Clean Energy Transition Partnership
TRI 1 Presentation Event – 22 September 2022

Michele de Nigris TRI 1 Lead

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Agenda

09.30-10.00	**Introduction** – Overview on TRI 1 and its Call Modules
10.00-11.00	**Call Module 1 – Power Planning Tools**
	Need-owner speech – **Norela Costantinescu** from ENTSO-e
	Need-owner speech – **Cagri Yildirim** from Tubitak
	Expert speech – **Pieter Vingerhoets** from EERA JP Integrated Energy System
	Testimony – **Sergio Olivero** Co-chair of ETIP SNET W5 Innovation Implementation in the Business Environment
11.00-12.00	**Call Module 2 – RES Demo Power Flex**
	Need-owner speech – **Ercole De Luca** from ARETI
	Need-owner speech – **Carlos Madina** from Tecnalia
	Expert speech – **Rainer Bacher** from ETIP SNET Core Team
12.00-12.30	Call procedure and funding mechanism – **Fredrik Lundström** from CETPartnership Call Management Team
	Q&A and Closing remarks

- CETPartnership
- Transition initiative 1 (TRI 1)
- TRI 1 Call Module 1 – Power Planning Tools
- TRI 1 Call Module 2 – RES Demo Power Flex
- Project requirements

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What

CETPartnership is a multilateral and strategic partnership of national and regional research, development and innovation (RDI) programmes in EU/EEA Member States and non-EU/EEA Partner Countries.

Why

CETPartnership supports the implementation of the European Strategic Energy Technology Plan (SET Plan), with the ultimate objectives, in line with REPowerEU Plan, to:

- achieve a climate-neutral society by 2050
- diversify Europe's energy supplies
- strengthen Europe's clean energy value chains, making them more sustainable

How

CETPartnership builds on existing SET Plan initiatives (ERA-Nets, IWGs, ETIPs, etc.), and aims to create synergies with the National Energy and Climate Plans and with the Recovery and Resilience Facility (RRF).

It pools national and regional RDI funding for the broad variety of technologies and system solutions required to make the energy transition. Financing is provided by national and regional funding agencies and institutions and by a top-up from the European Commission.

It envisions a transition driven by industry, public institutions, academia and citizen groups that will make Europe the front-runner in clean energy innovation and implementation.

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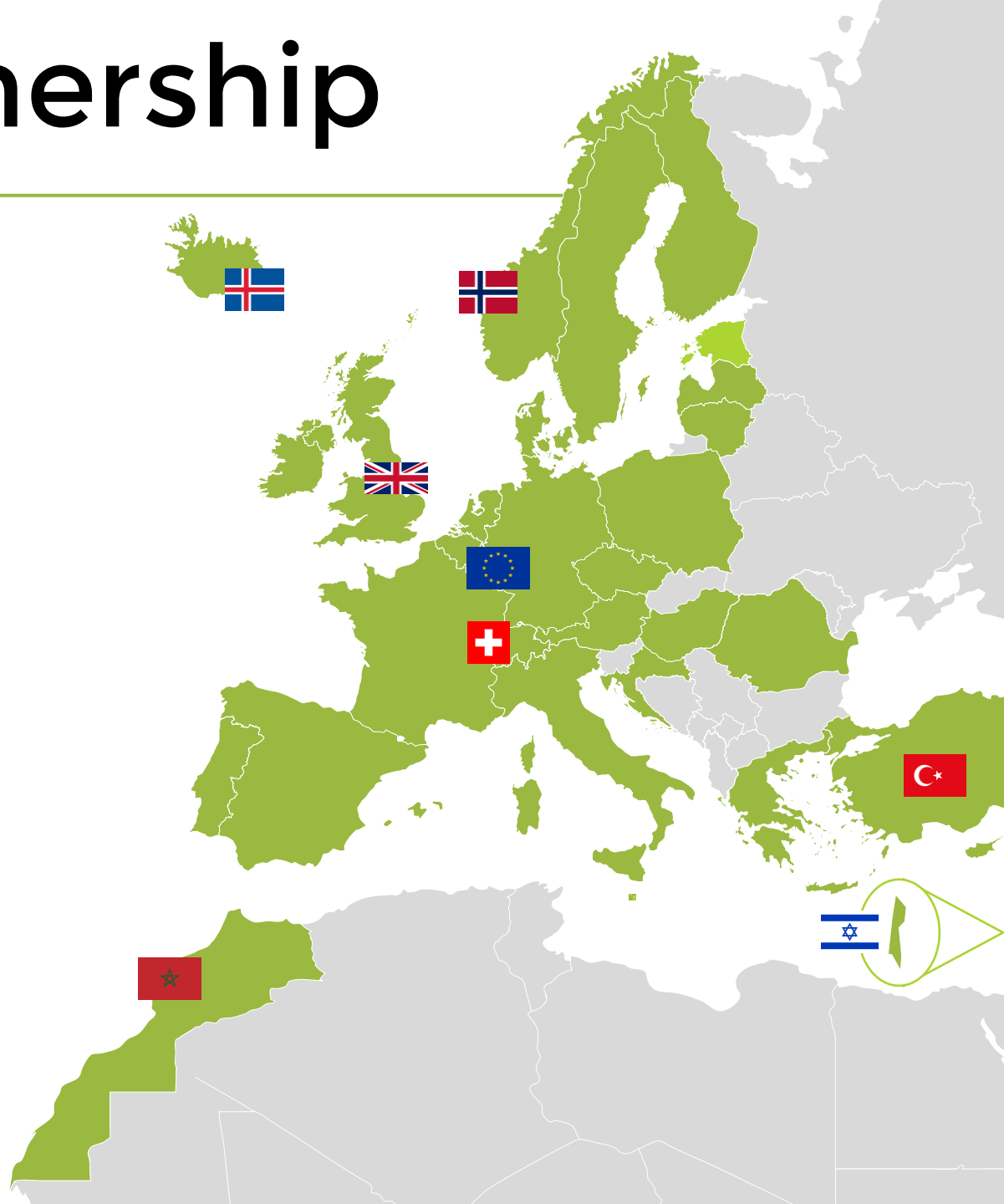
30 Countries
23 EU Member States
+ 7 Associated Countries

55 Funding Partners
Funding Agencies
& Ministries

13 Coordination Units
Coordinator: BMK / FFG

Annual Calls
for RTDI Projects
100 – 140 M € per year
2022 - 2027

Call 2022
> 140 M €



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The TRIs

What is a TRI?

The Transition Initiatives (TRIs) are **thematic configurations** of CETPartnership funding partners in order to work together on a specific **Strategic Research and Innovation Agenda (SRIA)** Challenge.

How many TRIs are there?

The CETPartnership has established the following **7 TRIs** which address the seven CETPartnership RTDI Challenges as described in the Strategic Research and Innovation Agenda (SRIA). Each of the TRIs is led by one of the CETPartnership partners, known as the TRI Lead.

TRI 1: Integrated Net-zero-emissions Energy System

TRI 2: Enhanced zero emission Power Technologies

TRI 3: Enabling Climate Neutrality with Storage Technologies, Renewable Fuels and CCU/CCS

TRI 4: Efficient zero emission Heating and Cooling Solutions

TRI 5: Integrated Regional Energy Systems

TRI 6: Integrated Industrial Energy Systems

TRI 7: Integration in the Built Environment

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TRI 1

Challenge → TRI 1 implements the CETPartnership Challenge 1, concerning the "Optimised, integrated European net-zero emission energy system"

Mission → to develop the optimised, integrated European net-zero emissions energy system, where electricity distribution and transmission grids are seen as the "backbone" of the future low-carbon energy systems with a high level of integration among all energy carrier networks

Main features

- higher level of circularity, with energy efficiency at its core
- greater direct electrification of end-use sectors
- renewable and low-carbon fuels for end-use applications difficult to electrify

Acceleration is needed

- to achieve "Fit for 55" objectives
- to foster European energy security in the geopolitical context

TRI 1 Call Modules for 2022

1 – Power Planning Tools

The development and use of the **tools**, **methods**, and advanced **modelling** necessary **to enable** the optimised integrated energy system

2 – RES Demo Power Flex

Solutions to enable the **flexibility** required **to manage** high shares of VREs in **the integrated European net-zero energy system**

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Call Module Power Planning Tools is meant to foster the development, demonstration of a **toolbox** needed **to plan and operate future integrated energy systems** enhancing inclusiveness, sustainability and resilience.

Expected outcomes

- tools for **planning under high uncertainty** conditions using stochastic and risk-management approaches and considering both external threats (climate change, cyberattacks, etc.) and internal threats (equipment failures, market disruptions etc.)
- frameworks to **connect bottom-up national modelling** exercises **to consistent European model results**, including cross-border energy flows, and selecting consistent transnational, transregional and beyond Europe scenarios
- tools based on **new computational technologies** (e.g. quantum computing) to address holistically an energy system with multi-vector integration
- modelling and simulation tools for **new market and regulation design** to ensure efficient operation of the integrated system and efficient investment decisions
- tools and **energy-economy models** to tackle the impacts of targeted transition policies on the rest of economy, in line with the **Just Transition** principles

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TRI 1: Integrated Net-zero-emissions Energy System

Call Module: TRI1 RESDemoPowerflex

Call Module **RES Demo Power Flex** will fund projects meant to develop, design, test and demonstrate advanced inclusive, sustainable and resilient technologies, systems, control mechanisms and **solutions to efficiently manage high shares of renewables in the European system at distribution and transmission level by 2030**.

Expected outcomes

- **increase RES hosting capacity** of distribution systems, improving grid controllability and forecasting tools
- **increase generators capability** to ensure network balancing needs, through faster switch in/out and ramping up/down
- demonstrate the role of large-scale and distributed energy **storage** (electricity, thermal, synthetic liquids, hydrogen, etc.)
- develop and test solutions to unlock **industrial processes flexibility potential**
- quantify and optimize the impact of **EV interaction** with the grid
- demonstrate the ability of providing management of flexibility by **cross-energy vector coordination** including various P2X, X2P and grid interactions (e.g. gas, heat, water, hydrogen)

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TRI 1 Project requirements

Call Module 1 – Power Planning Tools

KER

Tools developed with these characteristics

Open access/source

Quality standards

Results traceability and system maintainability

Interoperability (if possible)

For specific approaches that pursue specific economic follow-up activities, closed source approaches can be used

Average project budget

Depending on the width of the tools proposed and the funding available per country

1-2 M €

Call Module 2 – RES Demo Power Flex

TRL

Required 5 – 7

Activities with TRL 3-6 may be included if they contribute to the higher project goal

Clear exploitation strategy

Market-oriented view

Involvement of relevant need owners

The project will be encouraged to collaborate closely with Green Powered Future Mission (Mission Innovation)

Average project budget

Depending on the funding available per country

1.5-2.5 M €

Read carefully the Call Text for complete information

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Impactful applications

ETIP SNET
PLAN. INNOVATE. ENGAGE.

In order to prepare the best project application look at the **challenges still to be solved** according to ETIP SNET, the European Technology & Innovation Platform on Smart Networks for Energy Transition

R&I Implementation Plan 2022-2025

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2021 R&I Project Progress Report

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TRI 1 and 5 connection

TRI 1

System integration

TRI 5

The main objective of TRI 1 is to develop the optimised, **integrated European net-zero emissions energy system**, where electricity distribution and transmission grids are seen as the “backbone” of the future low-carbon energy systems with a high level of integration among all energy carrier networks, by e.g. coupling electricity networks with gas, heating and cooling networks, supported by energy storage and power conversion processes.

The main aim of TRI 5 is to develop and validate **integrated regional and local energy systems**, that make it possible to efficiently provide, host and utilize high shares of renewables, up to and beyond 100% in the dynamic local or regional supply by 2030. Such systems shall provide tailor-made solutions that meet the individual regional and local requirements and demand.

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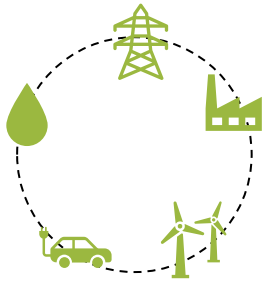
TRI 1 and 5 differences: Problem definition



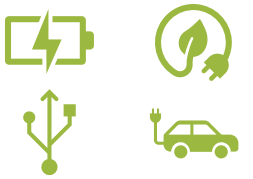
TRI 1 – Top-down perspective

- TRI 1 has a holistic perspective on infrastructures and toolbox
- The point of view is from the general system level
- Here the **general energy system is the focus**
- TRI 1 solutions serve the needs of the energy system

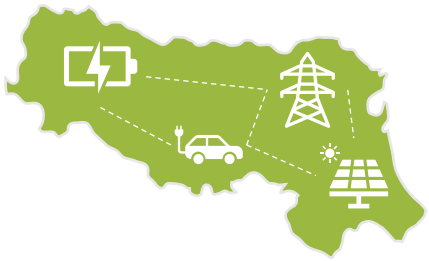
TRI 5 – Bottom-up perspective

- TRI 5 has a regional perspective and focuses on the local dimension
- The point of view is from the regional/local system level
- Here the **regional stakeholder challenges are the focus**
- TRI 5 solutions serve the needs of the stakeholders

TRI 1
enables the development providing and managing energy infrastructure



TRI 5
responds to local needs as a function of the context



These approaches need to be integrated to make innovation fit for the system needs and the regional stakeholders' contexts.

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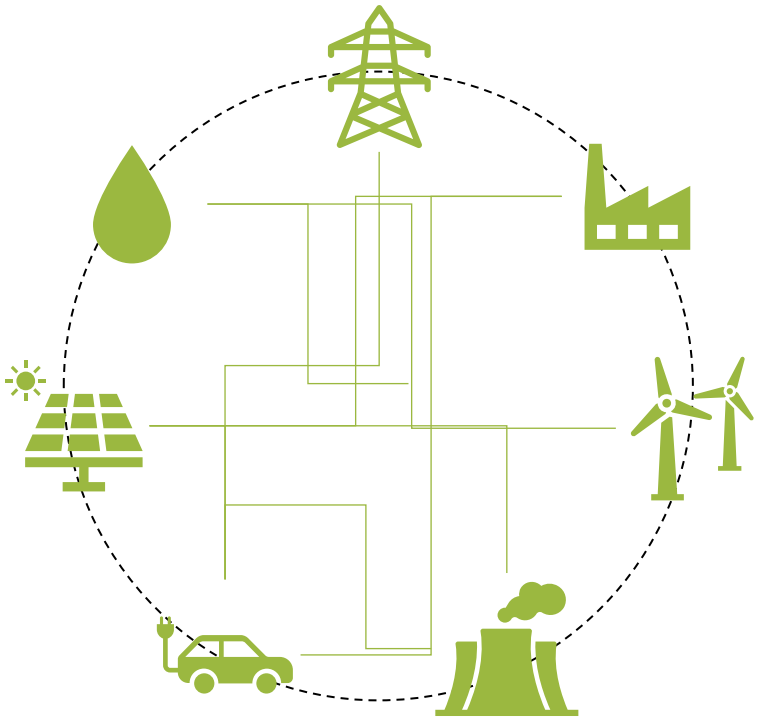
Differences: Problem definition

TRI 1 – Integrated energy system

Energy system at the center
<u>Top-down</u> perspective on infrastructures and toolbox



System-level innovations have to fit with stakeholders' contexts

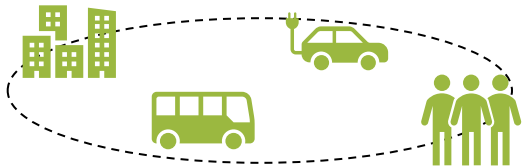
System integration

TRI 5 – Integrated local energy systems

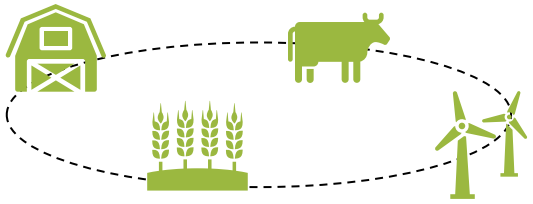
Stakeholder challenges at the center
<u>Bottom-up</u> perspective on local dimension and assets

Industrial area

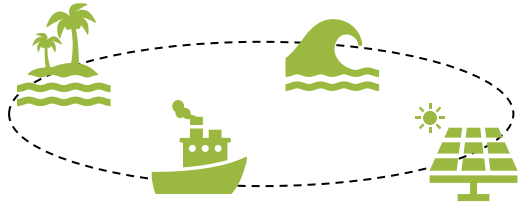
Urban area



Country area



Island



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Knowledge Community

Selected projects will benefit from a **structure** that will accompany them through **knowledge communities** and **impact groups** **fostering information and best practice exchange** and guaranteeing an **outreach of the results** to European and international levels.

Selected applicants will join the CETPartnership community, whose spirit is characterized by a **solution-oriented approach**, focused on technology demonstration, adoption and market uptake.

Participation to knowledge community is **part of the project**. Knowledge community activities, organized by Knowledge Community Management and Funding Partners, structured on a digital collaboration platform, include:

Formative evaluation

- Reporting
- Feedback uptake

Working groups

- Thematic and cross-cutting working groups
- Living documents
- Joint communication and dissemination activities

Deliverables

- Periodic reports, events and results presentations

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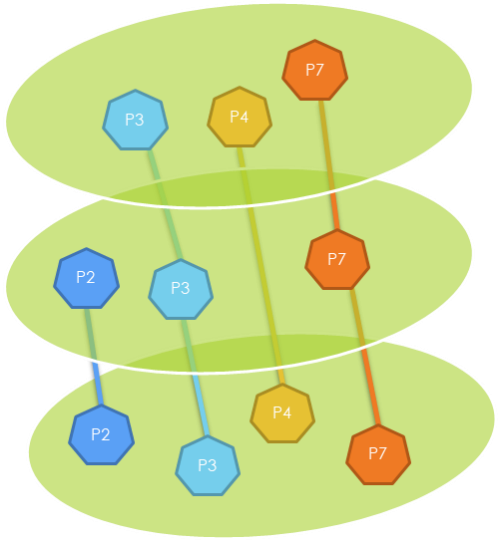
Three-layer Research Model

Applicants are encouraged to consider aspects beyond technology, according to the **Three-layer Research Model**, a framework that facilitates a structured approach to fostering innovation in project design. Applicants are encouraged to cover more than one layer by design, in the project methodological prerequisites.

- Methodologies and approaches adopted to consider the layers included in the project should be clearly defined.
- The work plan and deliverables should reflect all included layers and the potential interconnections between them.
- Interdisciplinary teams' contribution is encouraged.
- Risk assessments for the projects should consider all layers involved in the project.

The layers represent three different disciplinary domains which require specific developments for enabling energy transition.



3 - **Transition**
Why do we or don't we do it? (e.g community and society, policy, education, etc.)

2 - **Marketplace**
How do we organise it? (e.g living labs, sandboxes, business models, regulatory frame, etc.)

1 - **Technology**
Which technology solution do we need?

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CETPartnership Project requirements

Eligibility criteria:

- ✓ each project proposal must include **at least three independent legal entities from at least three different countries** participating in the CETPartnership Joint Call 2022, out of which at least two must be EU Member States or Horizon Europe Associated Countries
- ✓ applicants must be eligible for funding according to their Funding Partner's national/regional requirements

The **consortia** shall include:

- ✓ wide geographic spectrum
- ✓ public research organizations, universities and higher education institutions
- ✓ "need-owner(s)" and relevant stakeholders (e.g. energy supply companies, DSOs, TSOs, system integrators, ICT companies, local/regional authorities, equipment and solutions providers, industrial companies, etc.)
- ✓ one Project Coordinator, while other members are called Partners
  - ✓ Partners eligible for direct funding by the Funding Partners participating in the CETPartnership Joint Call 2022
  - ✓ fully self-financed Partners from any country/region who brings their own secured budget – the self-financed Partner cannot be the Project Coordinator and does not count to fulfil the transnationality criteria

Read carefully the Call Text for complete information

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CETPartnership Project requirements

Project duration:

- ✓ projects are required to start before 15 December 2023
- ✓ the maximum project duration must not exceed 36 months
- ✓ national/regional limits regarding the duration of projects may apply

Cross-cutting dimensions, e.g fostering:

- ✓ transition and innovation ecosystems
- ✓ fair, just and democratic transition
- ✓ resource efficiency and circularity principles
- ✓ Gender Equality Plan at organizational level (not applied to the business sector, special interest organizations or the non-profit sector)
- ✓ open access as part of proposals' methodology

Read carefully the Call Text for complete information

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Matchmaking platform

On **CETPartnership matchmaking platform**, on B2Match.io, you can

- find and get in touch with potential project partners and need-owners
- start building consortia
- co-create project ideas with need owners and potential partners
- share your cooperation interests or offer your services on the b2match market place with other members of the community

To make the most of this platform:

- present your cooperation profile (see also "registration")
- search & find cooperation partners in the organization profile database
- browse the marketplace to find out about the offers of different participants
- connect via messaging and virtual 1:1 video calls

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[Clean Energy Transition Partnership (CETPartnership) - Home (b2match.io)]

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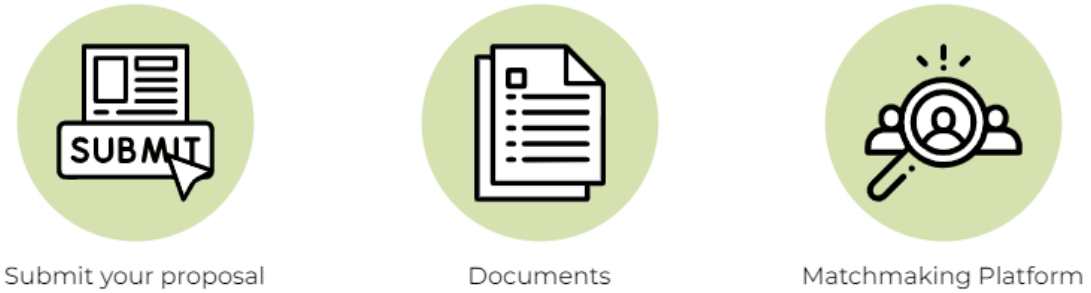
Joint Call 2022

Look at the CETPartnership Joint Call 2022



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