

EERA and the twin “green and digital” transition in e-Infrastructures

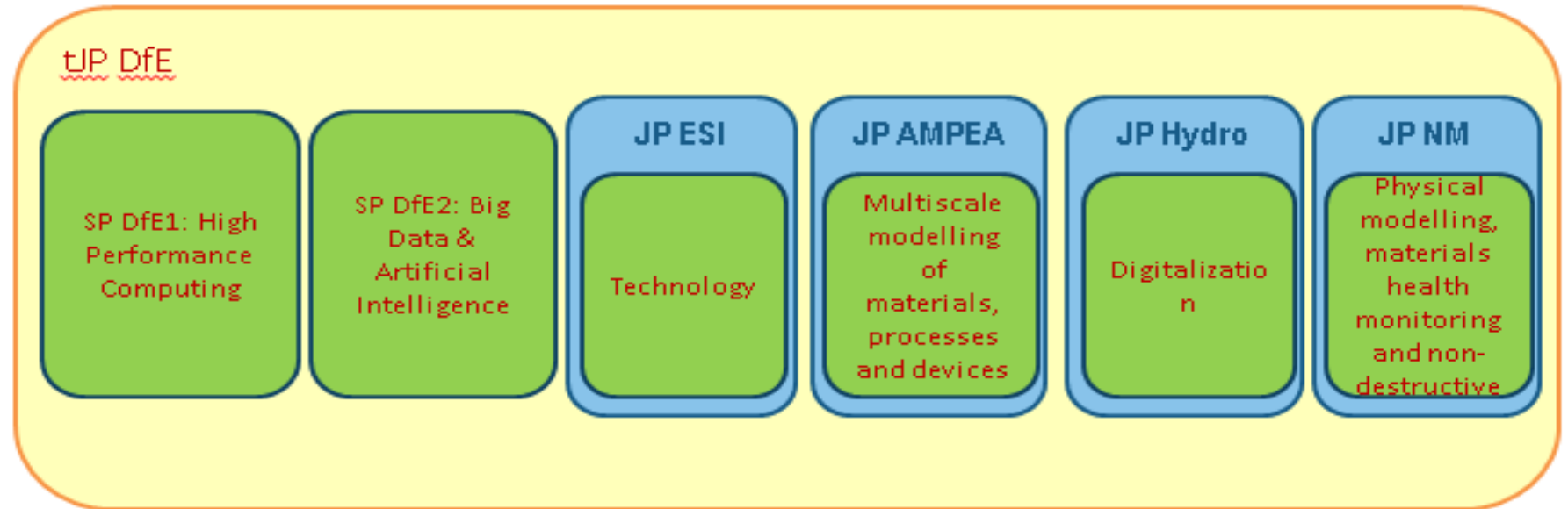


► THE STRUCTURE OF THE TJP

- The European Energy Research Alliance (EERA) identified several cross-cutting activities that should be reinforced within the energy sector
- Digitalization is changing the way in which research and innovation is being carried out, so it was selected by EERA as the first pilot for the development of these cross-cutting activities
- The transversal Joint Programme ‘Digitalisation for Energy’ was launched in Fall 2020 as a pilot
 - Officially approved in March 2022
- An Strategic Research and Innovation Agenda for this tJP was defined

► THE STRUCTURE OF THE TJP

- 22 EERA members (20 + 2)
- Structured in several Subprogrammes with ongoing mature initiatives
 - SP1: High Performance Computing (HPC)
 - SP2: Data Science & Artificial Intelligence
 - tSPs coming from other JPs
 - ESI
 - Hydro
 - AMPEA
 - NM



► THE STRUCTURE OF THE TJP

Partners



► KEY RESEARCH SUBJECTS / PRIORITIES

- Positioning EERA in the forefront of the digital transformation related to the energy sector
 - Enhancing their actual relationships and networking activities with principal stakeholders
- Create a modular tJP in which new SPs and activities can be easily integrated
- Application of HPC, Data Science, and Artificial Intelligence methodologies to topics of interest to energy
 - Fostering synergies and avoiding double efforts
 - Deeply relying on infrastructure (but not only computing ones...)
- Identification of opportunities in which digital solutions are needed
 - Horizon Europe, Digital Europe, but not only

▶ ACTIVITIES CARRIED OUT

▶ White/Position papers



▶ “Advancing FAIR metadata standards for low carbon energy research”

- ▶ With the EERAdata project

- ▶ A. Wierling *et al.* FAIR Metadata Standards for Low Carbon Energy Research—A Review of Practices and How to Advance. *Energies* 2021, 14, 6692.



▶ “Exascale, a great opportunity for Clean Energy Transition in Europe”

- ▶ With the EoCoE-II project

- ▶ Already available at the EERA website (<https://www.eera-set.eu/news-resources/3130:joint-eera-eocoe-position-paper-on-hpc-for-energy.html>)

▶ ‘Energy materials research’

- ▶ From the Energy Materials for Innovation series of workshops jointly organized with AMPEA and NM JPs

- ▶ Final event to be held on Nov in Brussels/Rome



▶ ACTIVITIES CARRIED OUT

- ▶ Questionnaire for collecting info about codes, repositories, and (AI) methodologies exploited within EERA
 - ▶ Compilation document already drafted
 - ▶ 65 numerical codes
 - ▶ 24 open source – 27 proposed by the code developer
 - ▶ 22 data repositories
 - ▶ 21 open access – 14 FAIR compliant
 - ▶ 24 AI data methodologies
 - ▶ 11 open source – 11 proposed by the code developer
 - ▶ Analysis per digital tool and JP
 - ▶ Collaborations
 - ▶ Common lines of research



- ▶ Final document available at <https://www.eera-set.eu/news-resources/3121:transversal-jp-digitalisation-for-energy-showcases-eera-members-potential-in-energy-digital-innovation.html> and https://twitter.com/EERA_SET/status/1488462429633888256

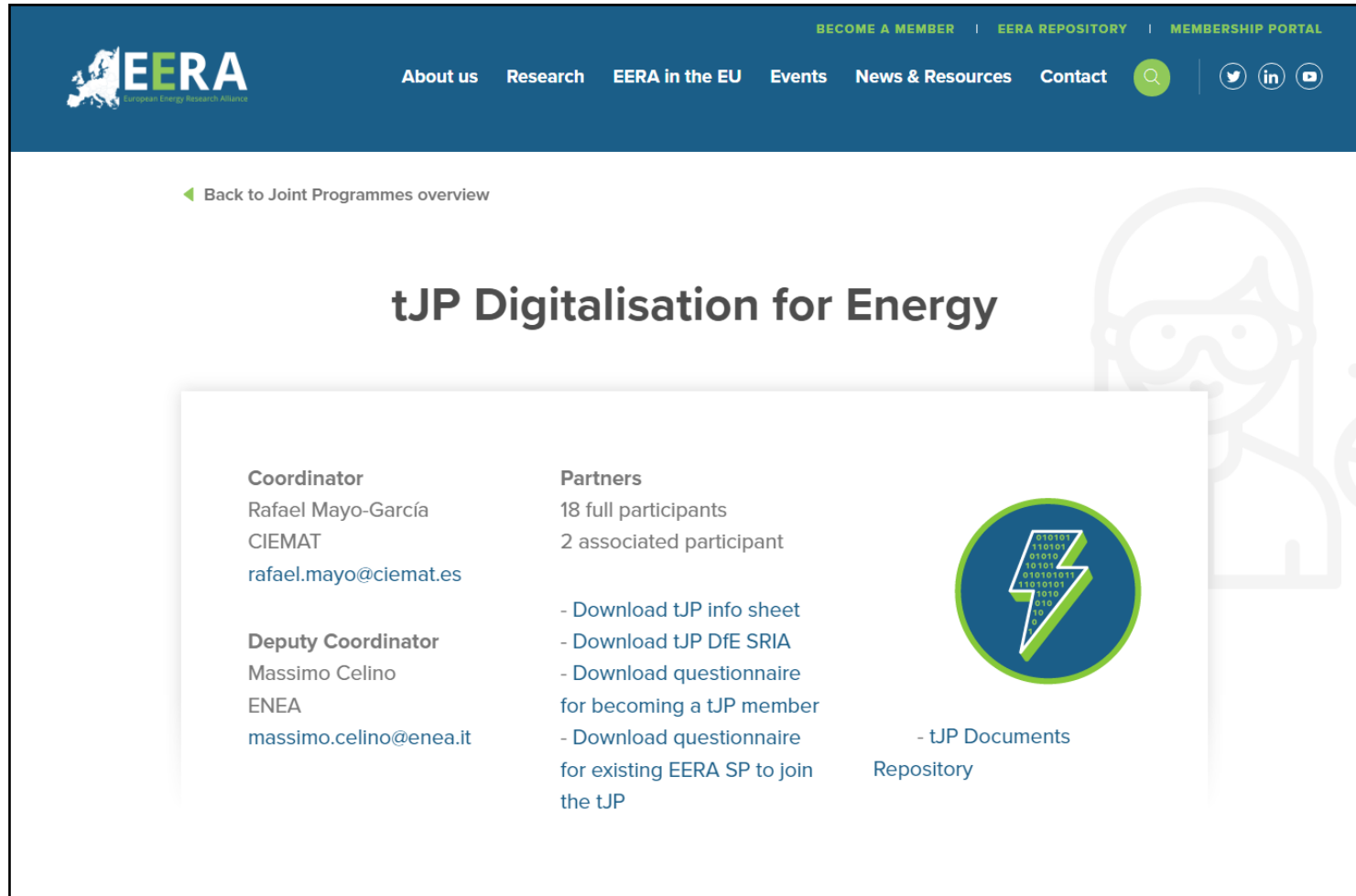
▶ ADDITIONAL EXAMPLES OF THE EXPLOITATION OF INFRASTRUCTURES

- ▶ HPC catalogue of services available at <https://www.eocoe.eu/services/>
- ▶ CIVA Platform (NDE including AI)
- ▶ Collaboration with CSP for the proper curation of their data measured at their ERIC
- ▶ Collaboration with ESI for launching the European Center of Excellence on Energy Transition Modelling

► WEBPAGE

► EERA website (<https://www.eera-set.eu/>) → Research → Joint Programmes → DfE

► <https://www.eera-set.eu/component/projects/projects.html?id=183>



The screenshot shows the EERA website interface. At the top, there is a dark blue header with the EERA logo on the left and navigation links: 'BECOME A MEMBER', 'EERA REPOSITORY', and 'MEMBERSHIP PORTAL'. Below this, a secondary navigation bar includes 'About us', 'Research', 'EERA in the EU', 'Events', 'News & Resources', and 'Contact', along with a search icon and social media links for Twitter, LinkedIn, and YouTube. The main content area has a white background with a faint background image of a person wearing safety goggles. A green arrow points left with the text 'Back to Joint Programmes overview'. The title 'tJP Digitalisation for Energy' is prominently displayed. Below the title, there is a white box containing contact information for the Coordinator (Rafael Mayo-García, CIEMAT, rafa.el.mayo@ciemat.es) and Deputy Coordinator (Massimo Celino, ENEA, massimo.celino@enea.it). To the right of this box, under the heading 'Partners', it lists '18 full participants' and '2 associated participant'. A list of links includes 'Download tJP info sheet', 'Download tJP DfE SRIA', 'Download questionnaire for becoming a tJP member', and 'Download questionnaire for existing EERA SP to join the tJP'. A circular logo with a lightning bolt and binary code is shown, with the text '- tJP Documents Repository' below it.

EERA
European Energy Research Alliance

BECOME A MEMBER | EERA REPOSITORY | MEMBERSHIP PORTAL

About us Research EERA in the EU Events News & Resources Contact

◀ Back to Joint Programmes overview

tJP Digitalisation for Energy

Coordinator
Rafael Mayo-García
CIEMAT
rafael.mayo@ciemat.es

Deputy Coordinator
Massimo Celino
ENEA
massimo.celino@enea.it

Partners
18 full participants
2 associated participant

- Download tJP info sheet
- Download tJP DfE SRIA
- Download questionnaire for becoming a tJP member
- Download questionnaire for existing EERA SP to join the tJP

tJP Documents Repository

Thank you!!

Rafael Mayo-García
EERA DfE Coordinator
rafael.mayo@ciemat.es

