



STORAGE RESEARCH INFRASTRUCTURE ECO-SYSTEM

TERMS OF REFERENCE
WORKING GROUP 4



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2 ABBREVIATIONS AND ACRONYMS

AB	Advisory Board
AC	Associated Countries
ES	Energy Storage
GB	Governing Board
LoI	Letter of Intent
LTP	Linked Third Party
MS	Member States
R&I	Research and Innovation
RI	Research Infrastructure
RTO	Research and Technology Operator
SC	Steering Committee
SRIA	Strategic Research and Innovation Agenda
TNA	Transnational Access
ToR	Terms of Reference
WG	Working Group
WP	Work Package

3 INTRODUCTION

These Terms of Reference (ToR) are intended to describe the roles and responsibilities of StoRIES Working Group (WG) 4 “Technical and non-technical barriers” in the context of Work Package 1 (WP1) of which the scope is to establish a long-term forum/ecosystem on hybrid Energy Storage (ES) gathering experts and stakeholders to foster discussions and provide feedback to the results of the project.

Taking as a starting point the "[Joint recommendations for a European ES Technology Development Roadmap](#)" published in 2013 and 2017 by the European Energy Research Alliance (EERA) and the European Association for Storage of Energy (EASE), WG4 will address the technical and non-technical barriers (techno-economic, policies, market & regulation, standardisation, social acceptance) that can affect the widespread application of hybrid ES technologies. ES offers a unique solution to integrating wind and solar energy, providing both energy shifting over different timescales and flexibility services using low emission technologies. The value ES solutions provide to the system are still not fully recognised or remunerated over fossil fuel counterparts today. As such, storage deployment in Europe is lagging behind, the reasons behind this and specific challenges and barriers will be elaborated in this WG.

Specifically, this WG aims to understand and provide solutions to unfavourable regulatory and market conditions as well as technical barriers related hybrid energy storage technologies among others. Market design does not present favourable investment signals for storage and the business case for storage is limited in Europe. Comparison of countries where markets are more positive for storage e.g., UK, Ireland, US can provide important insights for proposing new market mechanism for storage in Europe. A drive toward energy independence in Europe presents new opportunities for storage and new products such as curtailment minimisation to maximise Europe’s own energy resources could be proposed and elaborated. Other barriers related to standardisation and societal acceptance will also be covered, exploiting synergies between other WPs. WG4 will address these challenges, with the major task of developing strategies to mitigate the proposed barriers and contribute important recommendations to the roadmap report.

Considering the above-mentioned aspects and challenges, the WG4 will:

- Call for identification and collection of all key barriers for the different focus areas (techno-economic, policies, market & regulation, standardisation, social acceptance)
- Narrow down to key barriers for each focus area – data collection from expert WG members.
- Identify mitigation strategies and propose recommendations and solutions (e.g., funding programs and supporting research for reducing socio-economics barriers; demonstration projects to overcome community acceptance barriers, scale-up/demonstration support, recognition of storage as an own asset class, remuneration matching value creation: energy security and low emissions, CO2 free balancing requirements, curtailment minimisation incentives).

4 GOVERNANCE

4.1 Definition of roles (e.g. chairs, co-chairs, members)

The WG4 is led by one Chair and two co-Chairs.

The WG4 Chair and co-Chairs must coordinate with the WG members for drafting a work plan and the Terms of Reference (ToR) documents which must be approved by the StoRIES GB. The WG4 Chair will be responsible for keeping the WG work and activities within the description of action outlined in the Work Plan and in accordance with the current ToR document.

The Chair, with the help of the co-chairs, is responsible for chairing the WG meetings, inviting WG members for meetings (including invitations to external experts where relevant), requesting and coordinating the received feedback and inputs as needed.

The Chair will produce the minutes after each meeting summarizing the relevant decisions and actions and distribute them to the WG members.

WG4 Chair, co-Chairs and members will contribute to the collection of ideas on technical and non-technical barriers and create a short list of most important barriers.

The Secretariat will support the WG leadership team to execute the above activities as needed.

The Chair and co-Chairs must be available for regular communication with the WG4 Secretariat.

4.2 Working Group 4 Chairmanship

The selection of the WG Chair and co-Chairs procedure will follow the steps described below:

- The Secretariat launches a call for a WG Chair and/or co-Chair positions.
- Any WG members will be able to apply for these positions.
- The applications will be examined by the StoRIES management team and the WG Secretariat, and have the right to propose additions and removals of proposed persons and make final recommendations to the Governing Board for decisions.
- The Governing Board (GB) will take the final approval of the proposed persons.
- The decision will be taken with a majority vote (50% +1).

These positions are covered for two years and can be renewed. The positions are not financially supported.

An interim Chair will be appointed at the beginning of the project to assume the role of the official Chairman during a time of transition period until the GB approve the new elected persons in order not to delay the project implementation.

4.3 Secretariat

WG4 Secretariat will be managed by EASE project team.

All the organisational and technical support to the activities and expected outcomes of the WGs will be provided by the Secretariat.

In particular, the Secretariat Team will manage contacts and relations with the WGs Chairs and their WG experts/members.

The overall objective of the Secretariat is to ensure the necessary organisational support to the WG4.



5 COMPOSITION AND MEMBERSHIP

WG4 comprises internal and external experts who participate in the WG's activities bringing their expertise and acting following their own company/research centre/universities strategies and interests. Members are expected to come from Regional Transmission Organisations (RTO's) and academia, industry and associations, including Member State representatives. WG4 members should have expertise in the field and scope of the WG4. The WG will be consisted of both internal and external experts:

- **Internal experts** are the experts from StoRIES consortium and linked third parties (LTPs) that signed the Grant and LTP Agreements.
- **External experts** are participants from RTO's and academia, industry and associations, including Member State representatives.

5.1 Selection criteria

The selection criteria for external members will aim to:

- eliminate expertise gaps not addressed within internal experts (e.g., representatives from national authorities).
- facilitate a balanced representation among Member States
- ensure a sound gender balance
- promote a diversity of views between industry and academia

The number of participants in WG4 is not limited but external members should indicate that they are willing to commit time and effort for their active participation.

5.2 Selection procedure of external members

The application and selection procedure of external experts will follow the steps described below:

- Interested candidates can apply to become WG member by replying to the open call accessible via the StoRIES Website or email invitation about expert recruitment, by filing in a Letter of Intent and sending it to the WG4 Secretariat.
- The applications will be handled by the WG4 Secretariat and sent to WG leadership team to evaluate the application. The decision on new WG experts will be taken by consensus among the WG leadership team and the Secretariat. The GB will be informed about new or outgoing members during the next GB meeting.

For the replacement of one WG member from a colleague from the same company/research centre/university, it is needed to send an application from the replacement person to the Secretariat and the WG Chair.

WG4 membership has no fixed pre-determined duration. The selected WG4 members are invited to contribute with their expertise to WG objectives and written key recommendations. Based on the objectives of the WG4 and the inputs needed for the StoRIES Roadmap, the WG4 members along with the leadership team will agree on its work plan during the first meetings. Relevant tasks will be divided among the members of the group depending on the match between the characteristics of the barrier and the expertise area of every member. Every task-performer will lead his/her work respecting a

deadline that he/her will propose to the chair, who will need to confirm it and oversee and steer the process.

5.3 Election process and renewal procedures

In case of the replacement of one WG member with another person coming from the same company/research centre/university, the replacement person should send the application to the Secretariat and the WG Chair for their reference. In this case no additional approval neither by the Secretariat nor the Governing Board is requested.

There is not a limit to the number of WGs that one person can apply to.

The duration of the membership to the WG(s) is unlimited, and it applies to all admitted members (internal and external) of each WG.

5.4 Member States consultations

The StoRIES WGs will consult representatives of Member States and Associated Countries with the overarching aim to ensure a better transfer of R&I into the real economy and make EU industry more competitive. These representatives will be invited from the beginning of the WGs' operation to be introduced to the project and its objectives. They will also be invited to attend key milestone meetings and workshops and will be asked to contribute to the development of the roadmap for providing inputs from a legislative and technical point of view. They will be identified by the project partners and LTPs at an early stage of the project.

6 WG4 MEETINGS

The WG4 decides and agrees about the regular meetings that can be held physically or virtually (giving preference to the virtual options when possible).

The WG leadership team will choose the date of each meeting and communicate it to all WG members after consulting their availability.

The participants invited and strongly expected to attend the WG calls are: the WG Chair and all WG members.

6.1 Agenda and Minutes of the meetings

The agenda of each meeting will be prepared by the WG Chair assisted by the Secretariat as needed two weeks before the meeting. The agenda will include where relevant GB decisions, previous decisions, follow up actions from the previous meeting and important discussion points.

After each WG meeting the minutes should be prepared by the WG Chair and circulated within two weeks-time. If no objections to the minutes are received ten days after the distribution of the minutes, then they will be considered as approved by all WG participants.

7 DATA MANAGEMENT AND FILE SHARING

In order to support the work of the WG, the Secretariat has set up dedicated [Teams and SharePoint folder](#) and has ensured access to all WG Internal Members.

Documents, meetings presentation, minutes of meetings etc. are uploaded to the Teams SharePoint allowing members to access and modify relevant documents.

Documents that require members inputs are also available there, allowing all members to provide inputs at the same time.

8 ANNEX I – WG4 MEMBERS

Surname	Name	Country	Organisation	Signed Letter of Intent
StoRIES consortium members				
Di Noto	Vito	ITALY	University of Padova	Yes
Bouchotrouch	Faisal	FRANCE	CENER	Yes
Krueger	Klaus	GERMANY	Voith Hydro	Yes
Erdil	Erkan	TURKEY	Middle East Technical University Department of Economics	Yes
Ding	Yulong	UNITED KINGDOM	University of Birmingham Centre for Energy Storage	Yes
Nikoletatos	John	GREECE	Centre for Renewable Energy Sources and Saving (C.R.E.S)	Yes
Malek	Kourosh	GERMANY	Institute of Energy and Climate Research (IEK-13)	Yes
Tacca	Alessandra	ITALY	Eni	Yes
Trilla	Lluís	SPAIN	IREC -Institut de Recerca en Energia de Catalunya	Yes
Nonnenmacher	Lukas	GERMANY	Uniper Kraftwerke GmbH	Yes
Zadeh	Mehdi	NORWAY	Department of Marine Technology, Norwegian University of Science and Technology (NTNU)	Yes
Hentunen	Ari	FINLAND	VTT Technical Research Centre of Finland Ltd	Yes
Mahmood	Nasir	AUSTRALIA	School of Engineering, Melbourne	Yes
Congiu	Annalisa	ITALY	Novara Laboratories (CENTR)	Yes
EASE members				
Stephan	Lars	GERMANY	Fluence	Yes
Barbu	Corneliu	NETHERLANDS	Aarhus univesity	Yes
Vee	Mario	ESTONIA	Energia Salv	Yes
Di Persio	Franco	SPAIN	CIRCE - Centro Tecnologico	Yes
Rodrigo Llanos	Marta	SPAIN	Naturgy	No
Marquardt	Gunnar	SPAIN	MaltaInc	No
Koornneef	Joris	NETHERLANDS	TNO	No
Groenberg	Remco	NETHERLANDS	TNO	Yes
Serodio	Susana	PORTUGAL	APREN	Yes
Vandemborgh	Rob	DENMARK	EVAPCO	Yes
Nguyen	Phuong	FRANCE	RTE	Yes

9 ANNEX II – LETTER OF INTENT TEMPLATE

You can paste here the LoI, relevant to the admission of new members.

[city], [Day] [Month] [Year]

Letter of support for H2020 STORIES project

Subject: Interest in becoming a member of the *Working Group 4* in the STORIES project

H2020: LC-GD-9-1-2020: European Research Infrastructures capacities and services to address European Green Deal challenges // Topic: Support Europe leadership in clean energy storage technologies

Dear STORIES consortium,

Mr.XXXXXXX hereby expresses her/his active support to the project '**STORIES-Storage Reserch Infrastructure Ecosystem**' led by Karlsruhe Institute of Technology (KIT) under the H2020 Green Deal Call.

In December 2019, the European Commission has presented the "European Green Deal", a set of policy initiatives aiming at ensuring the EU becomes climate neutral by 2050. These policy initiatives have strong implications for the energy sector, and for the energy storage sector in particular. To address these challenges, STORIES brings together a consortium of more than 30 beneficiaries from at least 15 countries: ESFRI facilities, technology institutes, universities and industrial partners to jointly improve the economic performance of storage technologies.

The main technological objectives of STORIES are linked to the energy storage development by providing access to world-class research infrastructures and services, with a focus on improving materials for devices and optimizing hybrid energy systems with a view to make energy technologies more competitive and reducing costs. In addition, STORIES focus on the analysis of socio-technical and environmental aspects of new developments and systems and provides training and education.

The project will bring a significant contribution towards Europe's independence on fossil fuels, while opening industrial opportunities for disruptive technologies. The foreseen acceleration of materials developments and enhancing of hybrid storage technologies will lead to cost reduction of energy storage devices. Users will perform research to foster innovation in the long lasting structures of the European Energy Research Alliance (EERA) and the industry lead European Association for Storage of Energy (EASE). This supports strongly the entire energy value chain and is a necessity to solidify the European leadership in renewable energy technologies.

With reference to this project, Mr. xxxxxxx as energy storage expert in the field ----energy storage, will participate as a member of the project's **Working Group 4 and contribute to the identification of technical and non-technical barriers to the widespread application of ES technologies and propose mitigation strategies to address these challenges within the STORIES project.**

Yours sincerely,

Signature

Name, position and organisation

