

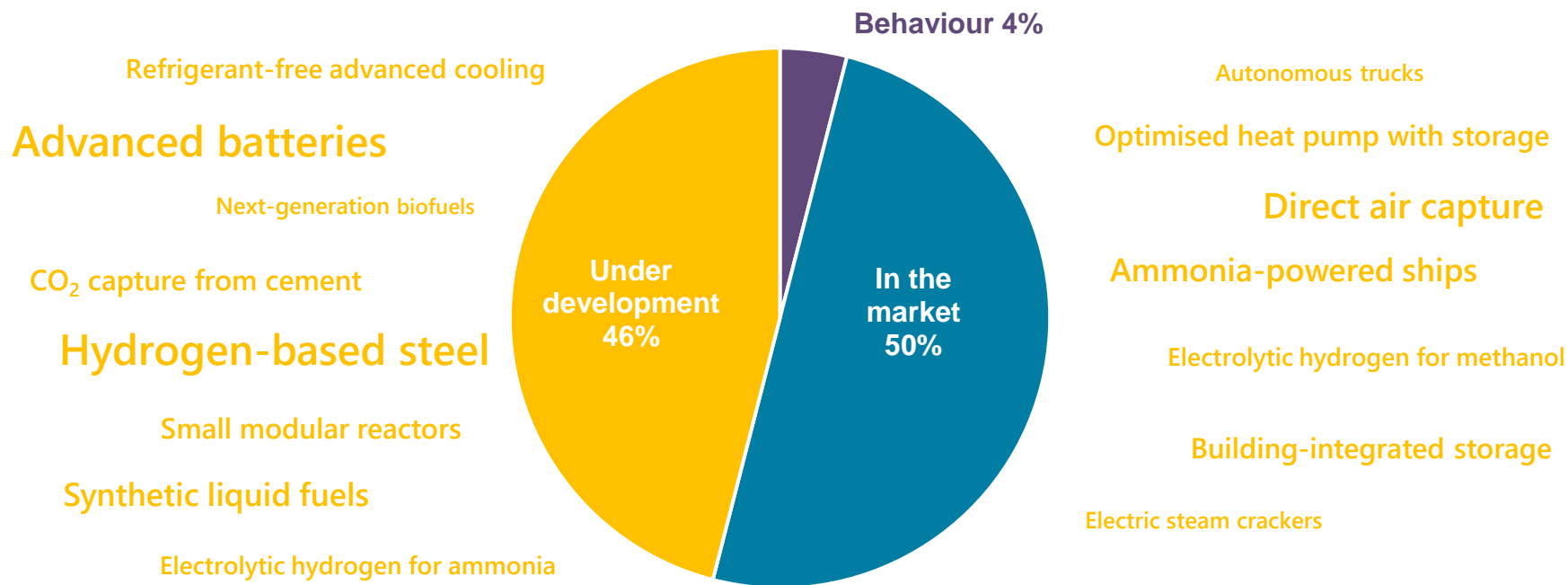


Industry-Academia-Government collaboration in energy sector

Dr Ilkka Hannula, Senior Energy Analyst, Renewable Energy Division

17 October 2022

CO₂ savings by technology maturity in 2050, NZE scenario

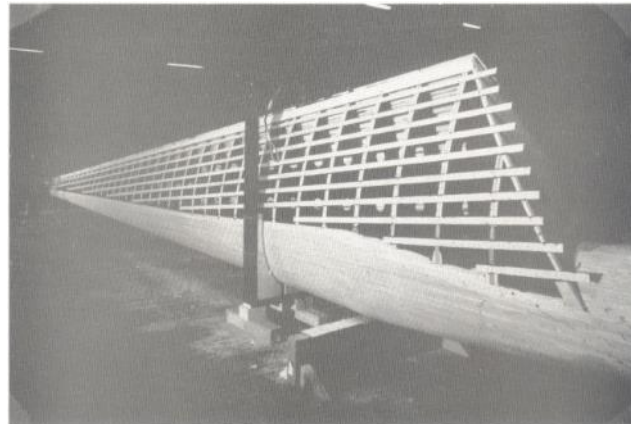
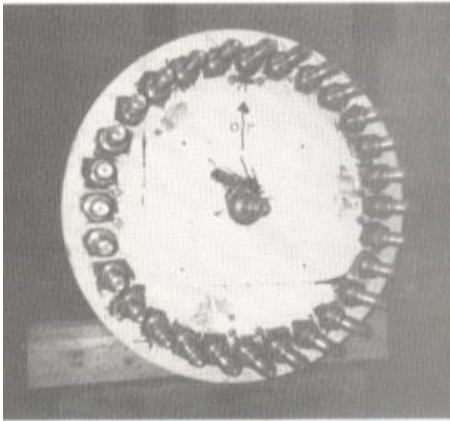


Unlocking the next generation of low-carbon technologies requires more clean energy R&D and \$90 billion in demonstrations by 2030; without greater international co-operation, global CO₂ will not fall to net-zero by 2050.

IEA Technology Collaboration Programme

1975: IEA founders created a framework for sharing resources and accelerating energy technology RDD&D

- The IEA Implementing Agreements (the name 'Implementing Agreement' was changed in 2015 to Technology Collaboration Programme, or 'TCP' to better reflect their activities)
- Established by 2 or more OECD countries to carry out collaborative activities
- Flexible, cost-effective mechanism



Testing Danish wind turbines in the 1980s

39 TCPs operating today

■ Cross-cutting activities (2)

- Energy Technology Systems Analysis (modelling)
- Equality in Energy Transitions

■ Buildings (6)

- Buildings and Communities
- District Heating & Cooling
- Decarbonization of Cities & Communities
- Energy Efficient End-use Equipment
- Energy Storage
- Heat Pumping Technologies

■ Industry (1)

- Industrial Technologies & Systems

■ Electricity (3)

- Smart Grids
- High-Temperature Superconductivity
- User-Centred Energy Systems

■ Transport (5)

- Advanced Fuel Cells
- Advanced Motor Fuels
- Advanced Materials for Transportation
- Clean and Efficient Combustion
- Hybrid & Electric Vehicles

■ Fusion power (8)

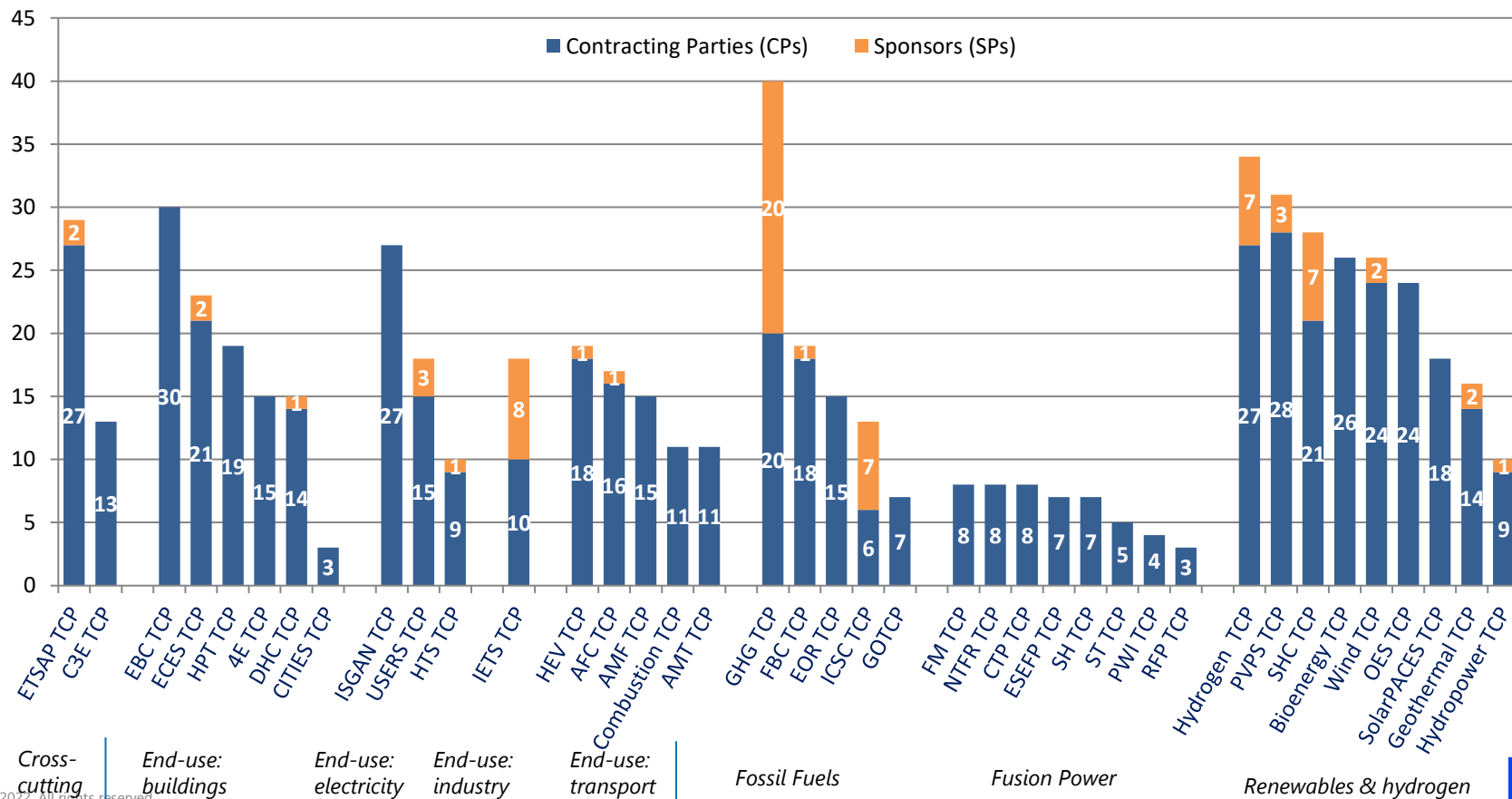
■ Fossil energy (5)

- Greenhouse Gas R&D
- Enhanced Oil Recovery
- Fluidised Bed Conversion
- Sustainable Carbon
- Gas and Oil

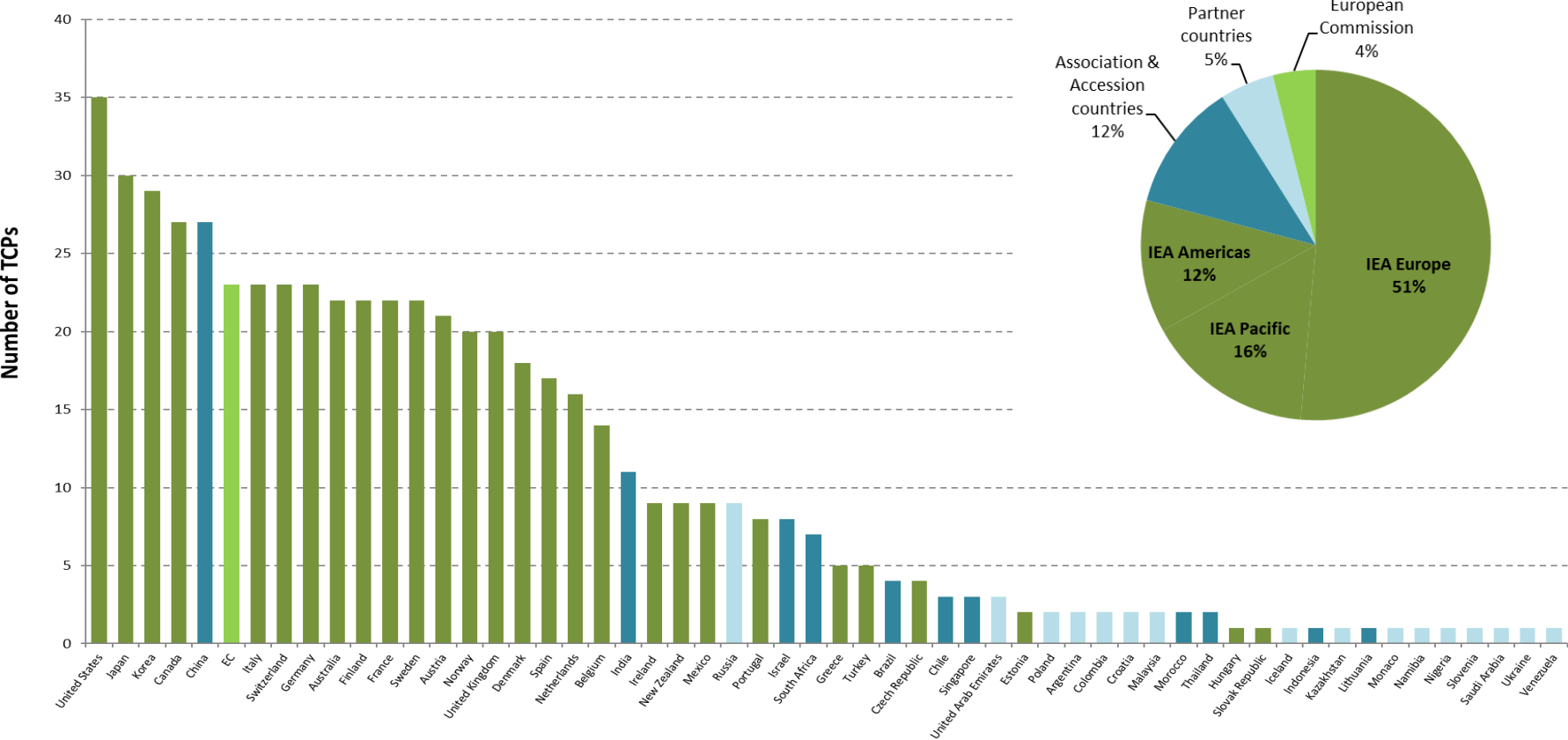
■ Renewable energy (9)

- Bioenergy
- Hydrogen
- Hydropower
- Concentrated Solar Power
- Ocean Energy
- Geothermal
- Photovoltaic Power Systems
- Solar Heating & Cooling
- Wind

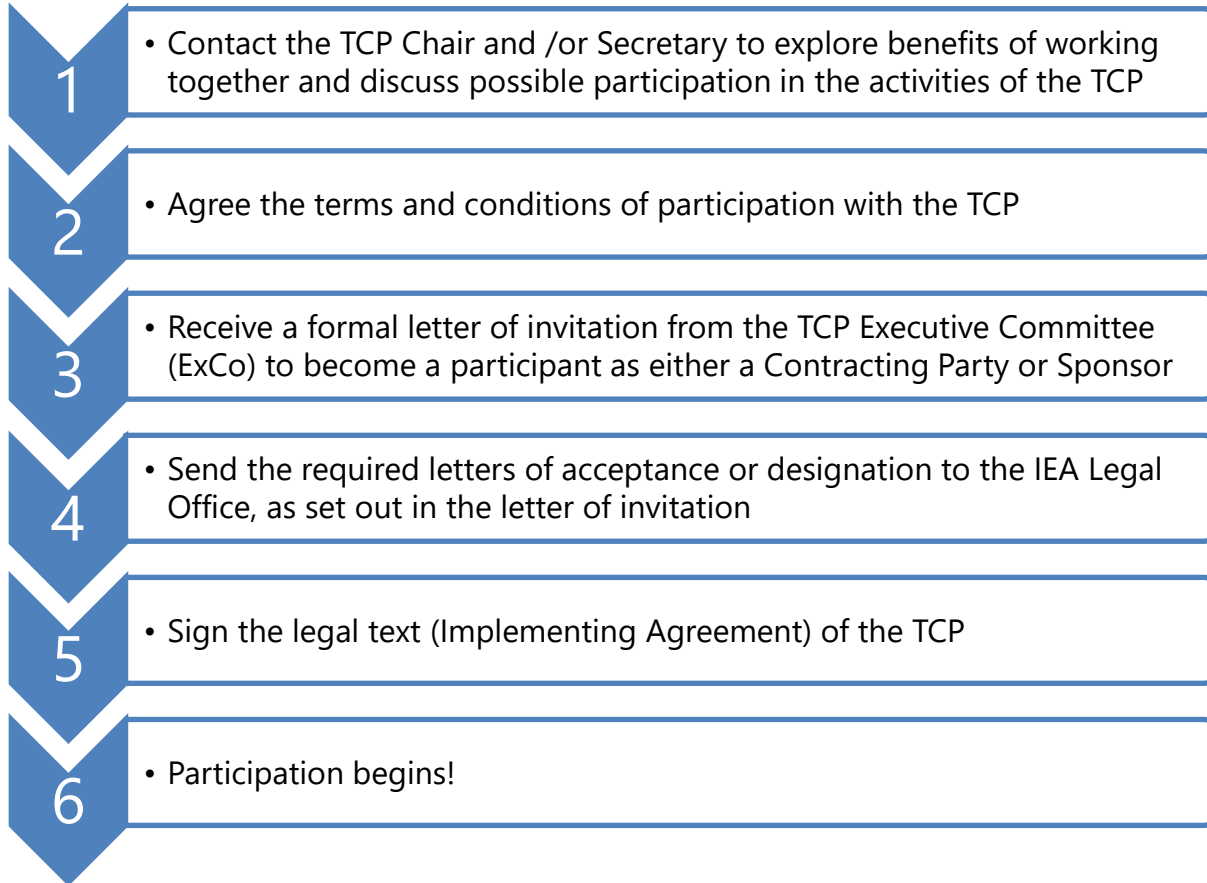
Overview of participation at 31 March 2022



Global participation in TCPs by country at 30 November 2021



How to join a TCP



TCP Handbooks: Expanding the global reach of the TCPs

- Based on **interviews** with TCPs
- Target audiences include:
 - TCPs and other multilateral initiatives e.g. MI, CEM.
 - Decision makers in prospective member country governments.
- The handbook includes:
 - A guide to what TCPs are, how they work in practice, and what the **key benefits of TCP membership** are.
 - A **compilation of TCP good practice** around three themes to help expand the global reach of the TCPs.

iea

Expanding the Global Reach of the TCPs

A handbook for TCPs and other clean energy initiatives

International Energy Agency



TCP Handbooks: Enhancing multilateral collaboration

- Based on **interviews** with TCPs, MI, CEM, and other multilateral initiatives
- Target audiences include:
 - Multilateral initiatives e.g. TCPs, MI, CEM.
 - Decision makers in member country governments.
 - Proponents of new initiatives.
- The handbook includes:
 - Six **recommendations for action** to enhance collaboration.
 - Links to **templates** that initiatives can use to formalise cooperation.

iea

Enhancing Collaboration between Multilateral Initiatives

A handbook for TCPs and other
clean energy initiatives



International
Energy Agency

Successful collaborations often share four core characteristics

- **Strong common interest in the specific topic across key stakeholders.** Collaboration is more likely with a clear goal and strong aim to make difference.
- **A “champion” or core group to shepherd an idea through the development stage.** It can be useful to have a core group of actor(s) that is truly committed to developing the collaboration and willing to carry out the administrative tasks.
- **Availability of resources for collaborative projects.** Excellent ideas for collaboration across platforms are likely to falter without sufficient resources.
- **Processes or incentives for collaboration.** Initiatives that have formalised procedures for collaboration are often more successful at identifying opportunities and following them up.

Key recommendations for decision makers

1. Integrate collaboration into decision-making processes.
2. Create meaningful opportunities for exchanges between initiatives.
3. Adopt flexible approaches to project development.
4. Streamline legal mechanisms used for collaboration.
5. Consider the existing landscape before developing new initiatives.
6. Adopt a whole-of-government approach to international collaboration.

iea