



# ‘Hybridization for energy storage: JP ES perspective’

EERA Annual Strategy Meeting 2022

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Karlsruhe Institute of Technology (DE)



EERA JP ENERGY STORAGE

# EERA JOINT PROGRAMME ON ENERGY STORAGE

Established in **2011**

**40 ROs and Universities**  
dedicated to low-carbon  
technology research

**15 Member States**  
/Associated countries  
collaborating through JP ES



# SUB-PROGRAMMES: ES TECHNOLOGIES



Xavier Granados  
CSIC (ES)

HTS materials  
SMES systems



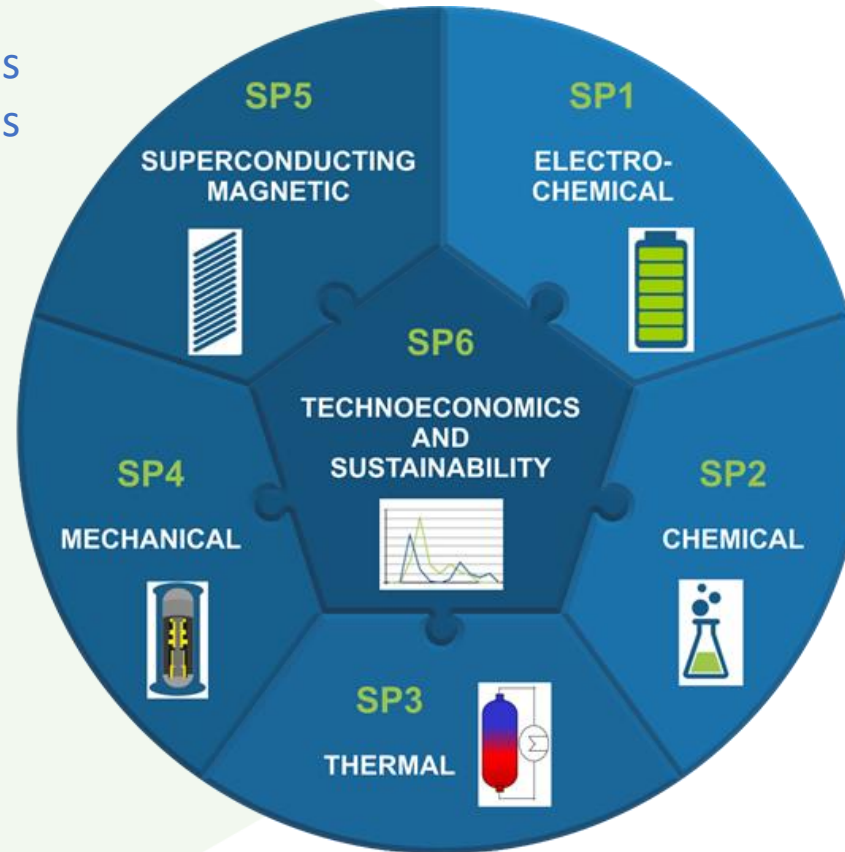
Atle Harby  
SINTEF (NO)

Pumped Hydro  
Flywheels  
Compressed Air  
Liquid Air



Manuel Baumann  
KIT (DE)

Latent heat storage  
Sensible heat storage  
Thermochemical storage

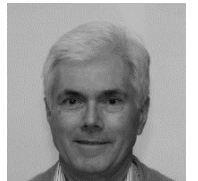


Li-ion batteries  
Post Li-ion batteries  
Redox Flow batteries  
Supercapacitors



Margherita Moreno  
ENEA (IT)

P2X  
Hydrogen  
Direct Air Capture



Adelbert Goede  
DIFFER (NL)



Salvatore Vasta  
CNR (IT)

# MISSION AND VISION



developing **common research** and coordinating the scientific community



establishing a **dialogue at European level** among all stakeholders involved in energy storage R&D



facilitating **knowledge transfer** by communication with industry and stakeholders



**advising policy makers** by identification of regulatory barriers and providing policy recommendations



establishing **best practices** by developing new technologies and pave the way to market introduction

# JP ES ACTIVITIES 2021-2022

- **Mobility Scheme:** up to €4,000 per exchange including special Covid-19 expenses

UNIBO (IT) → KIT (DE)

IFE (NO) → RTW Aachen (DE)

UNIPD (IT) → UPM (ES)

CNR (IT) → DLR (DE)

KIT (DE) → EMPA (CH)

CNR (IT) → KIT (DE)

- **Online PhD Days:** stimulate exchange and discussion on the topic with young scientist

SP6: Technoeconomics and Sustainability (7 Dec 2021)

SP2: Chemical Energy Storage (11 February 2022)

- **JPES Award:** support activities in the field of energy storage

Enerstock 2021 "Towards Smart Solutions" Ljubljana, Slovenia, June 2021

- **JPES @EUSEW:** networking with other initiatives and establish a dialogue with EC

- **Industry Advisory Board:** take into account current industry needs

- **Interaction with other EERA JPs:** use synergies and avoid duplication of work

- **Policy and Technical Workshops:** facilitating knowledge transfer and developing common research

**EERA EVENT**

14 April 2021 - online

Materials for Hybrid Energy Storage - Creating an Ecosystem for Innovation

[READ MORE](#)

**EERA EVENT**

13-14 September 2021 - Lappeenranta, Finland

Future Energy Solutions

[READ MORE](#)

**EERA EVENT**

14 May 2021

New flexibility resources: the role of hybrid pumped hydropower

[READ MORE](#)

**EERA EVENT**

24 November 2021 - Hybrid Event

JP ES Joint Workshop on EU Clean Energy Transition: Perspectives and Challenges for Energy Storage

[READ MORE](#)

**EERA EVENT**

10 May - Padova, Italy

Energy storage, Fuel Cells & Hydrogen. Bringing research and industry closer: accelerating innovation and uptake of new technologies.

[READ MORE](#)

**EERA EVENT**

31 May - online

Exploring social dimensions of sustainability in emerging battery technology research

[READ MORE](#)

Recording and reports at  
[www.eera-energystorage.eu](http://www.eera-energystorage.eu)



**StoRIES**

STORAGE RESEARCH  
INFRASTRUCTURE ECO-SYSTEM



# NUMBERS AND FIGURES

## BENEFICIARIES

### Partners and RI providers:

KIT (DE)	EDF (FR)
AIT (AT)	ENEA (IT)
CIEMAT (ES)	ENI (IT)
CNR (IT)	FZJ (DE)
CSIC (ES)	SINTEF AS (NO)
DTU (DK)	SINTEF EN (NO)

### Partners:

EASE (BE)	EERA AISBL (BE)
CLERENS (BE)	UNIPG (IT)
ECCSEL ERIC (NO)	

### RI providers:

CENER (ES)	CERTH (GR)
TBU (CZ)	CICe (ES)
TNO (NL)	CyI (CY)
BGS (UK)	FHa (ES)
BRGM (FR)	HSLU (CH)
ISTO (FR)	HMU (GR)
SOTACARBO (IT)	IREC (ES)
EMPA (CH)	KTH (SE)
LUT (FI)	LNEG (PT)
RSE (IT)	NIC (SI)
UNIBO (IT)	UDL (ES)
UNIPA (IT)	UoB (UK)
UNIPD (IT)	RINA (IT)
VTT (FI)	

### Linked Third parties:

IFE (NO)	RTE (FR)
HVL (NO)	



- ▶ Start: 1<sup>st</sup> November 2021
- ▶ Duration: 4 years (2021-2025)
- ▶ Budget: 7 Mio €
- ▶ Beneficiaries: 47
- ▶ Research Infrastructures: 64
- ▶ Countries involved: 17
- ▶ Coordinator: KIT (DE)





# MAIN OBJECTIVES

- ▶ Foster a European ecosystem of industry and research organisations on hybrid ES technologies
- ▶ Provide access to world-class materials and ES related research infrastructures
- ▶ Enlarge and advance the integration of the European ES community
- ▶ Enhance innovation by involving industry experts in the setting up and implementing of a proactive innovation support scheme
- ▶ Ensure the long-term sustainability of ES research:
  - by defining scenarios and strategic roadmaps
  - by setting up a framework for the scientific and technical training of young researchers
- ▶ Promote and coordinate the international cooperation in ES research from and to Europe

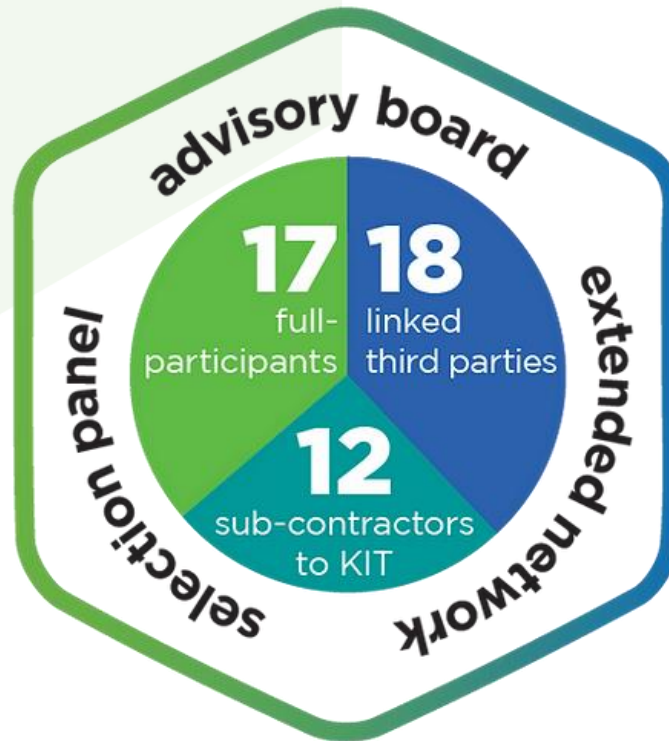


# MAIN OUTCOMES

- ▶ Six Transnational Access calls (TNA)
- ▶ Materials Acceleration Platform for ES (MAPs)
- ▶ Roadmap for hybridisation of Energy Storage
- ▶ Strategic Research and Innovation Agenda (SRIA)
- ▶ White Paper on 'Open Data in the ES community'
- ▶ Sustainable ES Workshop Series
- ▶ White paper on 'Sustainable hybrid ES for the European CET'
- ▶ International Mobility Scheme
- ▶ University Master Programme on hybridisation of ES
- ▶ 3 Summer Schools



# ENERGY STORAGE ECO-SYSTEM



## PROJECT CORE

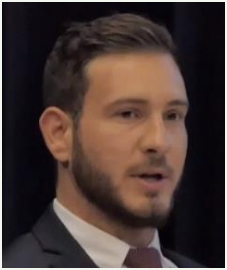
- 17 Full Participants (P)
- 18 Linked Third Parties (LTP)
  - 10 to EERA AISBL from academia and ressearch
  - 4 to EASE from industry
  - 4 to ECCSEL ERIC From large research infrastructure
- 12 Sub- Contractors (SubC) to KIT

## EXTERNAL LAYER

- Selection Panel (SP)
- Advisory Board (AB)
- Extended Network (EN)



# WORK PACKAGES



WP1 - EERA  
Spyridon Pantelis



WP2 – KIT  
Olga Suminska-Ebersoldt



WP3 – SINTEF EN  
Ellen Krohn Aasg r



WP4 – CNR  
Marco Ferraro



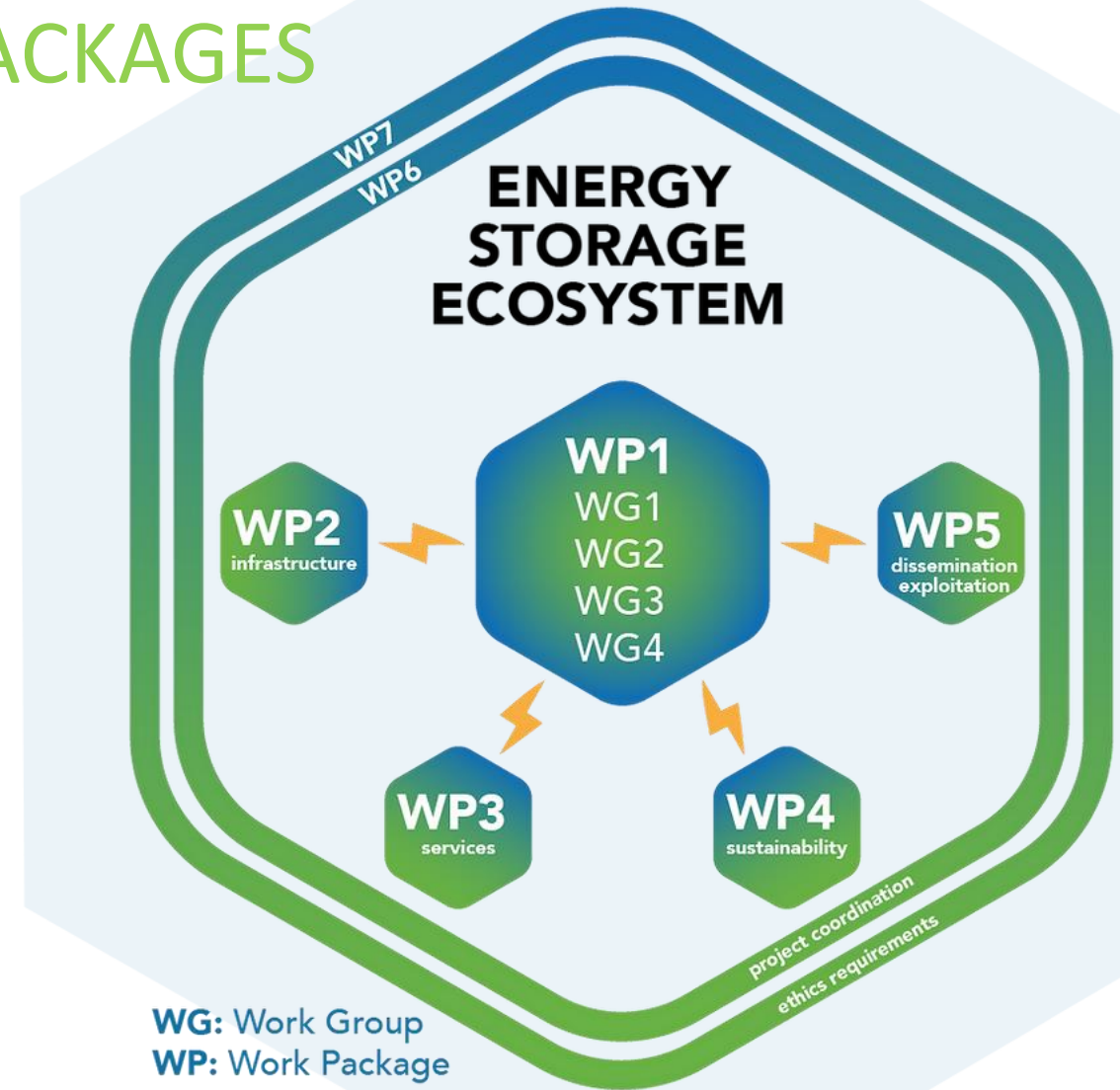
WP5 – CLERENS  
Emin Aliyev



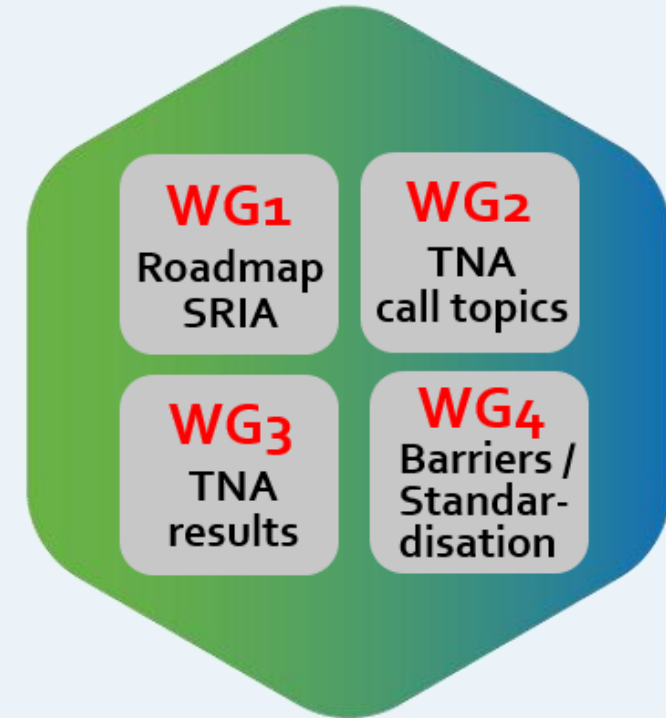
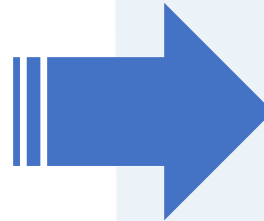
WP6 – KIT  
Myriam Gil Bardaj 



WP7 – KIT  
Alexandra Lex-Balducci



# WORKING GROUPS





# HOW TO JOIN STORIES Eco-SYSTEM

[eera-jpes@b3.kit.edu](mailto:eera-jpes@b3.kit.edu)

## External Layer

9 advisory board members

32 energy experts in the selection panel

48 external stakeholder organisations

17 countries



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 101036910

# 1ST TRANSNATIONAL ACCESS CALL (TNA)

- ▶ **Free access to 64 world-leading Research Infrastructures for Hybrid Energy Storage**
- ▶ Travel and accommodation costs **covered by StoRIES**
- ▶ **Open to all researchers** from academia and industry
  
- ▶ Topic: **Application oriented hybrid and sustainable energy storage solutions**
- ▶ Deadline: **31<sup>st</sup> July 2022**



→ More information & application:

[www.storiesproject.eu/calls](http://www.storiesproject.eu/calls)

Pro-active  
innovation  
support

Contact:

[eera-jpes@b3.kit.edu](mailto:eera-jpes@b3.kit.edu)



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# THANK YOU VERY MUCH FOR YOUR ATTENTION



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t @StoRIES\_H2020  
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## KIT coordination team



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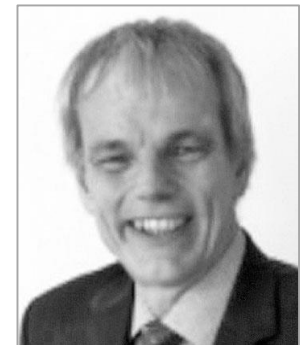
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