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Questions – Réponses AAP 2024
Commission européenne

En rouge : les FAQ ajoutées depuis la dernière mise à jour

Liste des appels ayant fait l'objet d'une réponse de la Commission européenne

Dernière mise à jour le 17/04/2024

BRIDGE initiative

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.

New European Bauhaus

Request to clarify the standard sentence "*Projects are expected to contribute to the New European Bauhaus (NEB) initiative by interacting with the NEB Community, NEBLab and other relevant actions of the NEB initiative through sharing information, best practice, and, where relevant, results"* that appears in several topics.

Question: What type of contribution is expected?

➔ **Reply:** Topics include this statement because the project results could be useful for the development and implementation of the NEB initiative.
Projects should firstly check whether it is feasible to become an official Partner[2] (any entity, except for-profit organisations and public authorities) or Friend[3] (companies and public actors [regions, villages and cities]) of the NEB. Joining the NEB Community will make it easier to share information, best practice and/or results when the project is properly underway (and producing results).
Projects should also inform their relevant NEB National Contact Point[4] (separate to the R&I Framework Programme NCP) of their activities.
The project may also wish to explore whether they are eligible to participate in the NEB Festival[6] (next edition in 2024) and/or apply for NEB Prizes[5] (annual).

[1] https://europa.eu/new-european-bauhaus/index_en
[2] https://new-european-bauhaus.europa.eu/get-involved/call-partners_en
[3] https://new-european-bauhaus.europa.eu/get-involved/call-friends_en
[4] https://new-european-bauhaus.europa.eu/about/national-contact-points_en
[5] https://new-european-bauhaus.europa.eu/get-involved/festival_en
[6] https://new-european-bauhaus.europa.eu/get-involved/2023-prizes_en

Question: How/ where is this reflected in the evaluation?

➔ **Reply**: It is up to the applicant to decide the appropriate level of interaction with / contribution to the NEB Community and initiative. This contribution will be evaluated by independent expert evaluators, who will assess whether the proposals credibly and appropriately include such a contribution.

HORIZON-CL5-2024-D1-01-01: Enhanced quantification and understanding of natural and anthropogenic methane emissions and sinks

Question 1: The Scope mentions "*carefully selected European land sites and European sea sites*", does this mean including any non-European sites in the activities is not allowed or at least discouraged?

➔ **Reply:** The focus should be on Europe, in support of better understanding of European sinks and sources. However, other sites are not excluded and may even be desirable, e.g. for better process understanding, as reference areas or to support the expected outcome "*Enhanced science base in Europe to perform global and regional (European) scale high-resolution assessment…*".

Question 2: The first bullet under Scope mentions "…over different Earth's ecosystems (terrestrial, terrestrial-aquatic continuum, and marine sub-seafloor)", is it required to include all the ecosystems included in the brackets?

➔ **Reply:** The list should be seen as indicative, not the least because they represent broad categories and not exhaustive. The important thing is to include different ecosystems in support of the overall objectives (better process understanding and quantification).

HORIZON-CL5-2024-D1-01-03: Paleoclimate science for a better understanding of the short- to long-term evolution of the Earth system

Question 1 : The 1st expected outcome recites "*Better process understanding of past climate changes, their variability and interactions with ecosystems, leading to improved Earth system models based on paleoclimate data*". What is intended with variability and interactions with ecosystems? What is the temporal scale of reference? Is it referred to a variability from an interannual scale to a multidecadal scale (comparable with the climatic models) or is it referred to a generic variability included in the glacial/interglacial cycles?

➔ **Reply:** The temporal scale is not fixed, but should be appropriate to the scope of the topic, which is paleoclimate. Typically, paleoclimatic records have a (much) lower temporal resolution than annual, but some records may allow reconstructions of a high temporal resolution. Projects are likely to use multiple lines of evidence, which are likely to differ in many respects, including their temporal scale (period covered) and resolution. This also relates to interactions with ecosystems, which can vary in temporal scale and resolution from annual (e.g., in the case of dendrochronology or pollen deposits) to multiple millennia (e.g., in the case of biome shifts associated with glacial cycles).

Question 2 : Concerning the 2nd expected outcome "*Assessment of driving and feedback mechanisms (e.g., the carbon cycle evolution and water cycle process), and precise timing and dynamics of deglaciation and glaciation*.", if Earth System Models have to be used, it is unlikely that an organisation may realize a simulation that is as long as to cover glacial and interglacial cycles at a resolution sufficiently high to allow the variability study at high frequency and with ecosystemic impacts (as requested in the other bullet points). Given the current technological state of the art, these simulations are impossible to carry out due to limited computational capacity. How can this be solved?

➔ **Reply:** As in the case of the first point, it should be interpreted in context. The research should contribute to the improvement of Earth system models (as mentioned in the first bullet), but that does not mean that the outcome mentioned in the second bullet should be chieved via Earth system models, let alone that it should be done only through those. Multiple methods and lines of evidence can be used, which can contribute through various ways, such as better data or better process understanding.

HORIZON-CL5-2024-D1-01-04: Improved toolbox for evaluating the climate and environmental impacts of trade policies

Question: Does the topic exclusively focus on agriculture and livestock or alternatively other 'key sectors' can be considered?

➔ **Reply:** There is nothing in the topic that would suggest that it would be "exclusively focused on agriculture and livestock". On the contrary, these are only mentioned as one example of key sectors, although for each one a specific methodology is expected. Therefore, such a methodology should be proposed for this sector, but there can also be others.

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

Question: How should the sentence *Credible projected storage costs of less than 0.05 €/kWh/cycle by 2030, particularly for applications with a (minimum) storage durations of up to 8 hours* be interpreted with respect to the storage duration requirement?

➔ **Reply**: The correct interpretation is that the minimum battery storage duration is 8 hours – so 8h or above. The text should read as follows: *Credible projected storage costs of less than 0.05 €/kWh/cycle by 2030, particularly for applications with minimum storage durations of ~~up to~~ 8 hours*.

HORIZON-CL5-2024-D2-01-04: Emerging energy technologies for a climate neutral Europe

Question 1: Should the application sector address at the same time energy AND transport value chains or is only one of the two options acceptable?

➔ **Reply**: Proposals can addressed either energy related aspects in the transport sector or the energy sector, as there is no specific requirement on that aspect.

Question 2: Which kind of energy technologies are intended in the topic? Are digital solutions for *Energy Transmission and distribution* eligible?

➔ **Reply:** This research topic is focused on breakthrough technologies which have a high risk/high return profile, no specific energy technologies are targeted. Work on electricity grid is indeed welcome and fits the area of energy distribution and transmission. Digital solutions on transmission are indeed mostly addressed in Destination 3 of the work programme but this topic is meant to address cross sectoral breakthrough technologies. If you have a project fitting this description at early TRL and participating to the transition towards climate neutrality, this can be eligible under this topic.

Question 3: Are green methods for ammonia synthesis covered by this topic?

➔ **Reply:** This research topic excludes what falls under other calls such as D3-01-10 and ammonia synthesis would indeed fall under its scope under fuels production system, so this would not be eligible under D2-01-04.

Question 4: What is the minimum storage time to be considered as "long-term energy storage"?

➔ **Reply**: Long-term energy storage is defined, in this topic, as starting from 10+ hours of storage capacity to days, weeks and seasonal storage.

HORIZON-CL5-2024-D3-01-03: Demonstration of improved intermediate renewable energy carrier technologies for transport fuels

Question 1: Is the aviation sector included as a target of this topic? In other words, how should the expression "off-road transport" be interpreted?

➔ **Reply:** The call specifies that the finished quality is expected to be suitable so that the intermediates can be either directly upgraded in existing refinery infrastructures and/or further purified and processed in existing chemical infrastructures to drop-in liquid and gaseous advanced biofuels and synthetic renewable fuels, or directly used for shipping propulsion or in other off-road transport. The final products are the intermediates and not the upgraded fuels. Some direct uses like off-road transport (as for example in agricultural machinery) or shipping are possible as these may handle intermediates. Final aviation renewable fuels are not acceptable, intermediates that can be converted to final aviation renewable fuels are eligible. Examples of intermediates are provided in the text of the topic.

Question 2: Is it in scope to investigate other sources of CO2 in addition to biogenic sources?

➔ **Reply:** CO2 can be of any origin, as it does not carry energy

Question 3: Is in the scope of the topic to investigate new feedstock sources for refineries?

➔ **Reply:** The scope of the topic is described in the call. The aim is to upgrade the intermediates.

Question 4: Is the "intermediate energy carriers" mentioned in the text include "intermediates" that are final products and that may be used as fuel without further purification/processing?

➔ **Reply:** The call specifies that: *the finished quality is expected to be suitable so that the intermediates can be either directly upgraded in existing refinery infrastructures and/or further purified and processed in existing chemical infrastructures to drop-in liquid and gaseous advanced biofuels and synthetic renewable fuels, or directly used for shipping propulsion or in other off-road transport*. The final products are the intermediates and not the upgraded fuels. Some direct uses like off-road transport or shipping are possible as these may handle intermediates.

Question 5: Are jet-fuel are acceptable?

➔ **Reply:** Jet fuels are not acceptable

HORIZON-CL5-2024-D3-01-05: Development of carbon fixation technologies for biogenic flue gases

Question 1: Is the use of biogenic C02 emissions resulting from the upgrading of biogas in scope of this topic?

➔ **Reply:** CO2 from upgrading of biogas to biomethane is not in scope, as no prior combustion of the biogas takes place and the use of effluent gases from bioenergy combustion systems is required.

Question 2: Does the topic request the development of one biological solution and one chemical solution?

➔ **Reply:** Development of biological and chemical solutions is understood as AND/OR. Therefore, biological or chemical solutions or both are in scope

HORIZON-CL5-2024-D3-01-06: Innovative applications/integration of geothermal heating and cooling in industry

Question 1: Must harvesting of geothermal energy be part of the project or is it enough with the use of the heat pump in industry?

➔ **Reply:** *[…] position geothermal utilisation (including underground storage) as a crucial pillar for the (heat and/or cold) transition of industrial energy systems […]* suggests that the use of a heat pump in industry alone does not fulfil the requirements of the topic.

Question 2: In case harvesting of geothermal energy must be part of the project, are the costs of geotechnical surveys and the drilling of geothermal wells eligible?

➔ **Reply:** The topic does not exclude the costs of geotechnical surveys and the drilling of geothermal wells eligible, however these should be appropriately justified in the context of the topic.

Question 3: The topic mentions: "*Projects should consider the application of cascading residual geothermal waste heat to neighbouring industries or the built environment*". The indicative budget per project (3 M€) does not seem enough to include a district heating for neighbouring industries. Do proposals have to make a district heating or is it enough to simulate this cascading of residual geothermal waste heat?

➔ **Reply:** Given the final expected TRL, the use of an experimental set-up to simulate the behavior of a downstream waste heat application is acceptable to demonstrate the cascading effect in a relevant environment.

Question 4: Are projects expected to improve the state-of-the-art for deep geothermal resources extraction or is it sufficient to consider those resources as available?

➔ **Reply:** The topic does not specifically request advances in the extraction of deep geothermal resources, therefore, unless they are necessary to meet the other requirements, the proposals do not necessarily have to include them.

Question 5: What is expected to be compulsorily addressed precisely among: heat pump systems / energy piles / energy sheet pile walls / alternative cycle working media?

➔ **Reply:** Projects should include (one or more of the following three technologies): heat pump systems, energy piles and energy sheet pile walls. The inclusion of alternative cycle working media is not mandatory but its exclusion from the proposals should be properly justified.

HORIZON-CL5-2024-D3-01-07: Development of hydropower equipment for improving techno-economic efficiency and equipment resilience in refurbishment situations

Question: The topic does not specify the scale of the hydropower facilities addressed. Does it mostly focus on the refurbishment of large-scale hydropower plants or are small-scale plants equally in scope?

➔ **Reply:** Indeed, the size of the hydropower plant is not prescribed and can include, both small and large-scale hydropower

Question: Should the Lifecycle-Thinking perspective be applied to all the materials involved in the process, including possible old waste material from the refurbished plant, or is it sufficient to consider only the new materials used in the refurbishment process?

➔ **Reply:** The proposed solution should be addressed on a life cycle basis. In particular also circularity by design refers to the proposed solution. While not mandatory, if waste material from the refurbished plant can be recycled and reused, this is in line with the circularity concept, which can be included.

HORIZON-CL5-2024-D3-01-08: Demonstration of sustainable wave energy farms

Question: Is the wave energy farm expected to be attached to the port water breakers or in open water? Which distance is expected from the mainland?

➔ **Reply:** The topic does not specify where the devices should be located, this is up to applicants to define the best configuration. The wave energy farms have to be connected to the electricity grid. The innovation component should mainly lie on the pilot farm systems, thus supporting industrial manufacturing activities that enable a cost-effective and high-performance pilot farm.

HORIZON-CL5-2024-D3-01-10: Next generation of renewable energy technologies

The Topic text states that*: "The following areas are excluded from the scope of the topic as they fall within the scope of partnerships or other calls:*

- *Material research is covered under cluster 4 topics."*

Question 1: What are the limitations with regards to the inclusion (or no inclusion) of material research in a given project?

➔ **Reply:** The first paragraph of the scope describes the possibilities focused on renewable energy technologies, not an overall material research development. Pure material research, i.e. developing a new material, is excluded. What is obviously included is tuning material for energy purpose like dedicated catalyst for energy conversion, like carbon reductio and water oxidation, or improved photovoltaic cells. The results of the projects are a game-changer renewable energy technology.

Question 2: Is the production of ammonia through the electrolysis of water with simultaneous reaction with nitrogen within the scope, even if hydrogen is produced as a by-product, as a one-step process in which ammonia and hydrogen are produced simultaneously (the focus being on the production of ammonia)?

➔ **Reply:** Indeed only hydrogen through electrolyser is excluded. However, it should be reminded that the scope of the topic is "to address high-risk/high return technology developments for **game changing renewable energy technologies**.". Developing electrolysers that can be operated with electricity from any origin is not a game changing renewable energy technology as such. However solutions like "direct utilization of renewable energy sources" through electrochemical process would be in scope. Kindly note that topic *HORIZON-CL5-2024-D2-01-04: Emerging energy technologies for a climate neutral Europe* addresses "Novel energy generation/conversion methods" that would cover electrolyser development.

Question 3: What does "*direct utilization of renewable energy sources*" mean?

➔ **Reply:** The renewable energy source is converted into use (heat, cooling, fuels, work) without intermediaries being carried to the use. In that respect, electricity could be produced in the case of a direct use integrated into a product or a process.

Question 4: Should the renewable energy source be spent without converting it to electricity before its final use?

➔ **Reply:** Electricity can be produced if its use is integrated within the process that needs it. What is excluded as an example is producing electricity to feed an electrolyser to produce a fuel. However, using renewable energy to directly produce fuels through electrochemical process would be ok.

Question 5: Could you please give examples of "*direct utilization of renewable energy sources*"? If possible, one with "wind".

➔ **Reply:** Examples are imbedded power generation to processes or products. For wind, an idea could be revisiting the concept of wind energy to power mechanical devices.

Question 6: Could waste be considered a renewable source of energy in the context of this call?

➔ **Reply:** In fact it is stated in the topic: "Whenever the direct use of biogenic waste is considered, it will be taken into account from the design stage". Non-biogenic waste is not considered renewable energy source.

Question 7: Are solutions for the production of clean hydrogen through integrated photoelectrochemical photovoltaics (PV-PEC) admissible considering that the topic only excludes hydrogen production through electrolysers?

➔ **Reply:** The topic is clear "integrated photoelectrochemical" is allowed. The experts will judge the real "integration".

HORIZON-CL5-2024-D3-01-12: Energy Management Systems for flexibility services

Question 1: What is the definition of definition of an energy management system (EMS)?

➔ **Reply:** According to ISO 50001, an energy management system is "the set of interrelated or interacting elements for establishing an energy policy and strategic energy objectives, as well as processes and procedures for achieving those strategic objectives".

Question 2: Does the definition of EMS include only systems intended for end users or aggregation systems that allow to manage production, such as virtual power plants?

➔ **Reply:** Both are valid

Question 3: Should the project consider only systems dedicated to low voltage or also medium and high voltage?

➔ **Reply:** The text does not specify. In case EMS for industry is chosen, high-voltage can also be considered.

Question 4: Do proposals have to include both smart buildings **AND** smart industrial sites?

➔ **Reply:** No, this is not a compulsory condition to include both elements.

Question 5: Can a proposal include both smart buildings and smart industrial sites if they so wish?

➔ **Reply:** Yes, It is possible to combine both smart buildings and smart industrial sites.

Question 6: The text contains several occurrences of the words 'include', 'involve' or 'cooperate with'. Can you please clarify what is expected from these actions?

➔ **Reply:** 'Include' requires entities to be part of the project as partners, while 'involve' and 'cooperate with' means that the cooperation/involvement does not require them to be project partners (though it is welcome to have them as partners). It is left to the consortium to assess the most appropriate configuration.

Question 7: What does the term *"energy system management service company"* precisely refers to?

➔ **Reply:** It is meant: 'companies that provide EMS (energy management system) systems including hardware and software for industries and/or buildings'.

Question 8: Can we consider a heat pump producer as a home appliances producer and what exactly is the definition of an aggregator?

➔ **Reply:** Yes, a heat pump producer can be considered as a home appliances producer. The definition of an aggregator follows the description figuring in the EU electricity directive: 'aggregation' means a function performed by a natural or legal person who combines multiple customer loads or generated electricity for sale, purchase or auction in any electricity market; 'independent aggregator' means a market participant engaged in aggregation who is not affiliated to the customer's supplier.

Question 9: Is it mandatory to make a demonstration at regional level?

➔ **Reply:** Yes, it is mandatory to make a demonstration at regional level

Question 10: Given that a pilot is always in a concrete "local" site, how is the project expected to cover the "regional level"?

➔ **Reply:** The request refers to the part "*Demonstrate aggregation of multiple (building or industrial) energy management systems to provide flexibility services (wholesale market price signals, demand response, flexible production, smart charging, balancing & frequency services, congestion management) to the electricity network.*" The aim is to demonstrate at regional level how different local level pilots can work together, for example how the EMS of different buildings or industrial sites can work together. This can be regional within an Member State or across borders.

HORIZON-CL5-2024-D3-01-13: DC and AC/DC hybrid transmission and distribution systems

Question: Do proposals have to address all the bullets in subtopic A)a, plus subtopic A)b, plus subtopic A)c, plus all the bullets in subtopic B) and all the bullets in subtopic C)?

➔ **Reply:** Yes, the proposals have to address ALL the subtopics and ALL the bullets and EACH subtopic will have one demonstrator.

Additional information: The topic stems from three topics put all together in one bigger. In fact, the budget is around 6 M€ (2 projects for total of 13 M€); each subtopic (A, B, C) would be one project for ~ 2 M€, which is feasible for 3 studies (the bullets in the subtopics) and one demonstrator in lab or industrial setting (TRL is 4,5).)

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

Question 1: As this topic seems to be divided into 2 thematic sub-projects (one combining A+B to achieve the outcome a, the other one addressing B to achieve the outcome b) and also demonstrated in at least 2 pilots is it possible to put a focus on one sub-project? / Does a project need to cover all the indicated requirements equally?

➔ **Reply:** Both have to be addressed, it is up to the applicants if they want to focus more on one as long as they can convince the evaluators that this effort distribution is the best way to address the topic.

Question 2: Indicative number of grants is 3: why not asking for complementary proposals with limited requirements more suitable for the proposed budget OR offer a higher budget/project to sufficiently cover all aspects of the topic?

➔ **Reply:** No, an amendment of this is not foreseen, so the text is applicable as published.

Question 3: Is it possible to extensively overshoot the indicative budget in duly justified cases?

➔ **Reply:** Theoretically yes, but practically this is not advisable as it might lower selection success probability.

Question 4: The expected outcome is "*Demonstration of Condition and Health Monitoring (C&HM) for converters of wind turbines generators and HVDC converter stations or MVDC converters (solar energy*)". Should only one form of energy generation - either wind or solar - be addressed in an application?

➔ **Reply:** The R&I topic does not address the type of energy generation, but C&HM for the PE to it associated, whatever the type of generation might be. For wind energy, we refer to the converter of the wind generator and the HVDC converter station while for PV the PE equipment involved is the MVDC. Therefore, the type of generation not being explicitly requested in the call, the proposer is free to address the PE equipment linked to wind, PV or both.

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

Question: Does the topic text mean that a proposal could have two activities (at least one activity in subtopic A, B, C) but that they must have two validation tests in different EU member states/associated countries?

➔ **Reply:** The topic requires the following conditions to be met:

1. Three (3) **activities** from any of the points in A, B, D, E, F are mandatory to be chosen.
2. Two **demos** are mandatory, each in a different MS or AC.
3. In each **demo**, AT LEAST 1 of the 3 selected **activities** are mandatory to be tested.

HORIZON-CL5-2024-D3-01-16: Demonstration of innovative pumped storage equipment and tools in combination with innovative storage management systems

Question: The topic mentions that "Solutions should deliver innovative hydropower technologies adapted to unconventional storage schemes, including e.g. low-head locations". At what altitude the Commission considers that we are facing low-head location?

➔ **Reply:** Head refers to the change in the water levels between hydro intake and discharge point. Altitude is not prescribed in the topic.

HORIZON-CL5-2024-D3-02-02: Development of next generation synthetic renewable fuel technologies

Question 1: The topic mentions: "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". What does "renewable hydrogen ionic compounds" refer to?

➔ **Reply**: The Renewable hydrogen ionic compounds are understood as ionic compounds formed between at least two elements, one of which is hydrogen.

Question 2: What does "synthetic renewable fuels" mean?

➔ **Answer**: 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.*"

Question 3: If a fuel is produced from carbon and hydrogen obtained from organic residues (wastewater treatment plant sludge, organic fraction of solid municipal waste), is this fuel considered a synthetic renewable fuel, or is it excluded from this topic?

➔ **Answer:** 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 element should be renewable (see Question 1 above). Process energy should be renewable (requirement under scope).

Question 4: Is a proposal acceptable if a fuel is produced from syngas obtained from biogas?

➔ **Answer:** Not clear if the source is biogas or further processed biogas to syngas as compositions are different. The answer on the sources for carbon and hydrogen and energy are found in Question 2 above.

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

Question 1: The topic says "*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?

➔ **Answer**: "*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.

Question 2: Are plants grown on marginalised lands considered as residues and thus as suitable/eligible feedstock?

➔ **Answer:** 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.

Question 3: What is the meaning of "integrated biorefineries" as stated in the title?

➔ **Answer**: 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.

Question 4: The topic says: "*Development of zero-waste…..through co-production of added value bio-based products and bioenergy.*" 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?

➔ **Answer:** 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 maximize 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.

Question 5: Is it mandatory to address more than one type of pathways? For example, thermochemical and biological? Or is it possible to address only one type of pathways?

➔ **Answer:** The topic requests " *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.

HORIZON-CL5-2024-D3-02-04: Critical technologies for the future ocean energy farms

Question: In the first point of the scope part: is it possible to develop other sustainable innovative materials than the ones listed in the text?

➔ **Answer**: Project are expect to develop new sustainable materials with improved characteristics. The materials listed are examples ('such as') and other innovative materials are also possible.

HORIZON-CL5-2024-D3-02-07: Resource efficiency of PV in production, use and disposal

Question: The topic mentions the use of LCA to improve the environmental footprint of PV technologies. Apart from networking and standardisation activities, are LCA studies on specific PV technologies in the scope of this topic?

➔ **Reply:** Yes, LCA analyses for the main PV technologies are in the scope of the topic

HORIZON-CL5-2024-D3-02-09: Demonstrations of innovative floating wind concepts

Question: The third bullet point of the scope reads: "*Develop and implement pilot projects for floating wind by identifying the best existing practices and the remaining knowledge gaps*." Do the pilot projects

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?

➔ **Reply:** The pilot projects to which reference is made are part of the overall demonstrator

HORIZON-CL5-2024-D4-01-01: Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings

Question 1: How should the wording 'low-disruptive' be understood?

➔ **Reply**: Low-disruptive renovation processes minimise the disturbance for building owners, tenants and users, through a considerable time reduction of on-site construction activities, reduce impact in terms of the unavailability of the building and its main functionalities, and generate a minimal impact on occupancy comfort during the renovation process as indicated in the topic text. The call text does not provide any other requirements in relation to low-disruptive renovation processes.

Question 2: In Expected Outcomes: "Cost reduction of at least 25% compared to conventional renovation processes" – which costs do we refer to?

➔ **Reply**: The topic text requires a cost reduction of at least 25% compared to conventional renovation processes and the demonstration of less-disruptive retrofitting processes that are more attractive and more cost-effective for building owners, tenants and users. No additional requirements such as LCC are requested. It is up to participants to set the topic as ambitious as they want. Experts will assess the level of ambition, and 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. They will also assess 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-D4-01-03: Alternative heating systems for efficient, flexible and electrified heat generation in industry

In the scope of the call, a note provides the following restriction : "*Note: the electrification of furnaces to heat large volumes at very high temperatures is not in the scope of this topic, because it is covered in Cluster4 work programme*".

Question 1: What does "heat large volumes" exactly refer to? What does very "high temperatures" exactly refer to?

➔ **Reply:** In the note in the Cluster5 topic HORIZON-CL5-2024-D4-01-03 "*Note: the electrification of furnaces to heat large volumes at very high temperatures is not in the scope of this topic, because it is covered in Cluster4 work programme*.", the topic referred to in Cluster 4 is

"HORIZON-CL4-2023-TWIN-TRANSITION-01-33: Electrification of high temperature heating systems (Processes4Planet Partnership) (IA)"

➔ There is no precise definition of "very high temperature" or "high volumes", but the Cluster 5 topic scope focusses on "*Alternative forms of energy such as for example ultrasound, microwaves, plasma, infrared, visible and ultraviolet radiations … are unconventional and contactless heat sources, that create the possibility of new, efficient and flexible processes, in that they are* ***applied precisely where they are needed*** *and with shortened reaction times*", while in the Cluster 4 topic, the scope mentioned: "*The topic focuses on the sustainable electrification of high temperature heating systems, for example,* ***industrial furnaces, kilns and crackers*** *among others*" and was covered in 2023.

Question 2: Is the electrification of furnaces to heat low volumes at low temperatures in the scope of this topic? Or is the electrification of furnaces totally out of the scope?

➔ **Reply:** The heating system will be in scope if it complies with the topic text calling for: "*Alternative forms of energy such as for example ultrasound, microwaves, plasma, infrared, visible and ultraviolet radiations … are unconventional and contactless heat sources, that create the possibility of new, efficient and flexible processes, in that they are* ***applied precisely where they are needed*** *and with shortened reaction times"*

Question 3: If there is no precise definition of "very high temperatures" or "high volumes", how will evaluators assess whether a proposal is or not in scope of this topic?

➔ **Reply:** In the note of the Cluster5 topic HORIZON-CL5-2024-D4-01-03 "*Note: the electrification of furnaces to heat large volumes at very high temperatures is not in the scope of this topic, because it is covered in Cluster4 work programme*", ***'very high temperature'*** **for process heating shall be considered as the temperature range above 500°C**, corresponding to the highest of the 4 temperature categories defined in the study report (table 21, p62) entitled "*Mapping and analyses of the current and future (2020 - 2030) heating/cooling fuel deployment (fossil/renewables)*", Fraunhofer. 2017, commissioned by European Commission under contract N°ENER/C2/2014-641. Accessible via the following link: https://energy.ec.europa.eu/system/files/2017-03/mapping-hc-final_report-wp3-wp4_0.pdf
The topic referred to in Cluster 4 is "HORIZON-CL4-2023-TWIN-TRANSITION-01-33: Electrification of high temperature heating systems (Processes4Planet Partnership) (IA)".

➔ There is no precise definition of **'High volumes', the criterion will be whether they comply with the call text**: "*Alternative forms of energy such as for example ultrasound, microwaves, plasma, infrared, visible and ultraviolet radiations … are unconventional and contactless heat sources, that create the possibility of new, efficient and flexible processes, in that they are* ***applied precisely where they are needed*** *and with shortened reaction times*"

Question 4: Are only contactless heating technologies eligible in this topic?

➔ **Reply:** Yes, only contactless heating technologies are eligible, as specified in the topic scope: "*Alternative forms of energy […] are unconventional and* ***contactless heat sources****, that create the possibility of new, efficient and flexible processes, in that they are applied precisely where they are needed and with shortened reaction times*"

Question 5: Is impedance technology in scope of this topic?

➔ **Reply:** Impedance technology is not in scope if it is not contactless.

Question 6: Is induction technology in scope of this topic?

➔ **Reply:** Induction technology is already used in several industrial processes. Nevertheless, it can be in the scope of the call provided it complies with the definition in the text: "*Alternative forms of energy […] are unconventional and contactless heat sources, that create the possibility of* ***new, efficient and flexible processes****, in that they are applied precisely where they are needed and with shortened reaction times", in particular it must "create the possibility of* ***new, efficient and flexible processes*****".**

Question 7: The text refers to examples like ultrasound, plasma, UV etc. Is it necessary to include these technologies or can other solutions be used instead?

➔ **Reply:** The list of examples is not exhaustive, other solutions can be proposed, provided they comply with the scope defined: "*Alternative forms of energy […] are unconventional and contactless heat sources, that create the possibility of new, efficient and flexible processes, in that they are applied precisely where they are needed and with shortened reaction times*"

Question 8: Is a heating process at very high temperatures (800-950ºC) in the scope of the topic?

➔ **Reply:** A heating technology that is contactless, applied precisely where needed and with shortened reaction times, to heat a process at very high temperatures (800-950ºC) is in scope, as it is not excluded by the Note "*the electrification of furnaces to heat large volumes at very high temperatures is not in the scope of this topic, because it is covered in Cluster4 work programme*", which specifically refers to "heating large volumes". Some of the technologies listed in the scope as examples are indeed capable of very high temperatures.

Question 9: On the meaning of 'contactless': are hot air or steam considered as "unconventional and contactless heat sources"? Is the frequency of the sources an important criterion?

➔ **Reply**: Hot air or steam are neither unconventional nor contactless. The frequency of the source is not a criterion, but the reaction time must be short.

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)

Question 1: 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?

➔ **Answer**: 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.

Question 2: Would a virtual environment be acceptable as a close to real-life environment to validate the solutions?

➔ **Answer:** 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.

Question 3: On the sentence: "*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?

➔ **Answer:** 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.

HORIZON-CL5-2024-D4-02-05: Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts (Built4People Partnership)

Question: What is the definition of 'deep renovation' as mentioned in the topic text?'

➔ **Reply:** In the context of the topic, renovation means any kind of energy-related building renovation, which has the aim of increasing the energy performance of buildings. The Commission Recommendation (EU) 2019/786 of 8 May 2019 on building renovation categorises a renovation as deep if it targets over 60% of primary energy savings. In the specific context of this Topic, applicants can use regional/national definitions of deep energy-related renovation or a 60% reduction in energy use.

HORIZON-CL5-2024-D5-01-02: Integration and testing of next generation post-800V electric powertrains (2ZERO Partnership)

Question 1: The Topic title refers to post-800V yet within the description of the Topic post-1200V is mentioned. Is it both or one or the other?

- ➔ **Reply:** The text clearly indicates a post-800V requirement, while nowhere there is a post-1200V wording. This tension level is indicative, as previous steps have been of 400V, but it's up to the proposers to confirm if the optimum tension at system level is in this "area" as indicated, or higher, looking at cost, weight, safety etc.
- ➔ 1200 is the indicative level but the optimisation might find that the voltage could be above that, all of which is "post" the current 800v generation. Therefore applicants are expected to go "well beyond" 800, meaning not proposing solutions at 850 or 900 that are very similar to today's 800v.

Question 2: In the Q&A section, the question of "Should all contributing technologies be implemented on a vehicle demonstrator?" is answered by: "Please notice that all the technologies contributing to expected outcomes should be implemented on the vehicle demonstrator. The **vehicle demonstrator should be tested on real roads** to assess performance under real driving conditions.". **This matter is creating a lot of confusion as we do not understand how this aligns with the expected TRL 5 level, the budget and the holistic view of the entire vehicle. Is there more clarification on this?**

- ➔ **Reply:** The topic is expected to support next generation powertrain architectures using post-800V and contribute to the achievement of safer, higher-performing and more sustainable end products. As the topic is about the powertrain architecture and not the single developed components, this clearly needs to be validated at system level transferring the components initially tested in a lab bench to a 'demonstrator vehicle'. As some potential participant might find difficulties in obtaining all the needed permits in different EU countries, the test on the roads has to be considered only "if and where possible". TRL is indicated as generic level of full topic.

Question 3: Regarding the **loss reduction of 25%, is there a benchmark available in the 2ZERO Partnership as a starting point**?

- ➔ **Reply:** The topic states the expected outcome of "*Significant advancements in efficiency (reduction of losses by 25%) versus the state of the art of the targeted application…*". Up to the proposers to define their best solutions and to set the technological state of the art for baseline and comparison – benchmarks document do not however seems to be a good solution.

Question 4: Regarding the **target of 20% increase of practical range over travel time**:

- Is this meant to be seen as having a vehicle driving for instance 100km/h for a long trip and charging for 10min every time, reducing the actual travelled distance over travel time to for instance 90km/h?

- So equivalently: driving for 10 hours at 100km/h, results in 1000km without charging or 900km with charging.
- In that case, an Hyundai Ioniq 5 would already have a practical range over travel time of 86km/h, so improving this number directly by 20% is not possible.

- **Is there another interpretation of this or an example of what is meant here?**

➔ **Reply:** The topic clarifies expected outcome of "*Practical range increases over travel time (~20 percent increase with the same battery weight) with overall higher efficiency and easier thermal management of the whole powertrain…*" A holistic approach is expected to the whole powertrain and architecture: up to the proposers to define their best solutions that can reach the expected outcomes.

HORIZON-CL5-2024-D5-01-04: Integrated flexible multipoint megawatt charging systems for electric truck mass deployment (2ZERO Partnership)

Question 1: Do exchange and charge systems for swappable batteries fall under the scope of this call?

➔ **Reply:** The topic focuses on "multipoint megawatt charging systems", thus battery swapping is not included.

Question 2: Is the topic asking for one or more Hubs?

➔ **Reply**: The topic asks for improved designs, architectures and models of interoperable multipoint megawatt charging systems – 'flexible'/capable of charging both Heavy and Medium Duty Vehicles and multiplexed Light Duty passenger/commercial vehicles. The outcomes clarifies that at least one charging station (can also be called 'hub') shall be demonstrated, with at least four flexible megawatt charging points of 1MW for Heavy Duty Vehicles, each of these points also capable of recharging at least four lighter vehicles.

Question 3: What is the configuration of the expected charging station? 4 (or more) chargers of 1MW each (meaning a total 4MW capacity), or 1MW charging station composed of at least 4 (or more) chargers (250W each)?

➔ **Reply:** Each charger point is expected to be usable for multiple lighter vehicles with lower power (150-350 kW) also requiring concepts for topologies capable for accommodating one heavy vehicle or 4-6 light vehicles in each charging spot. Thus, at least four flexible megawatt charging points of 1MW, each one 'flexible' to be capable of also charging at least 4 light vehicles.

Question 4: Is a new charger technology expected to be developed or can we use commercial chargers (new to be deployed or existing ones in the Hub) to validate the innovations mentioned in the call?

➔ **Reply:** It is up to the proposers to present the preferred solution, that shall be respecting all aspects indicated in both the outcome and in the scope. As far as we know there are few 1MW

chargers and none capable of feeding at least 4 cars so we expect new technology, also because one should also look at the other requirements, for instance in terms of efficiency. Also, 1MW is the minimum, some truck manufacturers are talking of higher power, cooperation with OEMs should help defining this ideal package.

HORIZON-CL5-2024-D5-01-06: New designs, shapes, functionalities of Light Commercial Vehicles (2ZERO)

Question: Last bullet under **Expected Outcome** refers to "User and mission-centric definition of requirements on vehicles (…)". What is meant by "mission-centric" in this respect? Does it points towards EU missions, or to the more generic meaning of user preferences?

➔ **Reply:** This is not referring to the EU missions, but to the LCV mission (or the mission of the user), defined and agreed based on users' needs and addressing their requirements.

HORIZON-CL5-2024-D5-01-08: Competitiveness and digital transformation in aviation – advancing further composite aerostructures

Question 1: In scope, what does the request "*[technologies] should be scale-demonstrated*" mean with respect to a regular ''demonstration"? Isn't demonstration contradictory with the expected TRL 2-4 at the end of the project?

➔ **Reply**: The focus is on advancements in composite aerostructures, delivering new tools and processes for challenging industrial cases. The wording "scale-demonstrated" in the relevant sentence in the scope, may not be confused with "full-scale demonstration activities". Scale demonstration in this case has the meaning of going beyond coupon level and perform research on a smaller scale (e.g. 1:10, 1:50 or any other depending on the case) that will make the results relevant to challenging industrial cases. At large, we aim the research to remain at laboratory environment (TRL 4). On a case-by-case basis, limited number of WPs could exceed TRL 4, however the available budget for this topic would be difficult to support. The wording "expected TRL" signifies that no project is penalised going beyond the proposed limits (on the contrary).

HORIZON-CL5-2024-D5-01-11: Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)

Question: The topic text refers alternatively to "*AC or DC*" (expected outcomes, scope) and to "*AC and DC*" (scope). Are AC and DC to be considered equally or can the focus be placed on DC **or** AC?

➔ **Reply**: The expected outcomes and scope introduce the issue by indicating that the topic will demonstrate battery storage systems interfaced to AC or DC distribution systems because, once integrated in the vessel, the battery will be interfaced to a distribution system that will be either DC or AC. However, this doesn't preclude the project from designing battery management systems of high voltage battery installations for AC and DC distribution systems, as the topic indicates the project has to address. Therefore there is no mistake in the text.

HORIZON-CL5-2024-D5-01-12: Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the "Fit for 55" package objective by 2030 (ZEWT Partnership)

Question 1: Is the project expected to develop the same technology for all 3 vessel types or have different technologies/solutions developed for each?

➔ **Reply:** The project can decide which technologies to cover based on the ship type and use cases demonstrated. The use of the same or different technologies will depend on the decision of the consortium, however for all three concept designs -shot sea, inland and high-seas vessel types-, both retrofit solutions and a completely new design should be proposed, and the following aspects must be addressed, as described in the scope of the topic:

- Energy system modelling and fast simulation assessment to demonstrate the expected energy efficiency gains life-cycle emission reductions achieved by the resulting designs within their operating reference cases
- Development of an open-source design assessment tool which can be used to assess the operational Carbon Intensity of vessel designs
- Development of decision-support or automation systems to facilitate the most effective implementation of operational energy efficiency improvements
- Plans for exploitation and dissemination of results including a strong business case and sound exploitation strategy

Question 2: Is TRL 7 expected for the final concept as an average for the 3 vessels types or for each individual technology developed?

➔ **Reply:** The combination of solutions produced by the project should reach at least TRL 7, minding the goals of the FitFor55 package goals. It is also expected that the project will combine different close to market technologies already individually demonstrated or developed to TRL 7

Question 3: Should each technology be already demonstrated at TRL 7 prior to implementation with other technologies?

➔ **Reply:** It is not strictly mandatory that each technology used in the project has already has been demonstrated up to TRL 7. However, the topic aims among its goals to demonstrate the integration of close to market technologies to showcase their largest impact, and specifically

states that "several technologies and solutions" are expected to already be demonstrated or developed to TRL 7. It will be for the evaluators to assess whether the proposed solutions have the potential to meet the objectives

Question 4: Should the final integration and demonstration be based on physical vessel prototype(s) and, if yes, how many? One for each application?

➔ **Reply:** The call requests **market ready** vessel design solutions. Market ready implies that it has been tested and is therefore ready to be used in real life conditions. For a TRL 7, a system prototype should be demonstrated in an operational environment. As in Horizon 2020, the OECD definitions regarding technological readiness levels (TRLs) should continue to be taken into account in the classification of technological research, product development and demonstration activities, and in the definition of types of action available in calls for proposals. These solutions should be tested for each one of the three vessel types mentioned in the calls.