



Welcome and Introduction to the IEA Networking event Switzerland: Innovative & decentralized solutions supporting the Energy Strategy 2050



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Vice-Chair of the IEA's Standing Group on Long-Term Co-operation (SLT)

IEA Networking Day, 30 October 2018, Hotel Beaulac, Neuchâtel

Benefits of being part of the IEA ETN

IEA Energy Technology Network



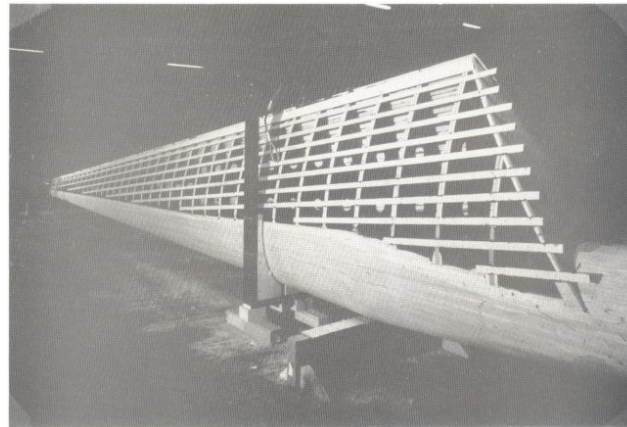
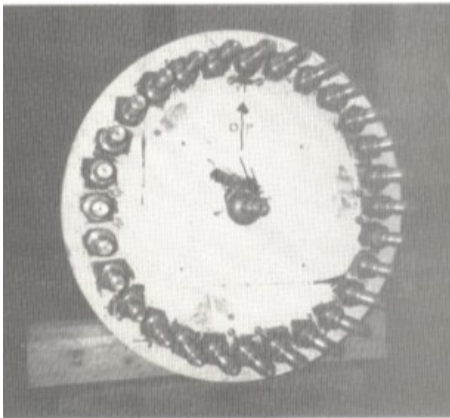
- share experiences
- learn from others
- develop good practices and contribute to implementing Switzerland's Energy Strategy

Acknowledgement: **we thank the IEA (Simone Landolina, Diana Louis and Carrie Pottinger)** for many of the slides



Background

- **1975: IEA founders created a framework for sharing resources and accelerating technology RDD&D**
 - The IEA Implementing Agreements (since 2015 Technology Collaboration Programs TCPs)
 - Established by 2 or more OECD countries to carry out collaborative activities
 - Flexible, cost-effective mechanism



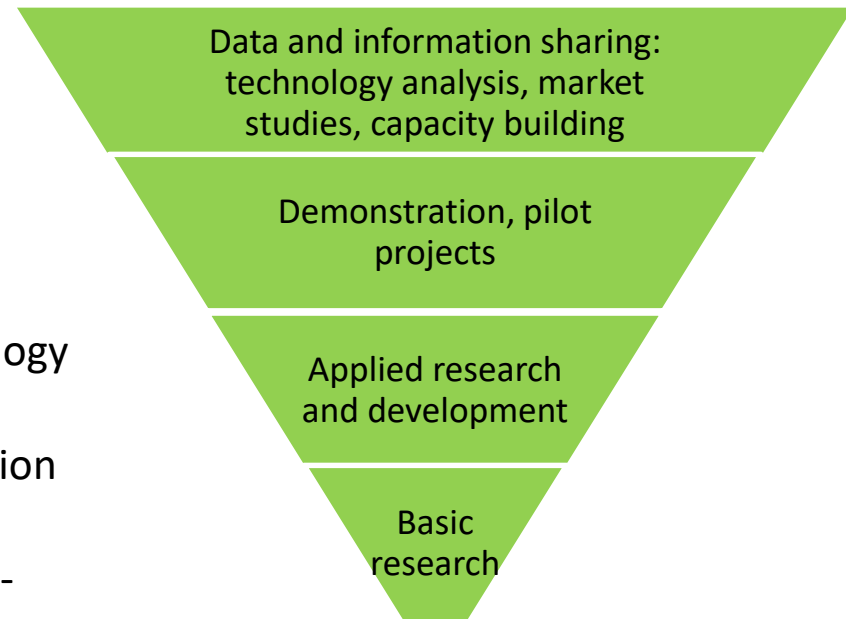
Testing Danish wind turbines in the 1980s

TCPs are autonomous, international groups of experts that enable governments and industries from around the world to lead programmes and projects on a wide range of energy technologies and related issues.



2015: new brand Technology Collaboration Programmes (TCPs)

- Created or discontinued according to energy policy priorities, challenges, and opportunities
- More than 80 TCPs created, currently 38 TCPs operative:
 - Cross-cutting activities (2)
 - Energy efficiency (14)
 - Fossil fuels (5)
 - Fusion power (8)
 - Renewable energy and hydrogen (9)
- The vast majority of TCPs carry out energy technology analysis and dissemination activities
- Many TCPs carry out applied research and innovation activities (TRL 6-9)
- Some TCPs carry out fundamental research on pre-commercial technologies (TRL 1-5)



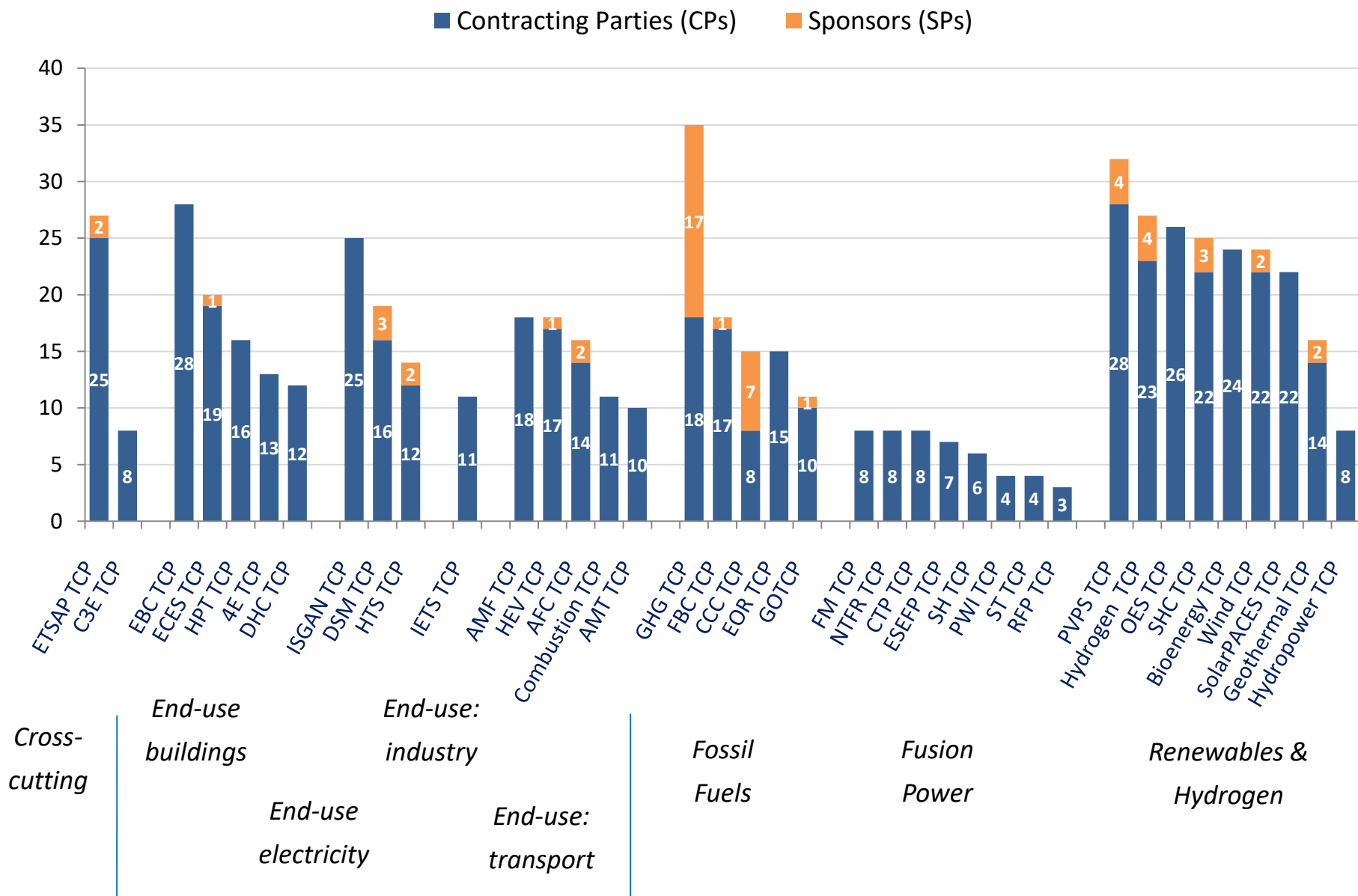


TCP membership and programme of work

- TCP participants are signatories (or entities designated by the signatory) of the legal text: **the Implementing Agreement and IEA Framework**
 - **Contracting Parties**: TCP participants that represent governments of IEA member or non-member countries, the European Commission or intergovernmental organizations
 - **Sponsors**: TCP participants that are not designated by a government. Sponsors include: *GE, BP, Chevron, EnBW, ENEL, ExxonMobil, Petrobras, RWE, Shell, Statoil, Total...*
- Each TCP is autonomous from the IEA, and has a **Programme of Work** overseen or delivered by its participants under **Annexes** (or **Tasks**) - the terms are used interchangeably by different TCPs.

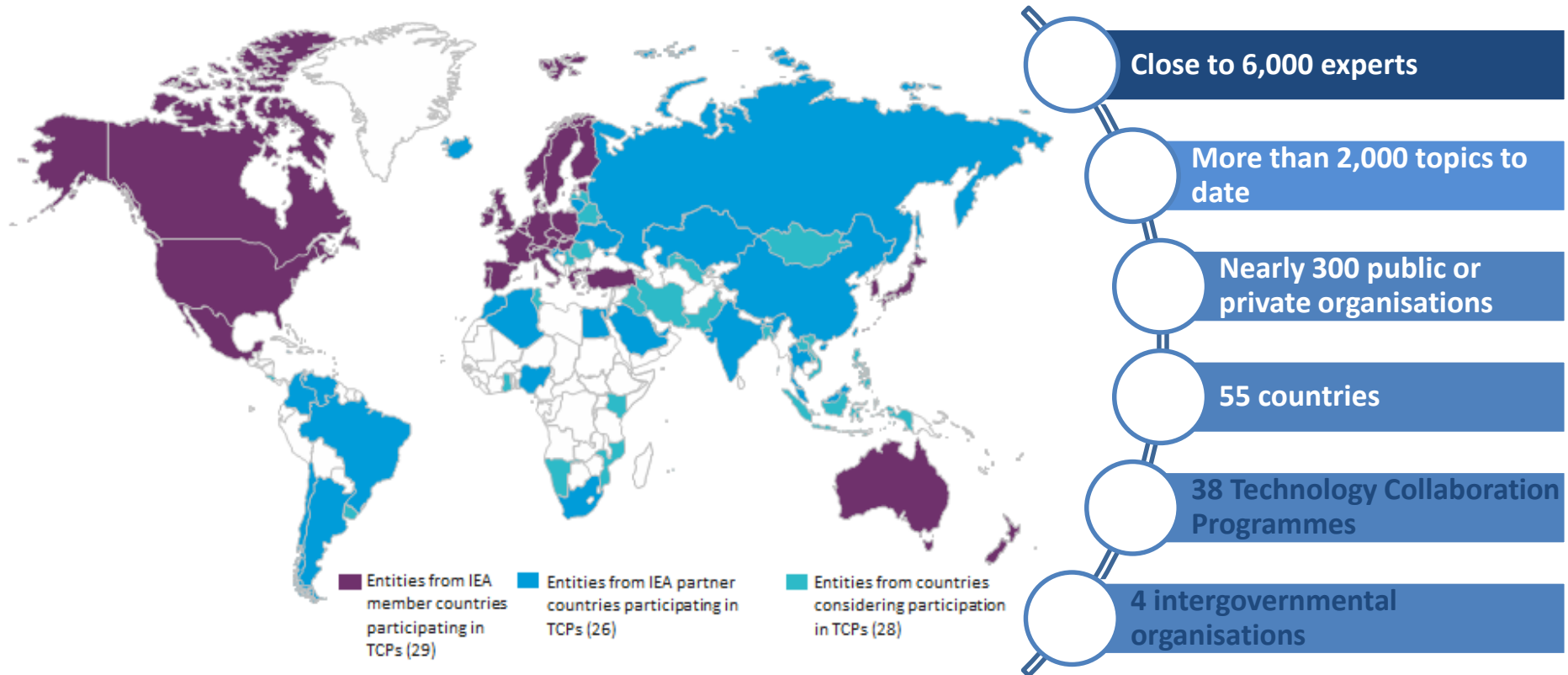


Overview of participation at 30 September 2018





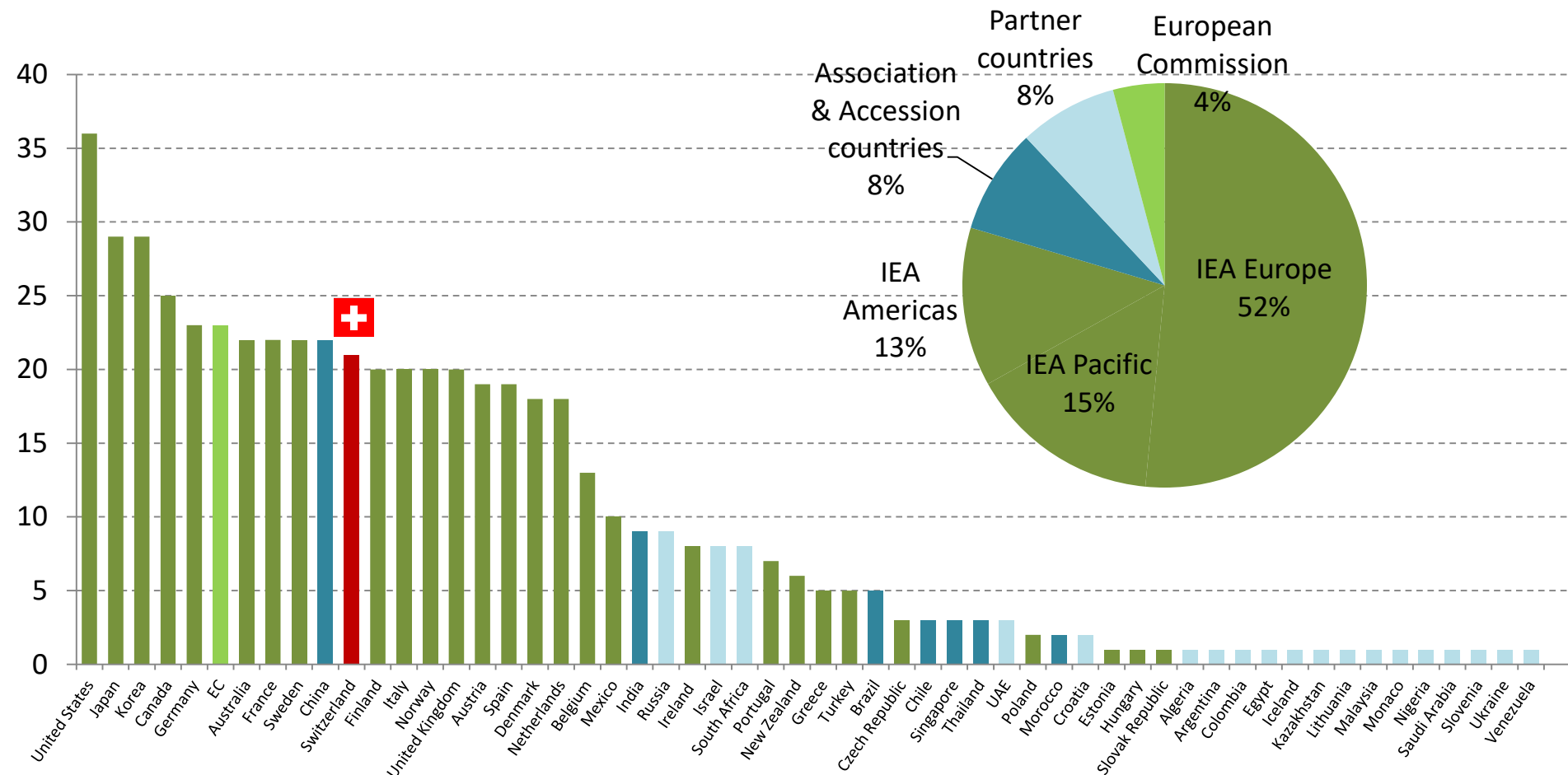
Global Participation



The above map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.



Global participation in TCPs by country (at 30 September 2018)



Top 3 IEA member countries: United States, Japan, Korea

Top 3 IEA partner countries: China, India, Russia

If you find the right denominator, Switzerland, too, would be in a Top 3 list



Governance

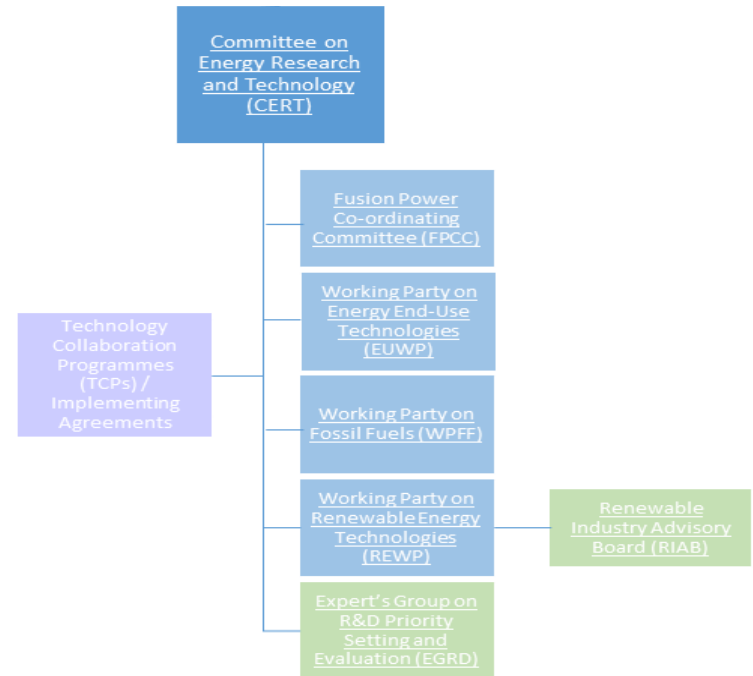
- Each TCP is governed by an **Executive Committee (ExCo)** comprised of representatives designated by each participant, and led by an elected **Chair** and **Vice Chair(s)**
- TCP activities are overseen by the **IEA Working Parties** and the **Committee on Energy Research and Technology (CERT)**
- While autonomous from the IEA, TCPs are part of the **IEA Energy Technology Network**
Please use the brand and the logo – they are valuable!
- The **IEA Secretariat** provides guidance, advice and support: legal procedures, IEA analytical work, interlinkages with other initiatives.
- Each TCP is assigned an **IEA Desk Officer**, who serves as the IEA's primary contact for the TCP. The Desk Officer may provide advice on establishing new Tasks as well as guidance to maximise synergies with IEA work.





The IEA Family

IEA GOVERNING BOARD





Relationship between energy technology and energy policy

- **Technology R&D supports policy:**
 - Focus development efforts on areas with the highest potential contribution to priority policy objectives
 - Provide key information on technology impact to enable successful policy developments and implementation
- **Policy support technology R&D:**
 - Channel resources to achieve R&D objectives
 - Address non-technical barriers to technology deployment
- **Communication between policy and technical experts is key**
 - Science can highlight policy opportunities and risks
 - Policy direction must prioritize R&D efforts



Our international energy (research) policy and the IEA

The Swiss Federal Office of Energy engages in energy research relevant to the Swiss Federal Department of the Environment, Transport, Energy and Communication (DETEC).

Results have an impact on the work programs and goals of the Swiss Federal Office of Energy:

- need to be policy-relevant results (and *not* policy-prescriptive)
- and may cover the entire spectrum from fundamental to market-oriented research development, as well as piloting and demonstration of energy technology
- Key are the Technology Collaboration Programs (TCPs)

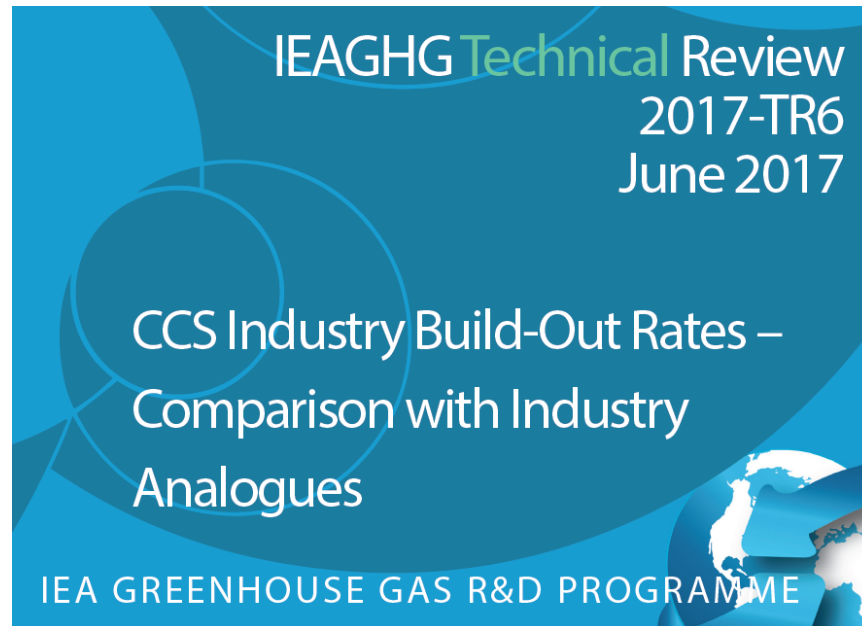
Switzerland is campaigning in favor of a global energy policy that is co-determined to a significant extent by multilateral bodies such as the International Energy Agency (IEA)



Technology Collaboration Programmes (TCPs)	Swiss entity signatories (CP or SP)		
	Swiss Federal Office of Energy	Paul Scherrer Institute	TOTAL
Renewable Energy and Hydrogen	7	–	7
Bioenergy TCP	CP		1
Concentrated Solar Power (SolarPACES TCP)	CP		1
Geothermal Energy (Geothermal TCP)	CP		1
Hydrogen TCP	CP		1
Photovoltaic Power Systems (PVPS TCP)	CP		1
Solar Heating and Cooling (SHC TCP)	CP		1
Wind TCP	CP		1
End-use: Buildings	4	–	4
Energy Efficient End-Use Equipment (4ETCP)	CP		1
Buildings and Communities (EBC TCP)	CP		1
Energy Storage (ECES TCP)	CP		1
Heat Pumping Technologies (HPT TCP)	CP		1
End-use: Transport	4	–	4
Advanced Fuel Cells (AFC TCP)	CP		1
Advanced Motor Fuels (AMF TCP)	CP		1
Combustion TCP	CP		1
Hybrid and Electric Vehicles (HEV TCP)	CP		1
End-use: Electricity	3	–	3
Demand-Side Management (DSM TCP)	CP		1
High-Temperature Superconductivity (HTS TCP)	CP		1
Smart Grids (ISGAN TCP)	CP		1
Fossil Fuels	2	–	2
Gas and Oil (GOTCP)	CP		1
Greenhouse Gas R&D Programme (GHG TCP)	CP		1
Cross-cutting	–	1	1
Energy Technology Systems Analysis (ETSAP TCP)		CP	1



TCPs produce policy relevant output



The CCS industry requires rapid and sustained build-out in order to deliver its contribution to climate goals. While this is a substantial task in terms of physical supply chain growth, analogies from related industry sectors show that comparable build-out rates have been realised under sufficiently strong incentives, regulation and market pull. Although it is recognised that the analogies have limitations, it seems tenable technically that anticipated CCS build-out rates can be realised in a supporting environment, with sustained incentives.



Swiss investment in IEA ETN

<i>Member fees TCPs</i>	<i>480'000 CHF</i>
<i>Delegates, alternates, operating agents*</i>	<i>1'370'000 CHF</i>
<i>SFOE cost (HR, travel)</i>	<i>390'000 CHF</i>
<i>Various other</i>	<i>300'000 CHF</i>
<i>TOTAL (2017)</i>	<i>2'540'000 CHF</i>

(*2014: 1.1 mln CHF)



Thanks for your attention!



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

BFE Bundesamt für Energie

For more information on

CERT – ask Rolf Schmitz

EUWP – ask Michael Moser

EEWP – ask Christian Bühlmann

RWEP & WPEF – ask Gunter Siddiqi