

Questions - Réponses

Commission européenne

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**MINISTÈRE
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*Liberté
Égalité
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HORIZON-CL5-2023-D2-01-05; HORIZON-CL5-2023-D3-01-08; HORIZON-CL5-2023-D3-01-10; HORIZON-CL5-2023-D3-01-12; HORIZON-CL5-2023-D3-01-13; HORIZON-CL5-2023-D3-01-15; HORIZON-CL5-2023-D3-02-14; HORIZON-CL5-2023-D3-03-03; HORIZON-CL5-2023-D3-03-04; HORIZON-CL5-2023-D3-03-05; HORIZON-CL5-2024-D3-01-08; HORIZON-CL5-2024-D3-01-12; HORIZON-CL5-2024-D3-02-09; HORIZON-CL5-2023-D4-01-03; HORIZON-CL5-2024-D4-01-02

Question: 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 Internet of Things Innovation’ (AIOTI) and other relevant activities (e.g. clusters of digital projects and coordinating actions) might be considered, when relevant.”*

➔ **Reply:** The aim of the Bridge initiative is to increase the impact of projects in 2 ways: 1) to exchange experiences and best practices among projects so that they can build on each other’s work and cooperate across projects; 2) 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, by participating 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 not expected to contact the Bridge secretariat during the proposal preparation but only when the project has been awarded.

Topic HORIZON-CL5-2023-D1-02-01 EU-China international cooperation on data and model development for pathways to carbon neutrality: focusing on decarbonisation, energy efficiency and socio-economic implications of the transition.

The topic specifies, among other things, that actions should: *“Consider different geographical scales and the role of cities in the transition pathways.”*

Question: Could you give further interpretation of the “role of cities”? This could mean several things. On the one hand it could be interpreted as including city governments as stakeholders in the process of developing models and/or policy recommendations, on the other hand this could be interpreted to mean focusing on urban areas as such in the modelling. Or both of those things.

- ➔ **Reply:** Both interpretations are indeed applicable in this case. This issue was left open intentionally so that consortia could see what the best way would be to include and cover this particular aspect. This can happen e.g. through modelling that considers the city scale, but it could also be tackled in different ways, such as doing a case study or involving stakeholders that work on the city (rather than the national) level.

Topic HORIZON-CL5-2023-D2-01-05: Hybrid electric energy storage solutions for grid support and charging infrastructure (Batt4EU Partnership)

In relation to the sentence from the topic text: *"The objective is to design and demonstrate in at least three different use cases a Hybrid Energy Storage System (HESS)..."*

Question 1: Is it meant that one prototype/design of HESS solution is developed within the project and the same solution is demonstrated in three different use cases or is it expected to develop three different systems? Can all use cases be demonstrated in the same demo (location)?

- ➔ **Reply:** There is no hard restrictions on where or how the demos take place, the emphasis is more on the relevance and efficiency of the demonstrations. The choice will need to be justified, and will be taken into account in the evaluation procedure.

Question 2: In relation to the storage system: is hydrogen storage considered as one of the possible storage systems?

- ➔ **Reply:** Hydrogen is indeed eligible as one of the electrochemical storage systems. However, it should be underlined that, as the focus of the topic is on electrical storage, only solutions combining hydrogen with fuel cells will be taken into account. Any other uses of hydrogen storage are outside the scope of the topic.

HORIZON-CL5-2023-D3-01-01: Renewable Energy Valleys to increase energy security while accelerating the green transition in Europe

Question 1: How much energy /heat is expected to be generated within the REV living lab?

- ➔ **Reply:** The RE valley must demonstrate in real life conditions the sustainable and cost-effective production and storage of renewable energy in a local, peri-urban or regional community. Thus the energy (power, heat and fuel) to be produced should satisfy such needs annually, which vary depending on the size of the community and no exact amount can be defined a-priori.

Question 2: Does the REV living lab needs to be one flagship site or be composed of several sites to demonstrate different "geography and climate" across several usage cases (e.g., "buildings, mobility, industry, industrial parks")?

- ➔ **Reply:** The RE valley can be either distinct but combined systems or unique poly-generation systems (i.e., in the same infrastructure) to deliver multiple energy carriers from combined renewable energy resources and technologies in order to serve the local community for its different energy end uses. Consideration of different potentials in terms of geography, climate and natural resources in the concept design means that the RE valley concept design should be customized on the local conditions.

Question 3: If we want to set up a REV living lab in a large city, we could supply energy, heat, and cooling for a part of that city; however, we cannot fully cover the local energy needs on an annual basis of the entire city. Does this requirement prevent from setting up a REV living lab in a large city?

- ➔ **Reply:** According to the call text, 'peri-urban settings' are in the scope. Therefore, the living lab is not necessarily expected to cover fully the energy needs of an entire city, but of part of it. Indeed, as it is not reasonable to set up a demonstration project such as the RE valley in a scale which falls beyond demonstration. A large city will be the next step in up-scaling the RE valley concepts from a small community to a bigger one.

Question 4: With regards to the definition of living labs, what is the size/scale expected and can they include existing infrastructure or not?

- ➔ **Reply:** The definition of living lab itself is well known (Wikipedia: The Living Lab is a methodology where citizens, residents and users are considered key players in the research and innovation process.) The topic itself does not specify a size but it should be relevant to be able to demonstrate the concept of REV.

From the topic scope:

*Renewable energy valleys (REV) are understood as decentralised renewable energy systems that offer a viable and efficient solution to the challenges of ramping up the production of green energy, diversify our energy supplies, and reduce our demand for fossil gas, coal and oil. **REV are fully covering the local energy needs on an annual basis.** For example, local production and consumption, reduced transmission and distribution losses thanks to the reliance on local networks for energy needs, greater operational flexibility and reduced dependence on expensive fuel imports all contribute to a higher energy autonomy, a more secure supply, and lower, more stable overall energy costs, including for individual citizens. In addition, REV can alleviate a part of the load on the centralised grid and avoids blockages by the capacity of the grid.*

Therefore the size is linked to what can be achieved, fulfilling the bold sentence.

HORIZON-CL5-2023-D3-01-04: Solar Systems for Industrial Process Heat and Power

Question 1: The sentence “International cooperation with the Mediterranean Region is encouraged.” Does it mean EUROPEAN Mediterranean countries or do they have to be ASIAN or AFRICAN Mediterranean countries?

→ **Reply:** International cooperation implies the inclusion of non-EU (and non-associated) countries in the consortium. Thus the inclusion of African and/or Asian countries located in the Mediterranean basin is encouraged.

Question 2: Is the call requesting hybrid PV and ST design on system level integrating solar thermal and photovoltaic subunits on system level, or requesting integration of both technologies on separate device level? (There seems to be two options: merge 2 independent systems PV and ST and assemble them into one consolidated system OR develop one single device called CPVT in which concentration of light applied to PV and to ST subparts). Could you clarify the definition of hybrid system?

→ **Reply:** The call is requesting **hybrid PV and ST design** on system level integrating solar thermal and photovoltaic subunits. It is not looking on CPVT. Otherwise it would have been clearly mentioned, as CPVT is a different technology.

HORIZON-CL5-2023-D3-01-05: Critical technologies for the offshore wind farm of the Future

Part of the topic text: *The objective is to bring major innovations in the design and manufacturing of large offshore wind farms, aiming at >15 MW for fixed bottom offshore applications and >12 MW for floating offshore installations*

Question: Is it mandatory to address both types, fixed bottom and floating in the same proposal?

→ **Reply:** It is not mandatory to address both fixed bottom and floating offshore wind technologies in the same proposal. One of the two technologies only or both can be addressed.

HORIZON-CL5-2023-D3-01-08: demonstration of sustainable tidal energy farms

Question: The call text states that the project should “operate the farm at least 2 years in the lifetime of the project”. Does that mean that the complete 4MW should be operated for 2 full years, or is it acceptable that the farm is launched incrementally, and that the 2 years of farm operation can be counted from the moment that 2 systems are grid connected?

→ **Reply:** The call text indicates that the project is expected to deploy a tidal energy farm with a minimum capacity of 4 MW and to operate this farm (minimum 4 MW) at least 2 years in the lifetime of the project. A minimum of 4 MW should be operated for 2 full years and after the project it is expected that the farm will continue to be operated for at least 8 years.

Topic HORIZON-CL5-2023-D3-01-15 Supporting the green and digital transformation of the energy ecosystem and enhancing its resilience through the development and piloting of AI-IoT Edge-cloud and platform solutions

Question: This topic allows for “Financial Support to Third Parties” and access to this support requires to upload a separate document (Annex with information on financial support to third parties) in part B, in the Submission System. However, there is no Annex in the Submission System for this topic.

→ **Reply:** This issue is being considered by the Commission services and we will get back to you shortly to confirm whether data for “Financial Support to Third Parties” can be added to the Submission Portal. Draft applicants will be informed as well.

HORIZON-CL5-2023-D3-02-07: Development of next generation advanced biofuel technologies

With regards to the sentence: *“The new technologies should also address specifically uses in fuel cells for all transport modes for electricity generation from biofuels used as renewable energy carriers with high conversion efficiency and low pollution.”*

Question 1: What is the purpose of “electricity generation”?

→ **Reply:** The purpose is to use biofuel in the fuel cell

Question 2: What is the expected use of the electricity generated?

→ **Reply:** Powering any transport powertrain based on fuel cells

Question 3: Is it required to address uses in one type of fuel cell or in several types of fuel cells?

→ **Reply:** This is not specified as a requirement but at least one type is expected to be tested

Question 4: What does “for all transport modes” refer to?

→ **Reply:** Road, aviation, maritime (fuel cells types)

Question 5: Must the biofuel be for all transport modes?

→ **Reply:** No, but all transport modes are included – the choice is for the proposal developer

HORIZON-CL5-2023-D3-02-11 Advanced concepts for crystalline Silicon technology

Question: In the Scope of the Call it is required that proposals develop architectures approaching the theoretical efficiency limit of c-Si cells with the use of 5 technologies. It is not clear if ALL of them should be addressed, or if the applicant should focus on ONE (or some) of them.

→ **Reply:** Proposers are expected to address the best combination of/ as many as possible options from those mentioned or additional ones.

HORIZON-CL5-2023-D3-03-01 Increasing the efficiency of innovative static energy conversion devices for electricity and heat/cold generation

Question 1: Which and how many outcomes should be the focus of the research project? Is it correct to choose (at least) three outcomes from the bullet-pointed list made of A plus B?

→ **Reply:** The text specifies: *"The results are expected to contribute to at least three of the outcomes in A and B"*, i.e.: at least 1A & 2B or 2A & 1B.

Question 2: Which and how many pilots should be developed during the research project? / how can we develop three pilots in three different EU Member States/Associated Countries?

→ **Reply:** Validation/demonstration of the activities developed in (1) with at least one pilot for each technology in different EU Member States/Associated Countries.

Topic HORIZON-CL5-2023-D3-03-01: Increasing the efficiency of innovative static energy conversion devices for electricity and heat/cold generation

Question 1: What is the contextual meaning of Expected Outcome, sentence 2: "The results are expected to contribute to at least three of the outcomes in A and B". For one project, does it mean that we have to cover at least three different technologies from the A list? (E.g. Thermoelectric, Thermovoltaic, and Thermionic.) Or could we combine three bullet points ("technologies") from A and B? (E.g. Thermoelectric, heat recovery, heat/cold generation from electricity.)

→ **Reply:** The text specifies: *"The results are expected to contribute to at least three of the outcomes in A and B"*, i.e.: at least 1A & 2B or 2A & 1B.

Question 2:

When defining the technologies in A, the bullet point list is of "energy conversion devices using

physical effects **such as**"... Does the wording "such as" mean that other physical effects/technologies than the five ones listed in A could be within the scope? One example could be the magnetocaloric effect, which is very similar to the electrocaloric effect.

- ➔ **Reply:** Yes, other physical effects/technologies than the five ones listed in A could be within the scope. Other physical effect/technologies addressed should be "in line" with the examples given.

Question 3: The Expected Outcome starts with the following sentence: "Projects are expected to develop further the harvesting of renewable energy in areas/conditions where other conversion systems are less efficient, less convenient or not possible." Does this mean that all the activities should rely on renewable energy, or is it sufficient that only one of the three technologies is based on harvesting of renewable energy?

- ➔ **Reply:** The focus lays on renewable energy. Though, the text also includes waste/unused excess energy. This should be in line with the expected outcome from section B.

Question 4: The outcomes in B include "heat/cold generation from electricity" and "applications in areas such as industrial, automotive ...". Should this be linked to renewable energy? As an example, should the electricity for heating/cooling be provided by renewable energy?

- ➔ **Reply:** The link to renewable energy is preferable but this is also ok to consider heating/cooling be provided by renewable energy.

Question 5: In Scope (1) first bullet, there is explicit mention of "applications in energy waste recovery (e.g., industry,...)". Does this mean that energy harvesting is really not limited to renewable energy as stated in the first sentence?

- ➔ **Reply:** Indeed, this is right, energy harvesting is really not limited to renewable energy.

HORIZON-CL5-2023-D5-01-02: Innovative battery management systems for next generation vehicles (2ZERO & Batt4EU Partnership)

Question: Does the topic require a BMS belonging to a battery mounted on a vehicle, tested in the appropriate environment of relevance? For example, if using a car from a car sharing fleet as use case, is the test to be carried out on a urban route ? Alternatively, can the test be carried out in a simulated environment that reproduces real conditions?

- ➔ **Reply:** HORIZON-CL5-2023-D5-01-02 is a joint topic between 2Zero and BATT4EU partnership, with main aim to advances the design, functioning and data accessibility of an efficient battery management system (BMS), expected to achieve at least TRL 6 by the end of the project. Validation is to be done 'under real driving conditions', thus solution(s) are

expected to be demonstrated in a car (which has the most demanding requirements in the expected impacts) in the appropriate environment, and not only by simulation.

HORIZON-CL5-2023-D5-01-07: Hydrogen Powered Aviation

Question 1: In the topic description, there is a clear focus on the ‘liquid hydrogen’ (e.g. refuelling and supply systems for liquid hydrogen at Expected Outcome # 1; liquid hydrogen demand and supply-matching models at Expected Outcome # 4). However, in the expected outcome #2, it is put forward that ‘Vertical Take Off and Landing aircraft (VTOL) and Unmanned Air Vehicles (UAV)’ need to be included in the various aircraft concepts, for which ‘transformative aircraft-based hydrogen refuelling technologies’ are used. My client asserts that VTOL en UAV’s require ‘hydrogen in gas form’ while liquid hydrogen (main focus of the topic) is meant for bigger type aircrafts. In the light of this, we are curious about the rationale behind the inclusion of VTOL en UAV’s in the expected outcomes. Because this would mean a larger scope in a proposal, not only focusing on liquid hydrogen but also hydrogen in gas form.

➔ **Reply:** Indeed, the focus is on liquid hydrogen, in order to be aligned with the Strategic Research and Innovation Agenda, National priorities and maximum potential impact towards climate neutrality by 2050. The UAV/VTOL is not the main priority of the topic (as the expected impact towards climate neutrality by 2050 is marginal). It was proposed at a very late stage of the Member States’ consultation process and agreed to be included in order to have a holistic approach to airport infrastructures (refuelling technologies, safety, interoperability, standardisation, scalability, etc). This is the rationale behind the inclusion of VTOL en UAV’s in the scope/expected outcomes. In this sense, it is not expected that this inclusion will enlarge the scope of proposals.

Question 2: Regarding multimodality, in aspect #1 (under scope), ‘multimodality issues at airports arising from the use of hydrogen in road and rail transport’ need to be considered. While the use of hydrogen in road and rail transport is clear here, in the aspect #2, [... in order to enable zero-emission airport operations along the entire value chain, from multimodal road/rail connections, to ground handling and aircraft ground movements.] zero emission airport operations need to be enabled, among others, from multimodal road/rail connections. Can we assume that aspect # 2 is not limited to hydrogen use but also any other type of energy carrier which would potentially enable ‘zero emission’ airport operations? If this is the case, how can we link this to aspect #1 where ‘use of hydrogen in road and rail transport’ is explicitly mentioned?

➔ **Reply:** The emphasis of the first bullet point in the scope is on “assessing and validating potential liquid hydrogen demand models at air transport ground infrastructures in Europe and globally”. The multimodality and other concepts (e.g. hydrogen hubs) are indicative boundary conditions to be considered. The same holds true for the second bullet point in the scope – the emphasis is on testing and demonstrating innovative and safe ground-based refuelling, storage and supply systems for liquid hydrogen at air transport ground

infrastructures. As indicated in the text, the main expected outcome of the topic is on ground-based refuelling and supply systems for liquid hydrogen at air transport ground infrastructures, with the potential to be up-scaled at system level.

HORIZON-CL5-2023-D5-01-18: Advanced transport emissions monitoring networks

Question: Do all 24 monitoring stations have to be able to individually monitor all pollutants (including emerging pollutants such as ammonia) on a real-time basis, providing it with real-time data?

→ **Reply:** Yes, we expect all stations to include all pollutants with 24/7 hr monitoring given that solutions exist (unless you are thinking of ammonia particulate, we mean gaseous NH₃ from car exhausts) and a running project is developing such stations.

Question: Some cities/districts already have state of the art measuring infrastructure installed (often linked to previous, similar research projects); does the project allow cooperation with said cities to counter this investment cost?

→ **Reply:** Yes, provided that the measuring requirements are in accordance to these specified in the call text. Moreover, for new installations, we expect the cost to be amortised with time since the monitoring stations are expected to stay in the cities beyond the duration of the project.

Question: Can the chosen measurement configuration vary among cities within the same project, tailored to the cities' characteristics and coordinated as such with city authorities?

→ **Reply:** We expect that modelling will allow to perform the connection with exposure, and source data are needed to feed such modelling, while allowing to provide data for acute exposure in traffic sites, while the contrary is not straightforward: therefore the exact positioning and configuration of the monitoring system(s) is left up to the consortium, provided it complies with the requirements mentioned in the call.