GREEN POWERED FUTURE MISSION

IRED 2022 | 9TH INTERNATIONAL CONFERENCE INTEGRATION OF RENEWABLE & DISTRIBUTED ENERGY RESOURCES

The Green Powered Future Mission

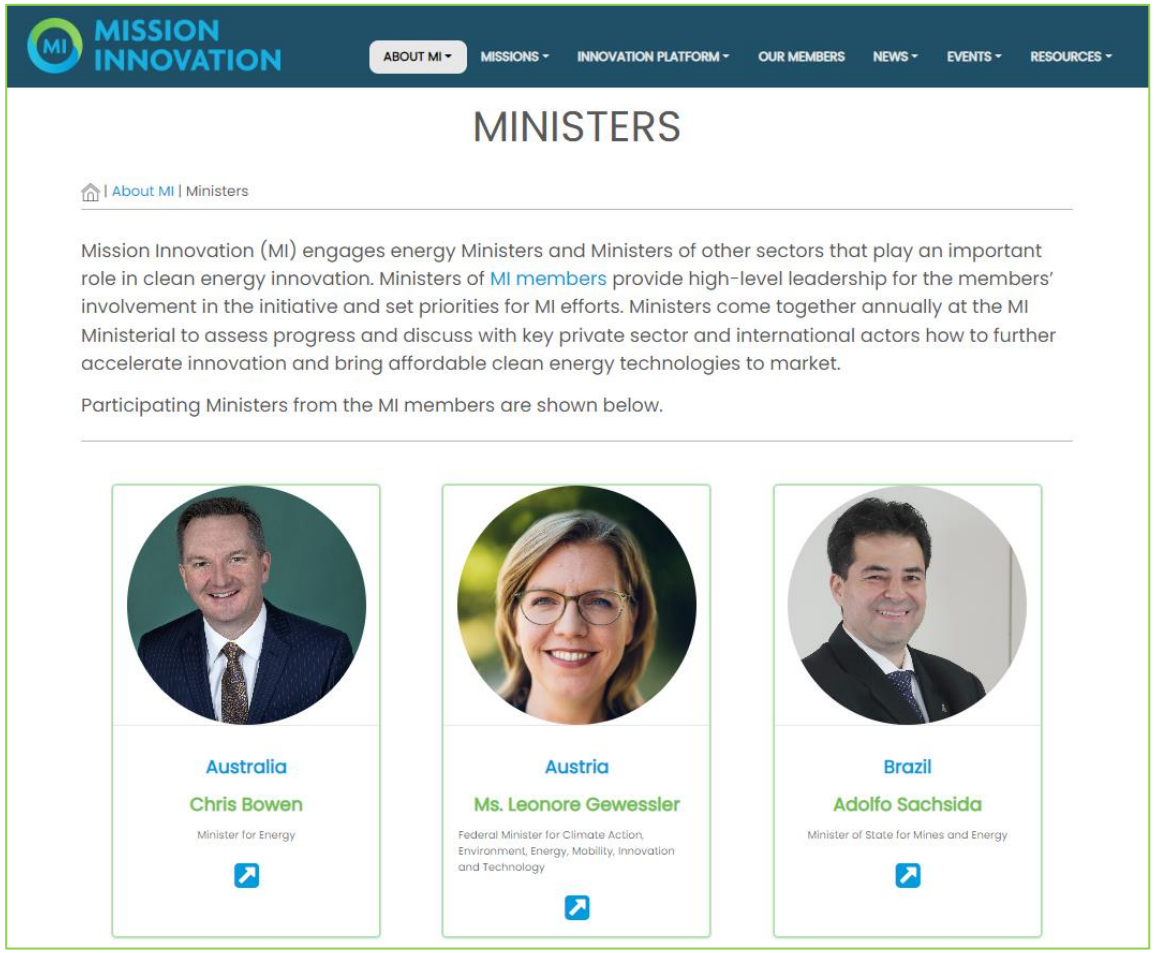
Luciano Martini, GPFM Director

IRED 2022 Conference

24-26 October 2022, Adelaide, South Australia

Mission Innovation

Mission Innovation is a global initiative catalysing a decade of action and investment in research, development and demonstration to make clean energy affordable, attractive and accessible for all. This will accelerate progress towards the Paris Agreement goals and pathways to net zero.



http://mission-innovation.net/

Mission Innovation

Mission Innovation (MI) at present is a global initiative of 23 countries and the European Commission (on behalf of the European Union)

CEM12/MI·6
CHILE 2021

MISSION INNOVATION

The Innovating to Net Zero Summit at CEM12/MI-6

- **Launch of MI 2.0**
- **23 governments** responsible for over 90% of global public investment in clean energy innovation commit to greater action to make **clean energy affordable, attractive and accessible to all this decade**.
- 2 June 2021
- https://cem12mi6chile.com

Existing Missions

MISSION INNOVATION

Wave 1 Missions

GREEN POWERED FUTURE MISSION

The Goal: To demonstrate that by 2030 power systems in different geographies and climates are able to effectively integrate up to 100% variable renewable energies in their generation mix and maintain a cost-efficient, secure and resilient system.

ZERO-EMISSION SHIPPING MISSION

The Goal: For ships capable of running on zero-emission fuels to make up at least 5% of the global deep-sea fleet by 2030.

CLEAN HYDROGEN MISSION

The Goal: To increase the cost-competitiveness of clean hydrogen by reducing end-to-end costs to USD 2 per kilogram by 2030.

Wave 2 Missions

CARBON DIOXIDE REMOVAL MISSION

The Goal: Enable Carbon Dioxide Removal technologies to achieve a net reduction of 100 million metric tons of CO_2 per year globally by 2030.

URBAN TRANSITIONS MISSION

The Goal: By 2030, deliver at least 50 large-scale, integrated demonstration projects in urban environments around the world, providing a pathway for all cities to adopt net-zero carbon solutions as the default option.

INTEGRATED BIOREFINERIES MISSION

The Goal: Develop and demonstrate innovative solutions to accelerate the commercialization of integrated biorefineries, with a target of replacing 10% of fossil-based fuels, chemicals and materials with bio-based alternatives by 2030.

NET-ZERO INDUSTRIES MISSION

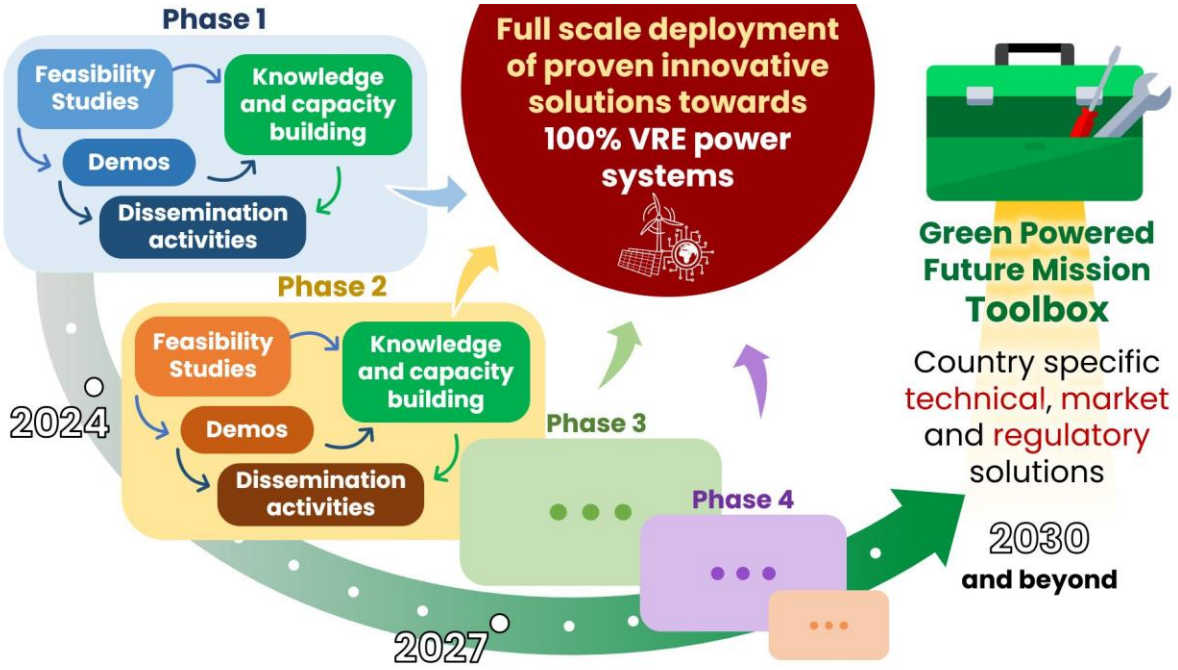
The Goal: Develop and demonstrate cost competitive solutions for the efficient decarbonization of energy intensive industries by 2030.

GPFM Scope and Objectives

The **Green Powered Future Mission** aims to demonstrate that **by 2030** power systems in different geographies and climates, are able to effectively integrate **up to 100% variable renewable energies**, like wind and solar, in their generation mix and maintain a cost-efficient, secure and resilient system.

How?

- **Demonstrating** innovative technical solutions
- **Analysing** policy, market and regulatory aspects
- **Generating** the tools, data and networks needed to enable more people and areas to be powered by affordable and high-levels VRE



The Coalition: Public - Private Partnership

GREEN POWERED FUTURE MISSION

nationalgrid

alperia

enel

areti

ena energynetworks association

bsi.

GSE Gestore Servizi Energetici

IB1 Icebreaker One

GOLDWIND

LONGi

Terna Driving Energy

IRENA International Renewable Energy Agency

iea International Energy Agency

WORLD BANK GROUP

Joint Roadmap of Global Innovation Priorities

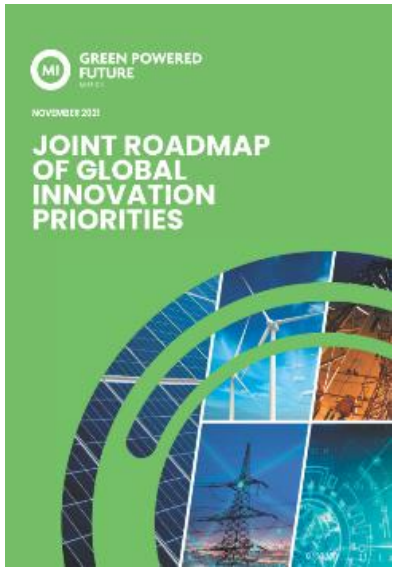
GREEN POWERED FUTURE MISSION

UN CLIMATE CHANGE CONFERENCE UK 2021

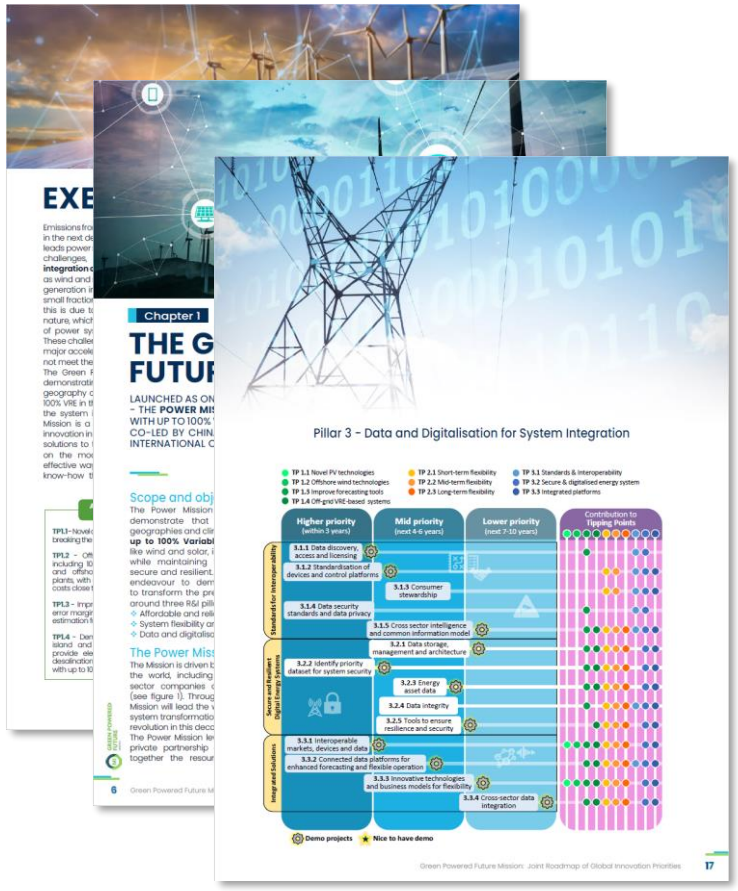
IN PARTNERSHIP WITH ITALY

Released at COP26 !

Dedicated Power Mission event at the **UNFCCC Innovation Hub pavilion**



- **17 R&I themes** within three R&I Pillars
- **Top 100 Global Innovation Priorities** with separate detailed descriptions
- Priorities identified for their **contribution to achieve the tipping points** across the pillars
- Selection of most valuable **demo projects** to be developed on specific Innovation Priorities



The Roadmap is available at:
www.mission-innovation.net/missions/power

R&I Themes

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Pillar 1

Affordable and Reliable VRE

1.1 Novel photovoltaic
1.2 Offshore wind power
1.3 Integrated renewable energy
1.4 Off grid systems
1.5 Energy storage supply chains, recycling and re-use
1.6 Technologies for system stability

Pillar 2

System Flexibility and Market Design

2.1 Flexible generation
2.2 Grid flexibility
2.3 System stability and flexible operation
2.4 Energy storage integration
2.5 Demand side flexibility and EV
2.6 Advanced planning for flexible systems
2.7 Market design, business models & regulatory framework
2.8 Flexibility from energy sectors integration

Pillar 3

Data and Digitalisation for System Integration

3.1 Standards for interoperability
3.2 Secure and resilient digital energy systems
3.3 Integrated platforms

Green Powered Future Mission
Action Plan 2022-2024

- Pathway on **how** the Mission goal will be reached
- Detailed plan for **3 years** of the **10 years Mission's timeframe**
- Selection of the **50 most urgent Innovation Priorities** to be tackled in the next years
- Two ambitious **Flagship Projects** (FP):
  - FP1: ***5 Demos in Five Continents***
  - FP2: ***Multilateral Research Programme***

*Officially released at the **Global Clean Energy Action Forum**, Pittsburgh, PA 23 September 2022*

The Action Plan 2022-2024 is available at:
www.mission-innovation.net/missions/power

- **50 most urgent innovation priorities** among the Top 100 identified in the Joint Roadmap
- **Innovation Priorities** that need to be addressed in the **first 3 years**

Flagship Project 1:
5 Demos in Five Continents

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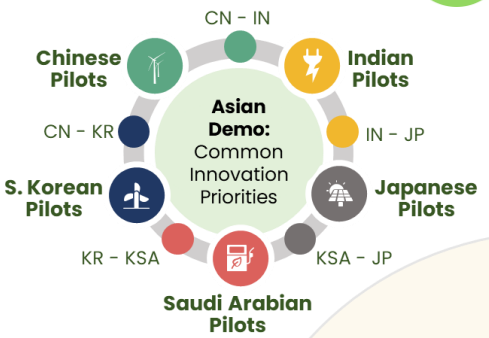
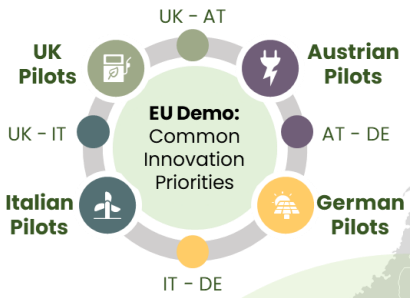
- Establishing **five continental large Demonstrators** with up to **80% VRE** by 2024
- Implementing **20+ National Pilots** by engaging governments and the private sector
- Tackling urgent **Innovation Priorities**
- Populating the **GPFM Toolbox** with **proven innovative solutions**, to be disseminated broadly

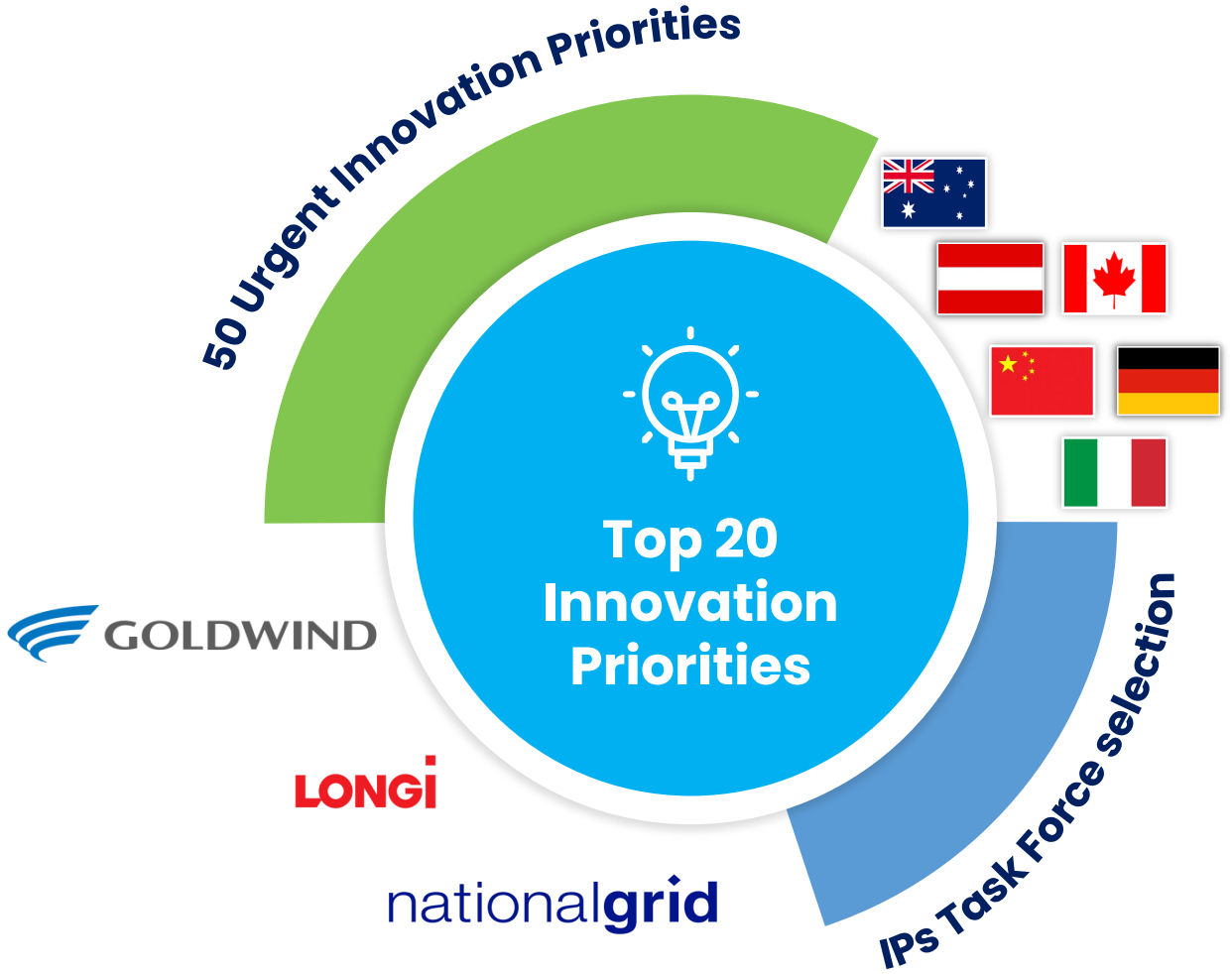




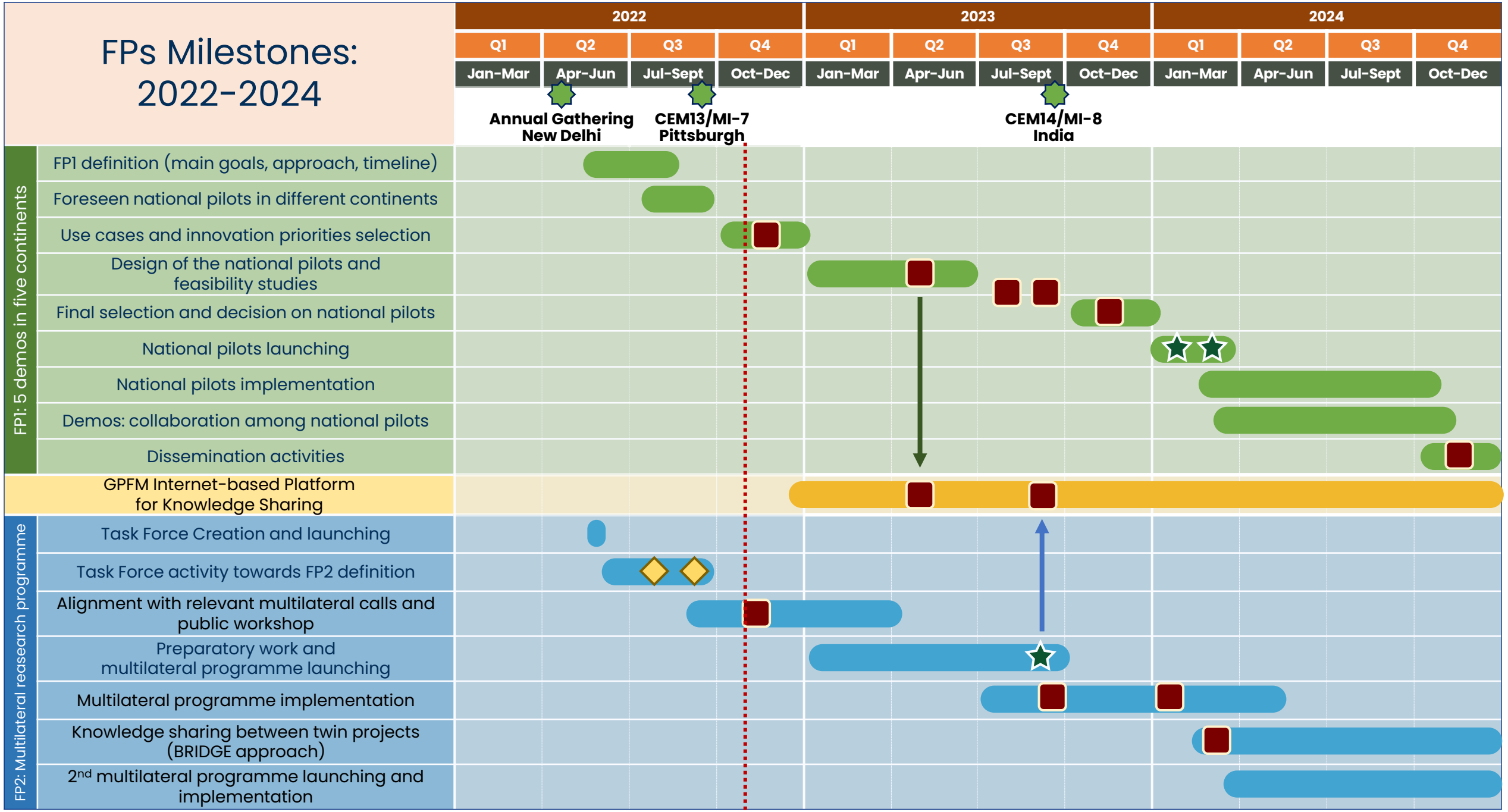
Examples of the **European** and **Asian Demos**
(the above maps are for **illustrative purpose only**)

Flagship Project 2:
Multilateral Research Programme

- Tackling **20** of the most urgent identified **innovation priorities**
- Mobilising **resources exceeding USD 100 million** over the next three years
- Launching the first **open calls in 2023**, with further calls planned annually
- Aligning GPFM first calls with a CETP dedicated **call module**



FPs Milestones: 2022-2024



Legend: CEM/MI event · Consensus meeting · Periodic events · Launching activities

International Collaboration and Dissemination

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- GPFM **active commitment** to international collaboration
- **Fruitful connections** with key global initiatives (**ISGAN**, **IEA-3DEN**, **Power Breakthrough, G-PST, LDES, ETIP SNET**) and with other Missions, such as the **Urban Transitions Mission**, to ensure that innovation priorities are inclusive and globally **relevant to all**
- Engaging **private sector and industry players** to understand how to best support decarbonization strategies

ISGAN INTERNATIONAL SMART GRID ACTION NETWORK

IEA 3DEN

GLASGOW BREAKTHROUGHS

URBAN TRANSITIONS MISSION

CLEAN HYDROGEN MISSION

ETIP SNET PLAN. INNOVATE. ENGAGE.

Next steps:

GLOBAL PST CONSORTIUM

LDES LONG DURATION ENERGY STORAGE COUNCIL

International Collaboration: Gantt Chart

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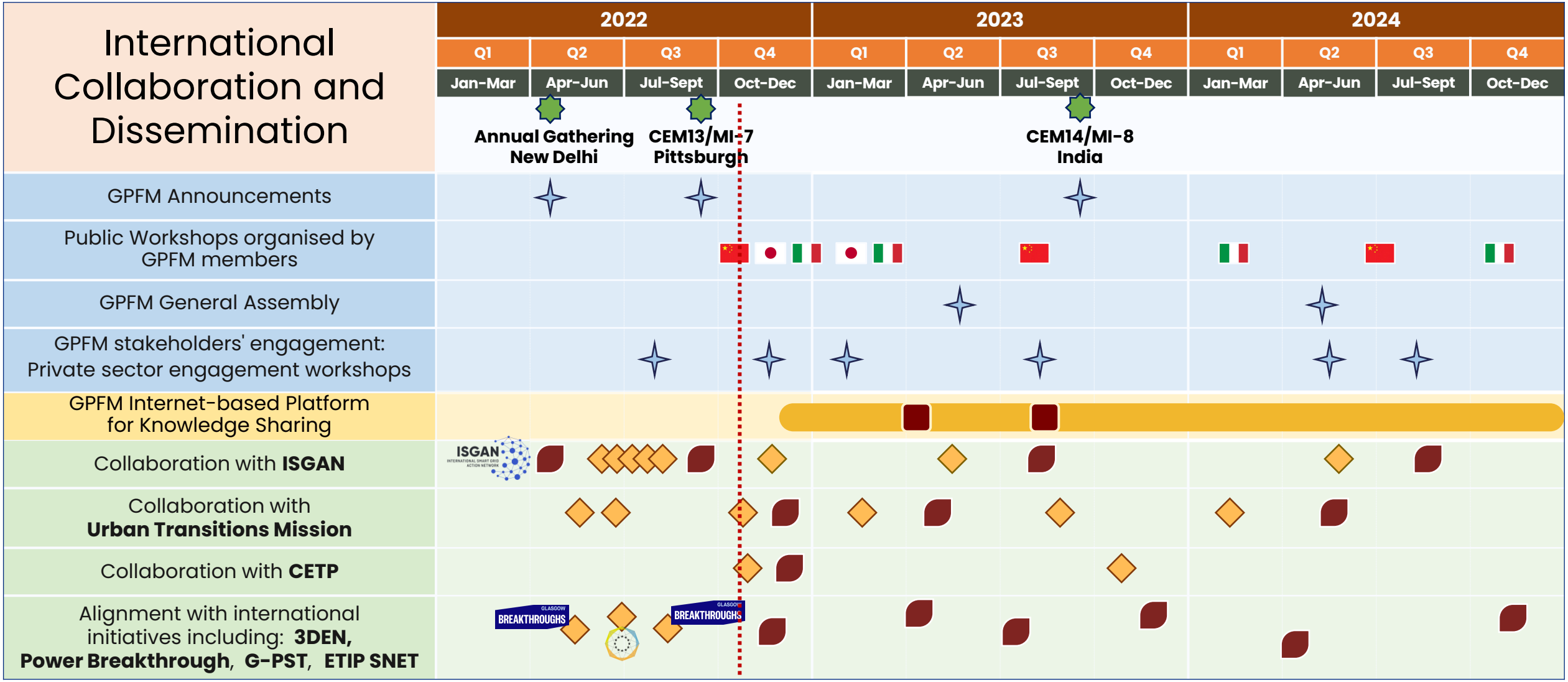
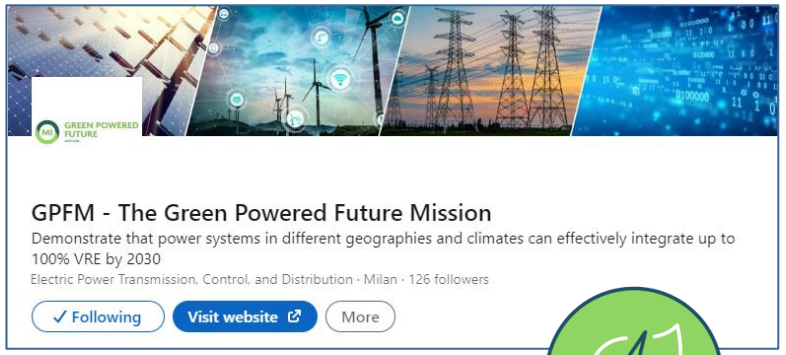


GLASGOW BREAKTHROUGHS

GLOBAL PST CONSORTIUM

Communication and dissemination

- Launching of the GPFM page on LinkedIn!
- **GPFM** recognizes the importance of social presence on LinkedIn as one of the ways to promote the Mission
- **Dissemination tool** to share Mission's insights, approach and vision
- **GPFM page** includes:
  - *GPFM documents*
  - *updated information about events, workshops, meetings*
  - *news regarding the GPFM*
  - *posts dedicated to the Mission members*



GPFM - The Green Powered Future Mission
126 followers
3d •

We are delighted to announce that the Green Powered Future Mission (GPFM) is officially launching its own LinkedIn page!
On this page, we will share our Mission's insights, approach and vision, as well as information about our work and main achievements towards the ambitious goal of demonstrating a portfolio of innovative solutions, enabling the integration of up to 100% variable renewable energy into power systems worldwide by 2030.

Launched within the second phase of Mission Innovation, the GPFM is a public-private partnership with 28 members from MI countries, private sector companies and international organisations, which aims to accelerate innovation in clean energy by demonstrating innovative solutions to transform the present system. To achieve this goal, the GPFM recognizes the importance of an effective and mutually fruitful public-private partnership, boosting international collaboration, best practices' sharing and knowledge exchange.

Follow us to find the latest updates of the GPFM and our pathway towards the clean energy transition.

#gpfm #missioninnovation #decarbonization #cleanenergytransition #innovation #renewableenergy #collaboration #power

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Thank you for your attention

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Follow us on: Mission Innovation site
LinkedIn

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GPFM FP1 – FP2: Spotlight on Australia

Luciano Martini, GPFM Director

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Australian/Oceanian Demo

GPFM Action Plan 2022-2024

system flexibility and how to decarbonise effectively and reliably off-grid systems in the Amazon region. In addition, the South American demo will focus on pilots to test local market flexibility service models in order to assess their economic impacts and benefits also with a view to optimizing operation, planning and long-term grid investments. Provided that funding is secured, a potential **North American** demonstration project could be identified in the smart energy systems space to address key GPFM innovation priorities. These priorities for demonstration include but are not limited to: (1) validity of methods to estimate the actual demand-side flexibility available, inclusive of flexibility potential in commercial and residential buildings; (2) innovative tools and devices for optimal smart charging, vehicle-to-grid (V2G) management, EV services and grid advanced automation; and (3) various scenarios of flexibility markets for innovative ancillary services by distributed energy resources such as VRE and storage. Concerning the **Australian/Oceanian** demo, a large-scale demonstration will focus on operational experiences of a GW scale electricity region (South Australia), connected to the main Australian grid (the National Electricity Market (NEM)). This system regularly operates on very high shares of variable renewable energy, consisting of wind and solar generation plus large-scale battery energy storage, with excess energy being exported via interconnectors to eastern Australian states. The system has both the ability and experience of operating islanded from the wider Australian grid for periods of weeks, while maintaining system strength and capacity.

The operational experiences with this large system will be coupled with results from other pilots and research activities to guide R&D efforts to progress the key challenges in the Australian context, including supporting very high levels of distributed renewables; the capability of distributed resources to contribute to electricity system services; and the system architectures to support these changes.

For what concerns R&I activities related to a possible **African** Demo, the IEA 3DEN initiative is developing policy guidance for emerging economies on digitalisation for power system resilience and decarbonisation for emerging economies, including a regional focus on Africa, in particular Tunisia, Morocco and South Africa. Part of this work will cover lessons learned from pilot projects implementation and guidance on replication and scaling up. In conjunction, the Italian government is supporting an implementation phase administered by UNEP with funding for smart grids pilots. The results and insights from these projects will be widely shared with the GPFM through the 3DEN initiative.

members. This flagship project will ensure that the Mission remains focused on issues beyond technology barriers such as market design, regulatory framework, etc., that can play an important role in unlocking innovative solutions.

International organisation GPFM members will support this process especially by participating in targeted discussions, sharing insights on investments and trends in innovation as well as joining experts' workshops. The GPFM will seek effective collaboration with other relevant initiatives acting towards the modernisation of the energy system as a way to advance faster towards the identification and validation of innovative solutions for their future deployment.

To develop this flagship project effectively, the GPFM will take inspiration from ongoing successful multilateral programmes such as the **"MI Call series"** and the European **"Clean Energy Transition**

Internal-facing Action Plan 2022-2024: Australian/Oceanian demo

Concerning the **Australian/Oceanian demo**, a large-scale demonstration will focus on **operational experiences of a GW scale electricity region** (***South Australia***), connected to the main Australian grid (the National Electricity Market (NEM)). This system regularly operates on very high shares of **variable renewable energy**, consisting of wind and solar generation plus large-scale battery energy storage, with excess energy being exported via interconnectors to eastern Australian states. The system has both the ability and experience of **operating islanded from the wider Australian grid** for periods of weeks, while maintaining system strength and capacity. The operational experiences with this large system will be coupled with results from other **pilots and research activities** to guide R&D efforts to progress the **key challenges in the Australian context**, including supporting very **high levels of distributed renewables**; the capability of distributed resources to contribute to electricity system services; and the system architectures to support these changes.

Extract from the GPFM Action Plan 2022-2024


Pillar 3
Data and Digitalisation for System Integration
Pillar 1
Affordable and Reliable VRE
Pillar 2
System Flexibility and Market Design
50 most urgent
Innovation Priorities
T3.3 - Integrated Solutions
T3.2 - Secure and Resilient Digital Energy Systems
T3.1 - Standards for Interoperability
3.3.1 Interoperable markets, devices and data
3.3.2 Connected data platforms for enhanced forecasting and flexible operation
3.2.2 Identify priority dataset for system security
3.1.1 Data discovery, access and licensing
3.1.2 Standardisation of devices and control platforms
3.1.4 Data security standards and data privacy
T1.1 – Novel Photovoltaic
T1.2 - Offshore Wind Power
T1.3 - Integrated Renewable Energy
T1.5 - Energy Storage Supply Chain, Recycle and Reuse
T1.6 - Technologies for System Stability
1.1.1 High efficiency PV cells and modules
1.1.3 Reliability evaluation of PV modules and systems
1.1.5 Software and database for PV systems
1.1.6 Recycling and eco-design of PV cells and modules
1.1.7 Agri-PV technologies
1.2.2 Floating offshore wind turbines
1.3.2 Large-scale IRE generation for improving system reliability and stability
1.3.3 Distributed IRE generation at grid edge
1.5.1 Analysis of batteries life cycle and monitor, test and recycle of batteries
1.5.3 Innovation in energy storage technologies
1.5.2 Recycling and reuse batteries design
1.5.6 Safety assessment of electrochemical storage
1.5.4 Driving cost-reduction across the battery supply chain
1.6.1 Grid-forming devices applied to solar PV and wind
1.6.2 Grid-supporting technologies from inverter-based resources
T2.8 - Flexibility from Sector Integration
T2.7 - Markets, Business Models and Regulatory Framework
T2.6 - Flexible Systems Planning
T2.5 - Demand-side and EV Flexibility
T2.4 - Energy Storage Integration
T2.3 - System Stability and Flexible Operations
T2.2 - Grid Flexibility
T2.1 - Flexible Generation
2.8.1 Sector Coupling flexibility assessment
2.8.2 Optimal planning and operation of integrated energy systems
2.7.8 Output-based regulation to incentivize grid flexibility exploitation
2.7.7 Regulatory solutions to foster flexibility provision from end-uses
2.7.11 Social acceptance of innovative technologies and required behavioral change
2.7.5 Market access rules, grid tariffs and price schemes to exploit EV flexibility
2.7.4 Business models and regulatory framework for flexible resources
2.7.1 Flexibility markets for innovative ancillary services by VRE and storage
2.6.5 EV charging infrastructure planning and deployment
2.6.3 New planning strategies and methods for flexibility solutions and system services
2.6.1 Integrated transmission and distribution planning tool
2.5.6 Impact assessment of flexibility services on EV batteries
2.5.5 Tools for optimal smart charging and V2G management
2.5.4 Demand response, EV services and grid impact assessment
2.5.2 Unlocking commercial and residential buildings flexibility potential
2.5.1 Methods to estimate the available actual demand-side flexibility
2.4.6 Identification of main barriers hindering storage systems mass deployment
2.4.4 Assessment of energy management for multi-service energy storage systems
2.4.3 Utility scale storage systems for innovative flexibility services
2.4.1 Need and requirements assessment for storage systems new services
2.3.5 DSOs and TSOs enhanced grid and DER observability
2.3.4 Tools and solutions for DSO flexibility management
2.3.3 Innovative frequency and non-frequency ancillary services specifications
2.3.2 Enhanced TSO-DSO coordination platform for flexibility markets optimisation
2.3.1 System stability assessment considering high VRE penetration
2.2.4 Enhanced control rooms and automated decision systems
2.2.1 Innovative components and dynamic line rating
2.1.2 Further exploitation of hydropower and pumped hydro flexibility
2.1.1 VRE flexibility provision and contribution to generation capacity


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2.1.1 VRE flexibility provision and contribution to generation capacity

Flagship Project 1: National Pilots
possible approach

- Different suitable locations, in terms of available **VRE sources** and **grid infrastructure**
- All together, National Pilots will address a large number of the identified Innovation Priorities in a **highly complementary way**
- Number of pilots to be launched **by 2024** relates to National **R&I needs, strategy** and **available resources**

FP1 Continental Task Forces

- Establishment of **five continental Task Forces** to map out the specific Innovation Priorities addressed by each individual National Pilot
- Each Task Force will:
  - **monitor progress** and foster the **sharing of their initial approach and results**
  - engage the **national pilot coordinators** and the main **public and private partners** involved
  - nominate a **lead member** and an alternate member that will be responsible to provide **periodic updates** to the ExCo

Examples of thematic areas for national pilot projects - Italy

A1. ***Geographical islands, off-grid systems and Energy Communities***

A2. ***Integrated urban system flexibility***

A3. ***Industrial districts demand side flexibility***

A4. ***Enhanced system operation and innovative flexibility services***

FP1: 5 demos in five continents

Examples of thematic areas for national pilot projects: Italy

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- **A1. Geographical islands**
- **A2. Integrated urban system**
- **A3. Industrial districts demand side**
- **A4. Enhanced system operation**

FP1: 5 demos in five continents

This map is for illustrative purpose only

Australian/Oceanian Demo

FP1: possible national pilots

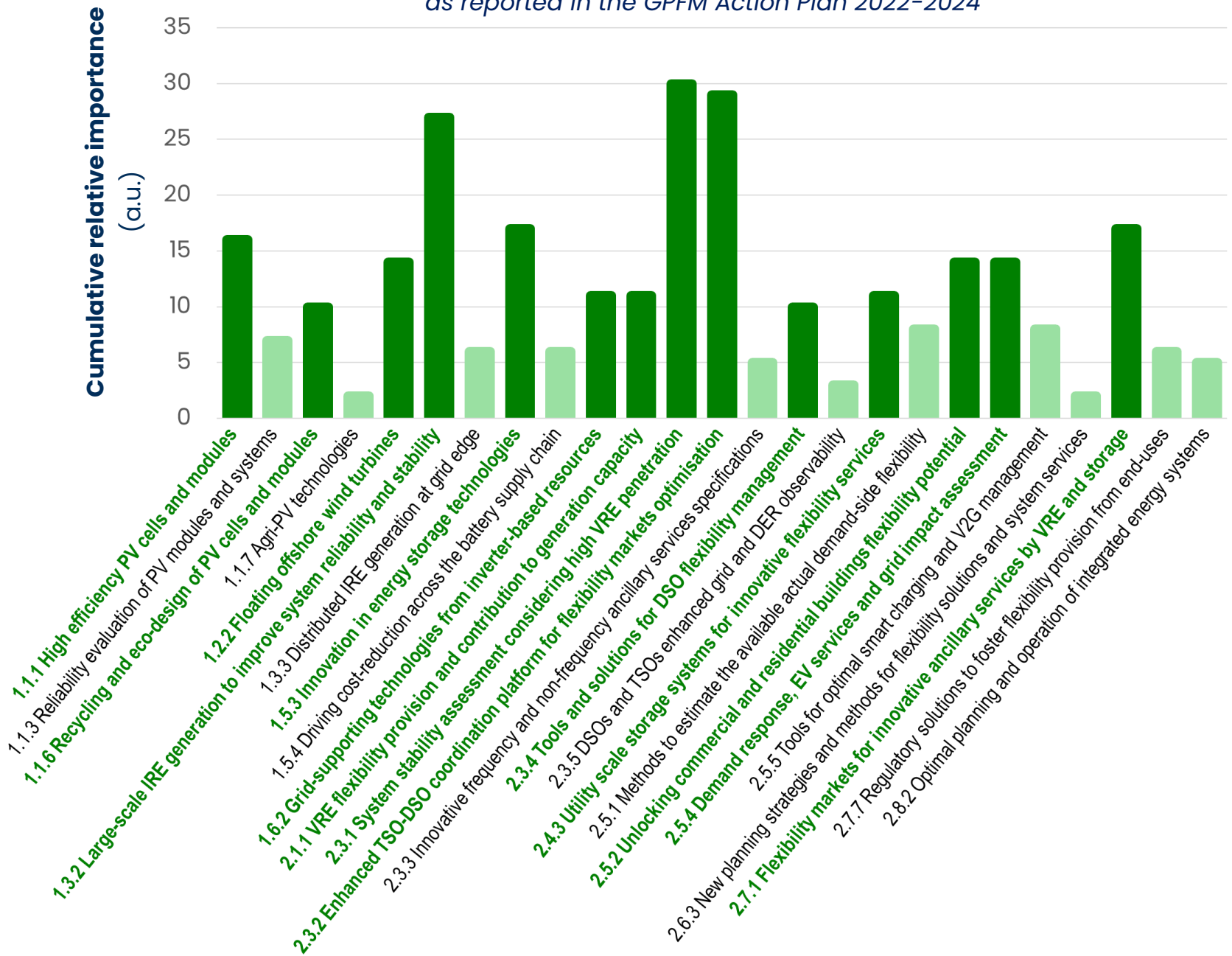
A1. ---

A2. ---

FP1: 5 demos in five continents

This map is for illustrative purpose only

14 R&D Innovation Priorities identified by the FP2 Task Force, as reported in the GPFM Action Plan 2022-2024



The FP2 **Multilateral Research Programme** will focus and tackle **20 Innovation Priorities** out of the 50 most urgent ones, in detail:

- 14 Innovation Priorities from Pillar 1 and 2 identified by the FP2 Task Force

  +

- all the 6 Innovation Priorities from Pillar 3, since digitalization underpins the overall system development

Spotlight on Australia:
Open discussion

- FP1: possible national pilots
- “Continental Task Force”: contribution and coordination towards demo projects
- Top Innovation Priorities
- FP2: 2023 open calls and “available“ funding
- Needed /required actions and the way forward

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Thank you for your attention

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What Mission Innovation does

MISSION INNOVATION

A Forum for Innovation Leaders

An action-orientated forum for government leaders who set out **national innovation pathways** and commit to pioneer clean energy solutions domestically and internationally.

Launch Global Missions

Missions that **catalyse global action** behind **ambitious and inspirational innovation goals** that can lead to **tipping points** in the cost and scale of clean energy solutions, leading to more rapid technology adoption.

Build pathways to deployment

Work in active **partnerships with the private sector and other initiatives** to boost demand for new solutions and explore ground-breaking public-private investments.

Enhance confidence in net zero solutions

Strengthen the **global analysis of innovation progress** and facilitate **knowledge sharing and collaboration** to support all countries to plan ambitious clean energy transitions.

Mission's Tipping Points in brief

GREEN POWERED FUTURE MISSION

Affordable and Reliable VRE

TP1.1
Development of **Novel cost-efficient PV**

TP1.2
Deployment of **Offshore wind technologies**

TP1.3 Improvement of **forecasting tools**

TP1.4 Demonstration of **VRE-based island** and **off-grid applications**

System Flexibility and Market Design

TP2.1
Short-term flexibility adequacy for system stability

TP2.2
Power system mid-term flexibility

TP2.3
Long-term flexibility to cope with seasonal variability

Data and Digitalisation for System Integration

TP3.1
Adoption of common **international standards**

TP3.2
Raise confidence and use of **open standards**

TP3.3 – Increase of the **level of coordination** and **speed of responsiveness**

Examples of thematic areas for national pilot projects - Italy

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A1. ***Geographical islands, off-grid systems and Energy Communities***

Projects addressing remote/isolated/off-grid systems including off-shore energy as well as energy communities as a way to foster local flexibility provision and management.

A2. ***Integrated urban system flexibility***

Projects to be developed in an urban environment and involving neighborhood or small towns or a large city. The solutions to be proposed include demand side, electric vehicles, aggregators and distributed energy resources management.

A3. ***Industrial districts demand side flexibility***

Projects considering demonstration of innovative solutions to exploit flexibility from industrial processes (MW-scale such as industrial loads, shopping centers, etc.).

A4. ***Enhanced system operation and innovative flexibility services***

Projects for the modernization of existing network assets and operational procedures considering also TSO-DSO coordination. Integration of flexibility resources providing enhanced grid ancillary services (e.g., utility scale batteries, flexibility from generation, demand response, pumped hydro, power to gas applications).


Pillar 3
Data and Digitalisation for System Integration
Pillar 1
Affordable and Reliable VRE
Pillar 2
System Flexibility and Market Design
50 most urgent
Innovation Priorities
T3.3 - Integrated Solutions
T3.2 - Secure and Resilient Digital Energy Systems
T3.1 - Standards for Interoperability
3.3.1 Interoperable markets, devices and data
3.3.2 Connected data platforms for enhanced forecasting and flexible operation
3.2.2 Identify priority dataset for system security
3.1.1 Data discovery, access and licensing
3.1.2 Standardisation of devices and control platforms
3.1.4 Data security standards and data privacy
T1.1 – Novel Photovoltaic
T1.2 - Offshore Wind Power
T1.3 - Integrated Renewable Energy
T1.5 - Energy Storage Supply Chain, Recycle and Reuse
T1.6 - Technologies for System Stability
1.1.1 High efficiency PV cells and modules
1.1.3 Reliability evaluation of PV modules and systems
1.1.5 Software and database for PV systems
1.1.6 Recycling and eco-design of PV cells and modules
1.1.7 Agri-PV technologies
1.2.2 Floating offshore wind turbines
1.3.2 Large-scale IRE generation for improving system reliability and stability
1.3.3 Distributed IRE generation at grid edge
1.5.1 Analysis of batteries life cycle and monitor, test and recycle of batteries
1.5.3 Innovation in energy storage technologies
1.5.2 Recycling and reuse batteries design
1.5.6 Safety assessment of electrochemical storage
1.5.4 Driving cost-reduction across the battery supply chain
1.6.1 Grid-forming devices applied to solar PV and wind
1.6.2 Grid-supporting technologies from inverter-based resources
T2.8 - Flexibility from Sector Integration
T2.7 - Markets, Business Models and Regulatory Framework
T2.6 - Flexible Systems Planning
T2.5 - Demand-side and EV Flexibility
T2.4 - Energy Storage Integration
T2.3 - System Stability and Flexible Operations
T2.2 - Grid Flexibility
T2.1 - Flexible Generation
2.8.1 Sector Coupling flexibility assessment
2.8.2 Optimal planning and operation of integrated energy systems
2.7.8 Output-based regulation to incentivize grid flexibility exploitation
2.7.7 Regulatory solutions to foster flexibility provision from end-uses
2.7.11 Social acceptance of innovative technologies and required behavioral change
2.7.5 Market access rules, grid tariffs and price schemes to exploit EV flexibility
2.7.4 Business models and regulatory framework for flexible resources
2.7.1 Flexibility markets for innovative ancillary services by VRE and storage
2.6.5 EV charging infrastructure planning and deployment
2.5.6 Impact assessment of flexibility services on EV batteries
2.6.3 New planning strategies and methods for flexibility solutions and system services
2.5.5 Tools for optimal smart charging and V2G management
2.6.1 Integrated transmission and distribution planning tool
2.5.4 Demand response, EV services and grid impact assessment
2.5.2 Unlocking commercial and residential buildings flexibility potential
2.5.1 Methods to estimate the available actual demand-side flexibility
2.4.6 Identification of main barriers hindering storage systems mass deployment
2.4.4 Assessment of energy management for multi-service energy storage systems
2.4.3 Utility scale storage systems for innovative flexibility services
2.4.1 Need and requirements assessment for storage systems new services
2.3.5 DSOs and TSOs enhanced grid and DER observability
2.3.4 Tools and solutions for DSO flexibility management
2.3.3 Innovative frequency and non-frequency ancillary services specifications
2.3.2 Enhanced TSO-DSO coordination platform for flexibility markets optimisation
2.3.1 System stability assessment considering high VRE penetration
2.2.4 Enhanced control rooms and automated decision systems
2.2.1 Innovative components and dynamic line rating
2.1.2 Further exploitation of hydropower and pumped hydro flexibility
2.1.1 VRE flexibility provision and contribution to generation capacity

Monitoring Process and KPI

- Need of defining and setting up a **process to monitor progress**
- **Objectives** of the Monitoring Process:
  - Offer clarity to members on GPFM expected outputs over the Action Plan period
  - Drive forward, report and track progress of the R&I activity, commitments and Mission's Flagship proposals
  - Establish and track Key Performance Indicators (KPIs) for the Mission
- **Yearly Action Plan update**, published ahead of the Ministerial, to monitor progress of member activities

The GPFM Internet-based platform

- Data platform for **demos**
- **Workspace** for members and experts
- **Dissemination tool** to showcase the results and achievements of the Mission
- GPFM platform includes **three main parts**:
  - for Mission' members joint activity coordination
  - the SGIA
  - the GPFM Toolbox

Australian/Oceanian Demo

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FP1: 5 demos in five continents