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## ENTSO-E Research & Development & Innovation Roadmap 2024-2034 Consultation response

### Survey

1. What is your name?

Name

Layla Sawyer

2. What is your email address?

Email

layla.sawyer@currenteurope.eu

3. What is your organisation?

Organisation

CurrENT

4. Who do you represent? (Required)

Industry/Trade association

5. Would you like ENTSO-E to treat your contribution as confidential?

(Required)

Yes

No

6. What do you think about the ENTSO-E approach?

Approach - It reflects system needs

Agree

Disagree



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*Approach - It provides a clear prioritization*

- Agree
- Disagree

*Approach - It is easy to understand*

- Agree
- Disagree

*Approach - It is well suited to collaborative innovation*

- Agree
- Disagree

*If you disagree with any of the above, please explain why (max 500 characters)*

*7. Do you think ENTSO-E Roadmap is ambitious enough to address future power system challenges?*

*Ambition level*

- Sufficient (most issues will be solved)
- Partly sufficient (only some issues will be solved)
- Insufficient (most issues will remain unsolved)
- Unrealistic (it cannot be implemented)
- Not Answered

*Please explain your choice (max 500 characters)*

ENTSO-E Roadmap should further scale the innovative grid technologies we already have, while significantly increase research and innovation efforts for electricity transmission technology, such as advanced conductors and superconductors, that can move much greater volumes of power over long distances, using less critical raw materials (copper and aluminium) and with reduced visual and environmental impacts.



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8. Please rank the importance of each flagship for the implementation of the REPowerEU Plan?

*Flagship 1: Enhance grid use and sustainability*

- Very relevant
- Relevant
- Not too relevant

If not too relevant, please explain

*Flagship 2: Onshore and offshore grid development and integration*

- Very relevant
- Relevant
- Not too relevant

If not too relevant, please explain

*Flagship 3: Ensure secure and stable operation of the hybrid AC/DC grid*

- Very relevant
- Relevant
- Not too relevant

If not too relevant, please explain

*Flagship 4: Enhance control and interoperability through digitalisation*

- Very relevant
- Relevant
- Not too relevant

If not too relevant, please explain

*Flagship 5: Enhance flexibility assessment and market mechanisms*

- Very relevant



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- Relevant
- Not too relevant

If not too relevant, please explain

*Flagship 6: Tools and strategies for optimal cross sectors integration*

- Very relevant
- Relevant
- Not too relevant

If not too relevant, please explain

9. Which flagship(s) should ENTSO-E and TSOs focus their efforts on?

- Flagship 1: Enhance grid use and sustainability
- Flagship 2: Onshore and offshore grid development and integration
- Flagship 3: Ensure secure and stable operation of the hybrid AC/DC grid
- Flagship 4: Enhance control and interoperability through digitalisation
- Flagship 5: Enhance flexibility assessment and market mechanisms
- Flagship 6: Tools and strategies for optimal cross sectors integration

Please explain your choice(s)

Innovative grid technologies are often not accounted for in models that form the basis for studies related to operational planning and system development. The analysis and modelling of innovative grid technologies in different power system analysis applications prevents TSOs and any other entities from testing the applicability of these devices or the effect of their control functions while performing system development or connection studies.

By focusing on the indicated flagships and further exploring the possibility of deploying innovative grid technologies, RDI Roadmap would allow the consideration of these technologies in planning standards and data exchange standards and the capability to integrate these technologies into European-wide (or other regional) dynamic models.



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10. Please indicate for each flagship your level of interest to work with ENTSO-E and TSOs

*Flagship 1: Enhance grid use and sustainability*

- Strong interest
- Some interest
- No interest

*Flagship 2: Onshore and offshore grid development and integration*

- Strong interest X
- Some interest
- No interest

*Flagship 3: Ensure secure and stable operation of the hybrid AC/DC grid*

- Strong interest
- Some interest
- No interest

*Flagship 4: Enhance control and interoperability through digitalisation*

- Strong interest
- Some interest
- No interest

*Flagship 5: Enhance flexibility assessment and market mechanisms*

- Strong interest
- Some interest
- No interest

*Flagship 6: Tools and strategies for optimal cross sectors integration*

- Strong interest
- Some interest
- No interest

Please explain your choice

*11. Do you have suggestions on the content of the flagships?*

Please specify which flagship you refer to (example: Flagship 1 can be improved by...) - max. 1000 characters

Flagship 2 can be improved by making explicit reference to the use of and need for TSO demonstration projects of HTS cable systems as one of the innovative solutions that will ensure the efficiency of future grids. First generation superconducting cables for urban congestion have been operating as grid assets in many areas of the world, including Essen, Munich, Chicago and Seoul. However, it is the second generation superconducting cable systems, currently under development in Europe and the US, that are a game-changing technology for long-range terrestrial and offshore (DC) transmission. Conventional transmission cables are limited in terms of current levels which in turn limit their power transfer capability. Networks based upon HTS cable systems can move up to 10 times more power through a single cable, over longer distances with smaller and less obtrusive infrastructure, without electrical losses, using far less raw materials and operate at significantly lower voltages.