

LIST OF PROPOSALS PRE-SELECTED FOR A GRANT¹

Second call for small-scale projects launched pursuant to Commission Decision C(2021) 7404 of 19 October 2021 [on the activities related to the Innovation Fund, serving as the financing decision for 2021 and as a decision launching the second calls for proposals](#)

No.	Project acronym	Sector	Location	Coordinator and other participants	Project description
1	CO2ncrEAT	Glass, ceramics and construction material	Belgium	PREFER CONSTRUCT (BE) ORBIX SOLUTIONS (BE) FLUXYS BELGIUM SA (BE) Carrières et Fours à Chaux Dumont Wautier (BE)	<p>Integrated low-carbon footprint solution for cement-free building products by using exhaust CO2 gas from lime manufacturing plant and wasted by-product from stainless steel production</p> <ul style="list-style-type: none"> The products created in CO2ncrEAT will replace the cement and natural aggregates in their composition with non-valorised residues from stainless steel slag recycling centres and CO2 captured from the exhaust gases from the lime manufacturing process. CO2ncrEAT offers a solution for CO2 use and permanent sequestration (CCU) because once the captured CO2 is mineralised into the building materials, it cannot be released again into the atmosphere. Moreover, the use of products produced from the CO2ncrEAT technology will also avoid the use of cementitious raw materials – responsible for large CO2 emissions in concrete blocks formation. The project would avoid 190 966 tCO2eq in its first 10 years of operation.
2	CIRQLAR	Other	Spain	REPSOL SA (ES) REPSOL PETROLEO SA (ES) EXPANDER TECH SL (ES)	<p>Low temperature heat recovery and upgrade for industrial use by heat pumps</p> <ul style="list-style-type: none"> Waste heat recovery is one of the key ways to decarbonise energy-intensive process industries such as cement and refineries. CIRQLAR will unlock the exploitation of low-temperature heat waste and the potential for upgraded high-temperature heat production. Its activation revolves around a positive displacement compression heat pump system, with design and working fluid flexibility depending on external operating conditions, that will boost heat and temperature. This process will be integrated in one of REPSOL refinery production scheme to increase the energy efficiency, flexibility, and sustainability of the process. The location selected will be the first milestone of an ambitious scalability plan to replicate the concept in 38 sites. CIRQLAR will materialise three highly competitive outcomes: 1) reduced process unit energy consumption, 2) expanded operational range and system flexibilisation, and 3) maximised CO2 emissions avoidance with a minimised cost of CO2 abatement. The operational capacity of the heat production will avoid 59 054 tCO2eq in 10 years.

¹ The information provided is subject to the conclusion of an individual grant agreement between the project applicant and CINEA.

3	BEAR (HyBrid rEgenerative glAss furnace)	Glass, ceramics and construction material	Slovenia	STEKLARNA HRASNIK DRUZBA ZA PROIZVPROIZVOD NJO (SI) KEMIJSKI INSTITUT (SI)	<p>The BEAR Project: HyBrid REgenerative glAss fuRnace</p> <ul style="list-style-type: none"> • The BEAR project aims to decarbonise the end fired regenerative furnace design, which is the current state of the art in EU’s production of packaging glass, by combining it with the more energy-efficient all-electric furnace concept into a hybrid regenerative furnace. • The project will demonstrate a first-of-a-kind hybrid end-fired regenerative furnace with a more than 40% electrical melting share and an output capacity of 170 tons of glass per day. The furnace will be implemented in Steklarna Hrastnik’s existing production site in Hrastnik, Zasavje, a Slovenian coal region in transition. The furnace will replace the existing end-fired regenerative furnace for extra-white flint glass production, resulting in a more than 50% reduction of natural gas consumption and up to 35% of greenhouse gas emissions savings. • This hybrid furnace makes it possible to use a high share of carbon-neutral energy sources, while maintaining the operational flexibility of conventional regenerative furnaces, both in terms of output flexibility as well as cullet rate. • This project will help align the glass melting process with the availability of renewable energy and open up glass manufacturing to provide ancillary services. The BEAR project will help avoid 96 384 tonnes CO₂eq in its first 10 years of operation.
4	SOL (Sugar: the gOdfather of fuelS)	Refineries	Netherlands	Vertoro West (NL)	<p>Sugar: the gOdfather of fuelS</p> <ul style="list-style-type: none"> • The Vertoro project revolves around a proprietary breakthrough technology to extract sugars from residual lignocellulosic streams as "crude sugar oil" (CSO™) and to use the same oil to fuel ship engines. • The two-step technology first converts forestry and agricultural residues into crude lignin oil (CLO) and cellulose in roughly equal volumes for any given plant size. The company already has experience in cellulose production waste stream with a 1 kilo ton per annum demo plant in Geleen, Netherlands and a 10-kilo ton per annum commercial CLO plant at Port of Rotterdam. • The goal of this project is to fully valorise the agricultural and forestry residues using the same proprietary reactor used to produce CLO and cellulose to produce CSO™ from cellulose via acid-hydrolysis. CSO™, in turn, will be deployed as a sustainable marine fuel blend component for heavy fuel oil (HFO) in close collaboration with other companies. • The net yield (by weight) for an advanced REDII IX-A biofuel such as CSO is twice (80% vs 40%) that of a similar traditional process converting biomass to ethanol. Furthermore, this is achieved using fewer unit operations and lower energy consumption. This project would avoid 44,557 tonnes CO₂eq over 10 years.

5	InnoSolveGreen	Other energy storage	Lithuania	<p>UAB "Green Genius" (LT)</p> <p>2 UAB "GG LTU S20" (LT)</p>	<p>Demonstrating a novel Energy-as-a-Service solution for industrial sector energy consumers</p> <ul style="list-style-type: none"> • The InnoSolveGreen project will showcase a novel Energy-as-a-Service solution that will enable commercial and industrial (C&I) electricity consumers to meet 100% of their annual needs with cost-effective, locally produced electricity from solar PV-plus-storage systems. • The project aims to build two PV-plus-storage systems: one at the site of the selected industrial client, which will maximise the consumer's on-site electricity production capacity; and another off-site utility-scale PV + storage system, which will complement the on-site system production to achieve 100% annual demand coverage. • The project's innovative elements also consist of a new business model that will diversify revenue stream sources and enable additional values for both the developer and the final client, and an innovative utility-scale PV-plus-storage system design which will feature a first-of-a-kind combination of both direct current (DC) and alternative current (AC) connected battery storage systems in order to showcase a method for integrating significantly more renewables into existing limited capacity electrical grids. • After going into operation, the InnoSolveGreen project will produce approximately 7 442 MWh of electricity each year and will avoid an estimated total of 16,669 tonnes CO₂eq during the first 10 years of operation.
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6	Listlawelbatt cool (Light and structural laser welded battery cooler)	Manufacturing of components for production of renewable energy or energy storage	Czechia, France, Spain	VALEO SYSTEMES THERMIQUES SAS (FR) Valeo Térmico (ES) VALEO VÝMENÍKY TEPLA (CZ)	<p>An energy and resource efficient battery cooler technology</p> <ul style="list-style-type: none"> • The Listlawelbattcool project will start the production of new battery cooler technology for electric vehicles that reduces costs and CO₂ emissions. This project will use laser welding to assemble the aluminium plates in the heat exchangers of battery coolers and allows a full revolution in this field with a material modification, involving a reduction in the thickness of the materials and in the weight of the battery pack. • The project development will cover different fields to improve actual part conception and process: <ul style="list-style-type: none"> ○ First laser welding application on aluminium battery cooler which will reduce by 50% the energy consumed during the cooling process. ○ It will require less aluminium with a new part design that will take part of the battery pack rigidity. The new cooler design allows a reduction in the thickness, therefore reducing the global weight of the pack system. ○ Improve aluminium recycling up to 40%, by using more standard aluminium without specific layers, therefore lowering its overall energy cost and increasing the circularity of the project. The global CO₂ emissions will be reduced by 45% per battery cooler (from raw material until end of life of the car). • Listlawelbattcool will deploy his first laser line in ZebraK site, Czechia, and it is planning new extensions in Europe in Spain, Poland and France. The production of battery coolers by laser welding will generate (over 10 years) almost EUR306 million for a production volume of over 3 million units and will generate a positive net result from 2027 with a greenhouse gas emission avoidance of 223 000 tonnes CO₂eq over 10 years.
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7	HyPush	Use of renewable energy outside Annex I of the EU ETS Directive	France	N GREEN MOBILITY (FR)	<p>Construction of a fuel cell pusher boat operating with two hydrogen fuel cells and a lithium battery designed for inland river navigation</p> <ul style="list-style-type: none"> • HyPush will demonstrate a highly innovative hydrogen-powered pusher boat for bulk transports in the Paris metropolitan region. It will introduce hydrogen technology on inland waterways, namely a boat for pushing heavy barges in the Paris metropolitan area. • HyPush will couple the innovative technology with a ground-breaking business model. NEoT Green Mobility (NGM) will own the pusher and remain responsible for the new technology such as fuel cells and power electronics. The end-user will enter into a dry lease agreement without technological risk. This allows to overcome the existing financial barriers slowing down the large-scale roll out of this new technology. • The project will eventually replace some 500 boats in France alone. The project will avoid 12293 tCO₂eq in the first 10 years. NGM is setting up a special purpose vehicle for the fast ramp-up of production coupled with the innovative business model. The project has been improved from a technical, business, and financial perspective, also with the help of EIB experts mandated under the Project Development Assistance, which it received after applying to the 2020 small-scale call
8	VOZARTEK	Refineries	Czechia	Veolia Energie CR, a.s. (CZ)	<p>Initiating the Production of Green Hydrogen for Transport and Other Applications in the Czechia</p> <ul style="list-style-type: none"> • The aim of the VOZARTEK project is to help kick-start the green hydrogen market in the Moravian-Silesian Region (MSK) in Czechia by producing it locally. The hydrogen will be produced in electrolyzers powered by solar PV and biomass combined heat and power (CHP). The project site is in the town of Frýdek-Místek and is a part of a broader agglomerate of activities involving also coal-to-biomass fuel-switch and installations of solar PV + battery energy storage systems. The commercial operation will start in 2026 with the output volume of 270 tonnes per year. The combination of photovoltaic energy (prevalent in summer) and biomass co-generation (prevalent in winter) will make hydrogen available all year round. This is a demonstration project and has the potential to be expanded either at the current sites or replicated elsewhere in the region and beyond. The hydrogen will be supplied to bus, train, and truck operators but non-transport applications such as injection into natural gas grid or in metallurgy are also considered. • The project will avoid approximately 34 000 tonnes CO₂eq (calculated as transport fuel-switch) over the monitoring period of 10 years.

9	HFP (Hybrid Furnace Project)	Glass, ceramics and construction material	Netherlands	Saint-Gobain Construction Products Nederland B.V. (NL)	<p>A first-of-a-kind Hybrid Furnace Project for glass wool production</p> <ul style="list-style-type: none"> • A significant part of greenhouse gas emissions in glass production relate to fossil energy consumption by flame furnaces to produce molten glass. An alternative to flame furnaces is electrical (e-)furnaces, which emit the least greenhouse gases, i.e., when green electricity is used. However, implementing an e-furnace is regularly not an option in the industry due to, for example, a lack of sufficient electricity supply. • With HFP, Saint-Gobain will break this deadlock and prevent going back to using flame furnaces in the future when e-furnaces cannot be used. HFP is the first hybrid glass wool furnace that is 50% heated by means of electricity (Boosting). HFP will be implemented and validated at Saint-Gobain Isover's site in Etten-Leur in the Netherlands. • At Etten-Leur, HFP will reduce natural gas consumption by about 50GWh per year. After its first implementation, HFP can easily be replicated throughout the sector. At Saint-Gobain alone, HFP will avoid 100,239 tonnes CO₂eq during the first 10 years of operation.
10	CLYNGAS	Cement and lime	Spain	CEMEX ESPAÑA OPERACIONES S.L.U. (ES)	<p>First-of-a-kind technology to substitute petroleum coke in the cement industry by synthesis gas (syngas) generated from gasification of stabilised refused derived fuels</p> <ul style="list-style-type: none"> • The CLYNGAS project will avoid 277 944 tonnes CO₂eq during the first 10-year operating period. This will be achieved by means of substituting a large part of the fossil-based pet coke used as a fuel in the main burner of the kiln for cement production by a syngas obtained from waste residues containing relevant shares of biomass materials. • The CLYNGAS project is based on an innovative and reliable technology to produce a high-added value syngas fuel, by means of a gasification and gas cleaning process of a combination of wastes. The gasification process will boost burnability characteristics of refuse-derived fuel (RDF), allowing substitution of fossil fuels with a stable process and a high-quality production. • CLYNGAS is considered a first-of-a-kind project, with a huge replicability within the EU and worldwide cement sector.
11	PRIMUS (PRime Manufacturing of crystal glass Under innovative Solution).	Glass, ceramics and construction material	Italy	Bormioli Rocco S.p.A. (IT)	<p>Prime Manufacturing of crystal glass under innovative Solution</p> <ul style="list-style-type: none"> • The project will reduce emissions at the Fidenza glass manufacturing site in Italy, by moving towards decarbonised pathway through hybridization of the melting furnace and waste heat recovery in different sections of the production line, consisting of a novel combination of existing technologies and the novel application of existing technology in a new sector. • This project will demonstrate the viability on a commercial scale of a solution never applied in the production of high-quality crystal glass. The renovation of the current plant layout in a perspective of overcoming existing technical, economic and market barriers, make the PRIMUS project a highly replicable solution perfectly in line with European policies and the RePowerEU plan. During its first 10 years of operation, the PRIMUS project will avoid about 37 000 tonnes CO₂eq.

12	AGRIVOLTAI C CANOPY	Solar energy	France	TSE (FR)	<p>The Brouchy Agrivoltaic Canopy - An acceleration toward energy transition</p> <ul style="list-style-type: none"> • The agrivoltaic canopy project is a low-carbon innovative technology, developed in-house by the French solar company TSE to respond to the needs of both the agricultural and solar sectors. • The Canopy is a 5-metre-high shade house with photovoltaic panels. The project’s innovative features are threefold: breakthrough technical innovation, a beneficial solution for agriculture, and an ambitious development strategy through the deployment of a large programme of Canopy projects. The distinctive technical feature of the Canopy is a structure with steel cables offering 27 metres distance between the poles of the structure. It will allow any type of agricultural machine to be used and is suitable for a broader range of farms, including large field crops, as opposed to a traditional Agri-PV system. Synergy with agriculture, demonstrated by better yields, will be the foremost objective of this pilot project. A 9-year in-depth study will be undertaken to quantify the beneficial effects on the crops (via partial and rotating shade). • TSE has developed a 3 MWc Canopy in Brouchy (France), with an optimized design considering the first demonstrator built this year in Amance. The company is also considering a two-stage strategic approach to developing an economically viable solution, first by building 17 Canopy projects and then large-scale projects. The first phase will allow TSE to quantify the positive impacts of the Canopy in agricultural practices and optimise the CAPEX through successive versions. The second phase will enable economies of scales with the development of large-scale batches of projects. The project will avoid a total of 6 982 tonnes CO₂eq during the first 10 years of operation.
13	SUSTAIN-SEA	Wind energy	Spain	BOUND 4 BLUE SL (ES)	<p>Reducing maritime transport CO₂ emissions using wind</p> <ul style="list-style-type: none"> • The SUSTAIN-SEA Project will deploy Bound 4 Blue innovation eSAIL™ system to reduce fuel use and greenhouse gas emissions in maritime transport by using wind energy. The goal of the autonomous and tiltable wing sail technology is to maximise the lift coefficient (CL) by maximising the airflow for the sail, providing a lightweight and cost-efficient solution to reduce fuel consumption in maritime transport. • In line with the REPowerEU plan and the EU Green Deal, this project will have a great impact on reducing the EU’s dependence on fossil fuels and external suppliers. At the same time, it will have a great positive environmental impact by avoiding 95 881 tonnes CO₂eq during the first 10 years of operation following full commercialisation.

14	GeoHuberila	Geothermal energy	Finland	NSF III Finland Advisory Oy (FI)	<p>An innovative heating and cooling system for Huberila</p> <ul style="list-style-type: none"> • The GeoHuberila project will implement an innovative geothermal heating and cooling system in a multi-use building complex Huberila in Vantaa, Finland. The GeoHuberila geothermal system contains improved flexibility and energy saving features, which will significantly advance the state of the art and be highly scalable both to new and retrofitting installations. • The GeoHuberila heating and cooling system in Huberila Complex will provide a total of 3 210 MWh of heat per year (1 300 MWh for heating and HVAC, 1 480 MWh for hot domestic water and 430 MWh supplied to the adjacent Bosch building) and 881 MWh of cooling per year. The heating and cooling system will use a combination of innovative medium depth geothermal wells and an innovative energy management system, leading to greenhouse gas emission avoidance of 6 701 tonnes CO₂eq during the first 10 years of operation and further other emission reductions estimated as 1 476 tonnes CO₂eq over 10 years related to performance and efficiency gains of the network and consumer driven control system. • By implementing this highly scalable, low-emission and flexible technology, GeoHuberila will be able to have an impact in both the energy supply and energy efficiency of the building.
15	GreenH2CY	Refineries	Cyprus	<p>MCK. Future Fuels Ltd. (CY)</p> <p>Ketonis Holdings Ltd. (CY)</p> <p>A. ZORPAS KAI YIOI LIMITED (CY)</p> <p>EVERGY LTD (CY)</p> <p>Wincono Cyprus Ltd. (CY)</p> <p>Neuman & Esser Deutschland GmbH & Co.KG (DE)</p>	<p>Green Hydrogen Project for Transport in Cyprus</p> <ul style="list-style-type: none"> • The scope of the GreenH2CY is to produce green hydrogen and make it available in the Cypriot market for the first time. Hydrogen will be produced by electricity supplied from renewable energy sources. From a technical perspective, the Future Fuels Pilot Project entails the installation and operation of a 2 MW Proton Exchange Membrane electrolyser. The hydrogen production plant is expected to produce approximately 150 tonnes of hydrogen fuel per year, equivalent to 627 tonnes of diesel fuel per year for transport use. • The project will additionally include storage and a filling station for the fuel to be accessible to users. The location of the plant and the pilot in Larnaca district was carefully and strategically selected to ensure easy access for the vehicles to be refueled. The energy will be supplied by a local renewable energy supplier with the use of guarantees of origin. The water to be used in the electrolyser will come from secondary treatment of wastewater from the Water Development Department of Larnaca, contributing to circular economy. • First, the product will be used in the mobility sector and more specifically for light and heavy trucks, to replace diesel-fueled vehicles, while the project coordinator has already signed an agreement with an end-user. The project will avoid a total of 21 676 tonnes CO₂eq during the first 10 years of operation.

16	VITRUM (Virtuous Innovative Transformation of high-quality container glass Manufacturing)	Glass, ceramics and construction material	Italy	Bormioli Luigi (IT)	<p>The VITRUM project: Virtuous Innovative Transformation of high-quality container glass manufacturing</p> <ul style="list-style-type: none"> • The VITRUM project will reduce emissions at the Abbiategrasso glass manufacturing site in Italy, by moving towards decarbonised and circular pathway through the combination and integration of hybridization, energy efficiency, circularity, digitalisation and automation solutions. • The project will demonstrate the viability on a commercial scale of a solution never applied in the production of high-quality container glass. The renovation of the current plant layout in a perspective of overcoming existing technical, economic and market barriers, makes the VITRUM project a highly replicable solution perfectly in line with European policies and then RePowerEU plan. During the first 10 years of operation, VITRUM project will avoid about 26 000 tonnes CO₂eq.
17	GreenH2	Hydrogen	Poland	LOTOS GREEN H2 Sp. z o.o. (PL)	<p>Small-scale green hydrogen production facility</p> <ul style="list-style-type: none"> • The main goal of the "Green H2" project is to support the decarbonisation of the European economy by increasing the potential of producing hydrogen from emission-free sources. This objective will be achieved by constructing a modular and scalable integrated hydrogen production installation, powered by renewable energy and a heat recovery system. The installation will consist of a 1 MW electrolyser with auxiliary installations, 1 MW photovoltaic plant, an energy management system and a waste heat recovery system. The installation will be located by the refinery in Gdańsk, Poland. The project is expected to produce around 140 tonnes of hydrogen per year. • The project is about a fully scalable technological system that is not yet commercially available and represents breakthrough solutions that will significantly reduce emissions, improve energy efficiency, and allow the use of waste products. The proposed project represents substantial innovation potential regarding some aspects of its implementation, including the production of green hydrogen for the refinery plant, the utilisation of a waste product (heat), the optimisation of energy costs and the improvement of the system's energy efficiency. The GreenH2 project will avoid an estimated 9 375 tonnes CO₂eq in its first 10 years of operation.