2. szakaszban: +új önfinanszírozó partner; ineligible tag átminősítése, önfinanszírozóvá; eligible partner lecserélése egy másik eligible partnerre ugyanabból az országból az érintett hatóság engedélyével; ineligible lecserélése alulreprezentált ország pályázójával; új tag alulreprezentált országból.

Feltéve ha: (a) a konzorciumvezető marad; (b) a változtatás megfelelően indokolt, (c) a változás max. 25%-át érinti a projekt költségvetésének

CETP Widening eljárás

- CETP Call Management megkérdezi az alulreprezentált partnerországokat, hogy óhajtanak-e részt venni a bővítésben;
- CETP Call Management közzéteszi az alulreprezentált partnerországok listáját (köztük HU)
- Az új tagot kereső konzorciumok közvetlenül megkeresik a magyar partnert (létező korábbi kapcsolat,) vagy a **matchmaking platform**on regisztrált magyarok közül válogatnak; vagy
- **Az NKFIH –val felveszik a kapcsolatot és megküldik, hogy melyik felhívásokhoz, milyen szerepre keresnek magyar partnert; ezt mi továbbítjuk az érdekelt feleknek (egyetemek, kutatóintézetek, szakmai szövetségek részére)**

Nyertes magyar pályázatok támogatása

- Szerződéskötés az NKFIH-val, a magyar pályázati kiírás alapján 2025 őszén (*nyertes pályázok és utólagos csatlakozók widening alapján); pályázat benyújtása magyar nyelven a www.pályázat.gov.hu felületen*

- A nemzetközi pályázati döntésben szereplő összeg kifizetése forintban átszámítva történik (tavaly 408,8Ft=1 EUR)

Tájékoztatás a forráslehívási pályázat kapcsán az NKFIH pályázati ügyfélszolgálatán (nkfialap@nkfih.gov.hu)

Konzorciumépítés

- **Nem minden uniós tagállam és nem minden partnerország veszt részt minden évben a pályázati kiírásban** (NEM: Bulgária, Horvátország, Szlovénia) és az **adott évben aktív partnerországok sem támogatják az összes pályázati modult vagy minden TRL szintet**.
- A pályázati modulok is tartalmaznak sajátos követelményeket arra vonatkozóan, hogy milyen típusú konzorcium lenne ideális a kutatási célra. A pályázati kiírásban nevesített kutatás-fejlesztési tevékenységek típusa szintén meghatározó a konzorcium összetételére. Egy partnerország maximális hozzájárulása a konzorciumon belül 75% lehet.
- A CETPartnerség partnerkeresési lehetőséget biztosít a *Matchmaking Platformján*, amelynek használata regisztrációhoz kötött.
- **Partnerkeresés az NKFIH NCP-én keresztül is lehetséges (továbbítjuk a többi NCP-nek), illetve a külföldi megkereséseket a magyar pályázók felé.**
- **A CETPartnerség nem zárja ki, hogy egy pályázó több konzorciumban/több modulban induljon**, ilyen esetben viszont tájékoztatni kell az érintett konzorciumokat erről és összehangolni a projektekben vállalt kötelezettségeket. Van erre már magyar precedens is! Nem lehet viszont egy projekttel több modulban pályázni. Ezt kizárják a nemzetközi feltételek.

Határidők

1. szakasz (kezdete)	2024. szeptember 19.
1. szakasz (zárása)	2024. november 21. (14:00 CET)
2. szakasz (kezdete)	2025. január 29.
2. szakasz (zárása)	2025. április 2. (14:00 CET)
Eredményhirdetés	2025 július
Megvalósítás kezdete	2025. szeptember 1 - december 15
Megvalósítás időtartama	(max.36 hónapos futamidő)

További információs lehetőségek

CETP - Info Days: 2024. szeptember 12 (CETP Info Day 1);

CETP honlap: Clean Energy Transition Partnership (cetpartnership.eu)

CETP- Partnerkereső: Home | Clean Energy Transition Partnership (b2match.com)

CETPartnership Annual Conference (2024. október 22- 23): **Matchmaking opportunity in bilateral meetings**

Ajánlatos a szakterületi online webináriumok tanulmányozása! (elérhetők a CETP honlapon)

Eddigi magyar tapasztalatok/eredmények a CETP kapcsán

- 2022: 2 pályázó, 1 magyar nyertes pályázó (50%-os siker)

- 2023: 8 magyar pályázó, **a 2022-es nyertes pályázó 2 projektben is indult (mindkettőben nyert idén is)**
  - I. szakaszban 3 magyar pályázó: továbbjutott 1 (2 pályázatban a külföldi konzorcium vezető bizonyult ineligilble –nek)
  - II. szakaszban 1**+ 7 további magyar** (widening keretében).
  - **Nyertes pályázók: 5 (80%-os siker)**

Köszönöm a figyelmet!

www.nkfih.gov.hu