Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Energie BFE
Office fédéral de l'énergie OFEN
Ufficio federale dell'energia UFE
Swiss Federal Office of Energy SFOE

iea Energy Technology Network

IEA/CERT:
Policies for Future Energy Systems

Contribution of Science and Technology

by Peter H. Cunz
(Chair CERT)

IEA ECBCS Annex49 / COSTeXergy Conference, Munich 19 Oct. 2010

CERT – a major player within the IEA

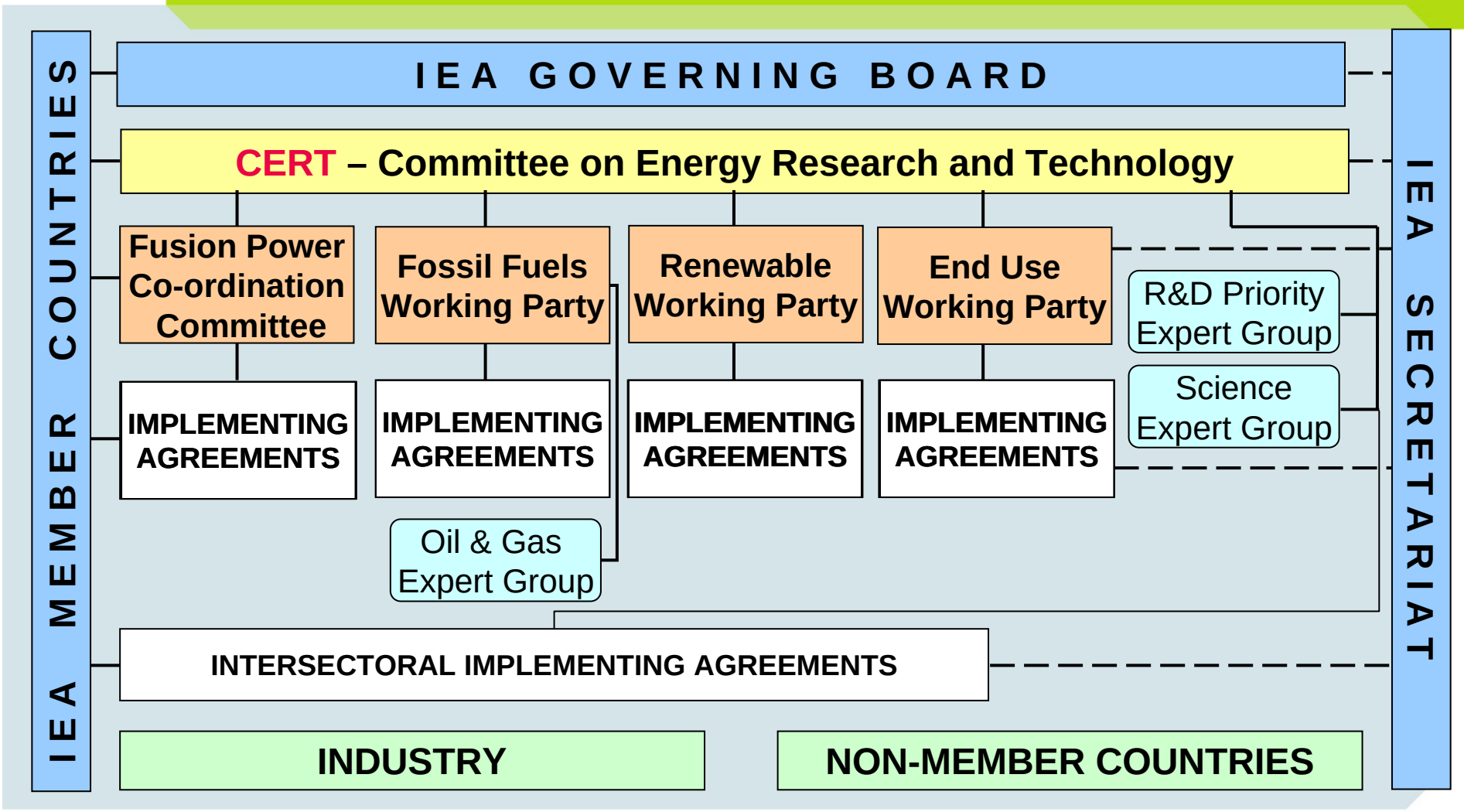
The Standing Committee on Energy Research and Technology CERT

- Established in Nov. 1975
- Revised Mandate in Jan. 1997

Actual Strategy 2007-2011

- Vision: “Technology will have a decisive impact” ...
- Mission: “Optimising international collaborative RD&D and deployment” ...
- 5 Objectives: Focus on leadership, clean energy, communication to policy makers, liaison within the IEA, and collaboration with non-member countries.

The CERT as an organisation



IEA Collaborative RD&D and Dissemination
➔ *Implementing Agreements (IA)*

- Buildings (Retrofit, Heating/Cooling, Space Planning)
- Electric Appliances
- Transport (Motor Fuel, Drive Train, Vehicles, Behaviour)
- Industrial Processes
- Efficiency in Fossil Fuel Production and Power Generation
- (Oil, Gas, Coal, CCS)
- Renewable Energies
- Nuclear Fusion
- Electric Grids (Intelligence, Storage, DSM)
- Modelling (MARKAL)
- Information Centres, R&D Data

Considerations for CERT's Strategy 2012-16

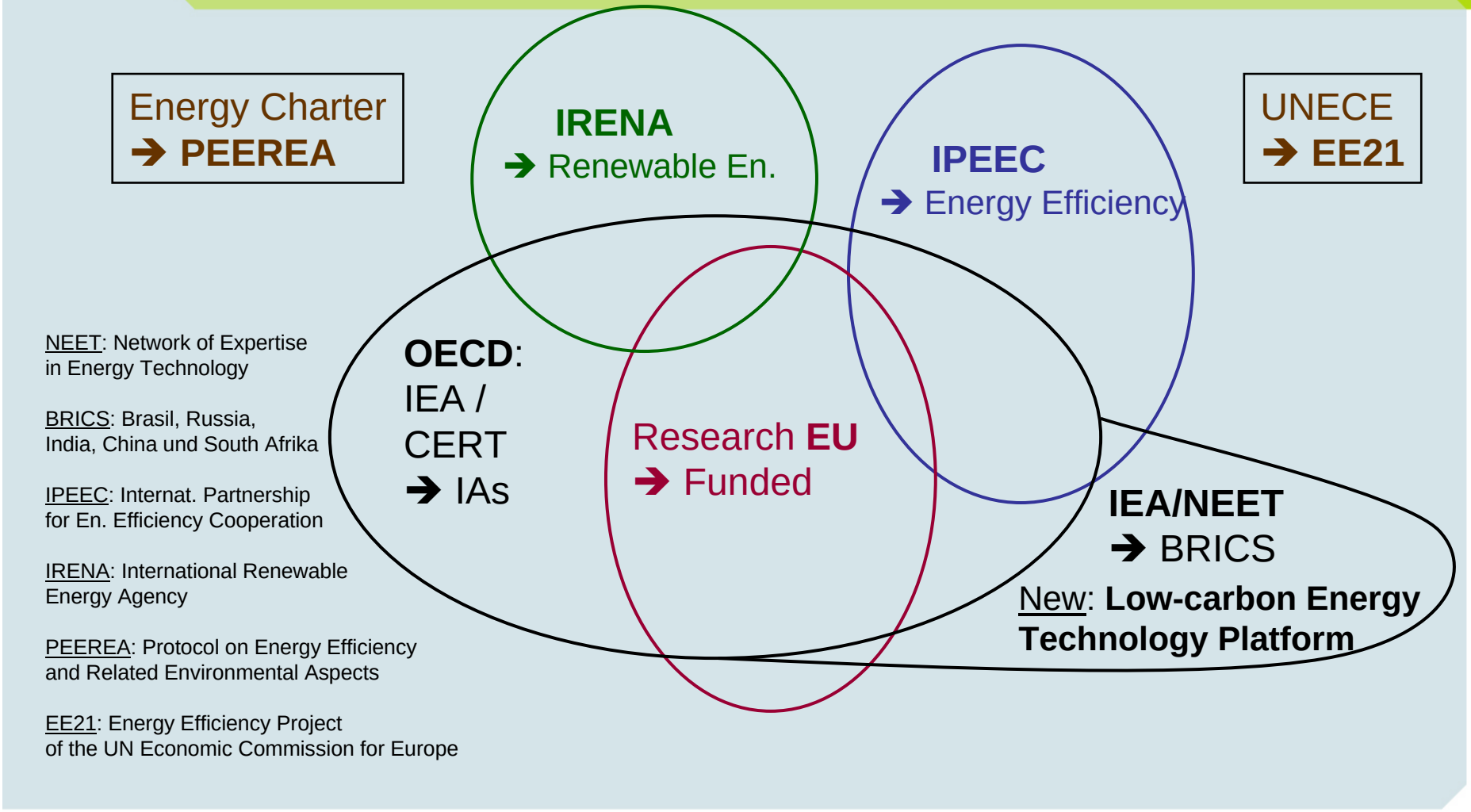
- The world in which we act
- Changes that occurred in the last 5 years
- Changes (if any) in spirit and style (GB, Standing Committees and Secretariat)
- CERT acts on behalf of the GB, but likewise it acts as ambassador for the autonomous Implementing Agreements and Expert Groups
- The roles and strategies of the Working Parties and Expert Groups

➔ And surely there is more to consider

A strongly changed environment

- Non-OECD countries account for 87% of the increase in global demand between 2006 & 2030, driven largely by China & India.
- The shuttered world economy makes new investments difficult. Immediate needs for the BLUE Map Scenario (minus 50% CO2-emissions by 2050) are over 10 Trill $.
- Instead of rigorous funding decisions, the G8, G20 and IEA Ministerial Meeting launch new initiatives with unclear budget commitments.
- New initiatives such as IPEEC and IRENA compete with the IEA for funds and human resources. ➔ new: ILCETP

International players compete for resources



NEET: Network of Expertise in Energy Technology

BRICS: Brasil, Russia, India, China und South Afrika

IPEEC: Internat. Partnership for En. Efficiency Cooperation

IRENA: International Renewable Energy Agency

PEEREA: Protocol on Energy Efficiency and Related Environmental Aspects

EE21: Energy Efficiency Project of the UN Economic Commission for Europe

WEO, ETP and Roadmaps: strong publications

We know that each scenario is wrong. But the comparison of scenarios offers some insight." (GianCarlos Tosato, ETSAP)

World Energy Outlook (WEO)

- The classical best-seller of the IEA

Energy Technology Perspectives (ETP)

- First issue 2006 with
- Joins now the WEO as best-seller

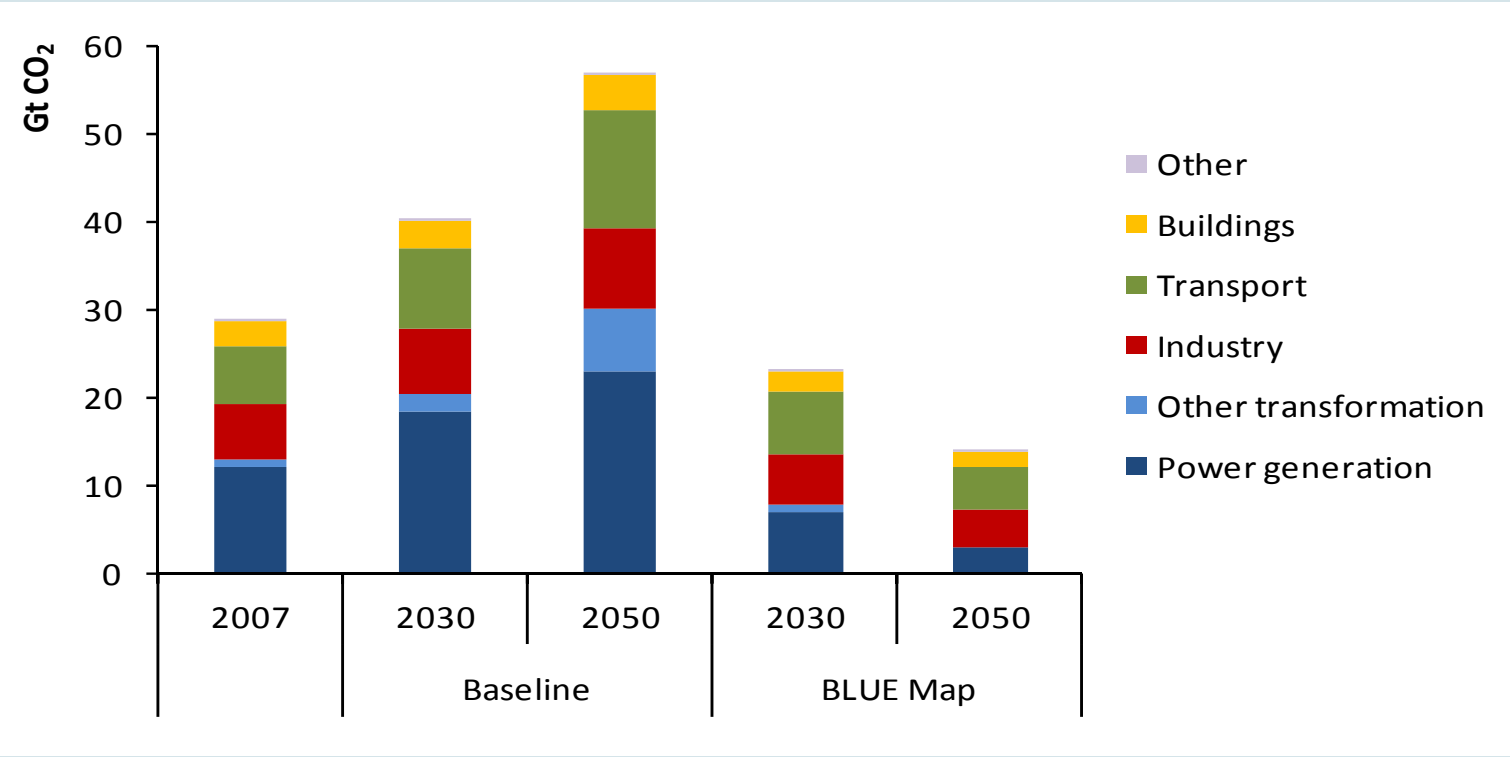
Roadmaps

- Initiated by G8 in 2008 (Hokkaido, Toyako)

ETP 2010: The context

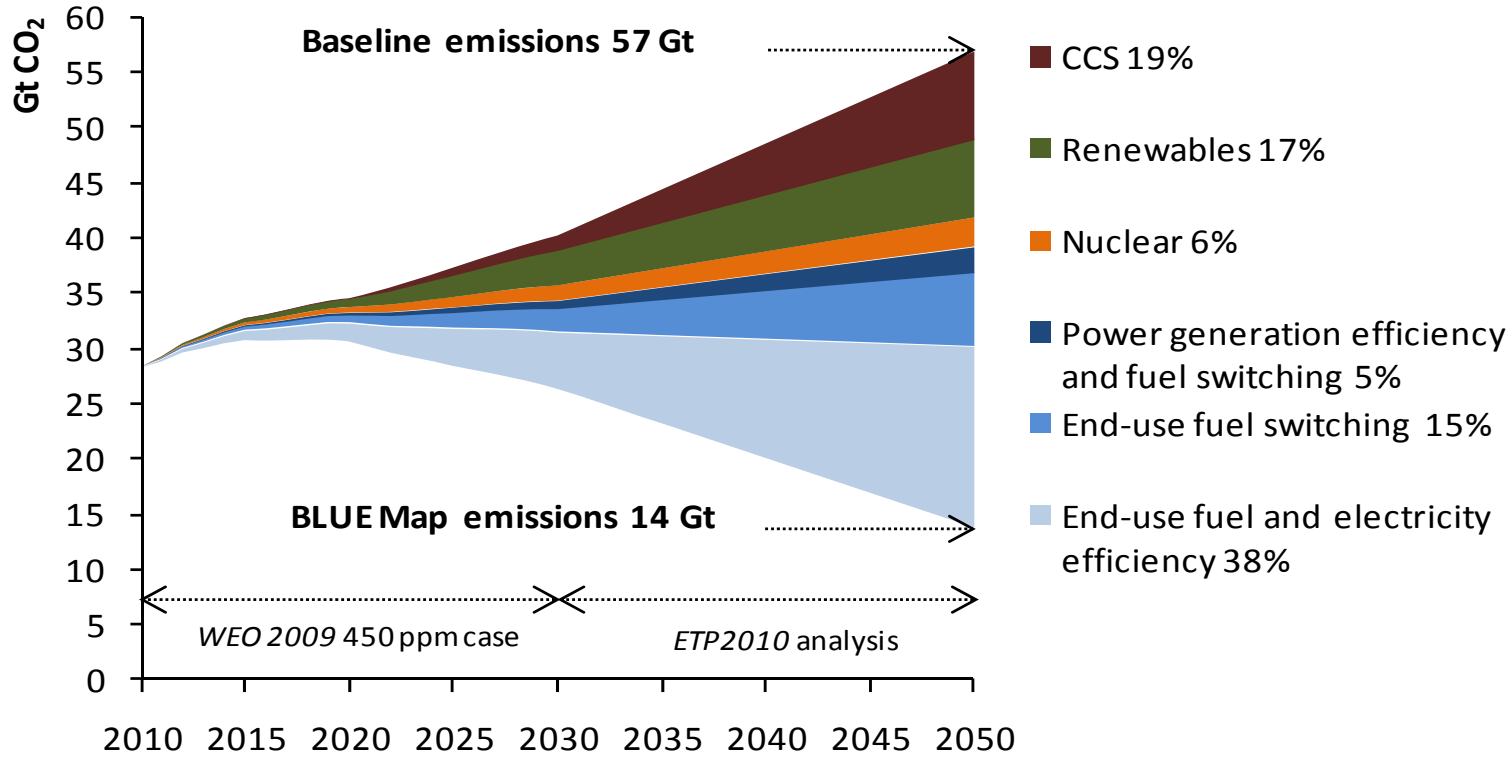
- Need a global energy technology revolution to meet climate change and energy security challenges.
- Some early signs of progress, but much more needs to be done.
  - ➢ Which technologies can play a role?
  - ➢ What are the costs and benefits?
  - ➢ What policies are needed?

ETP 2010: Global energy-related CO_2 emissions in the Baseline and BLUE Map scenarios



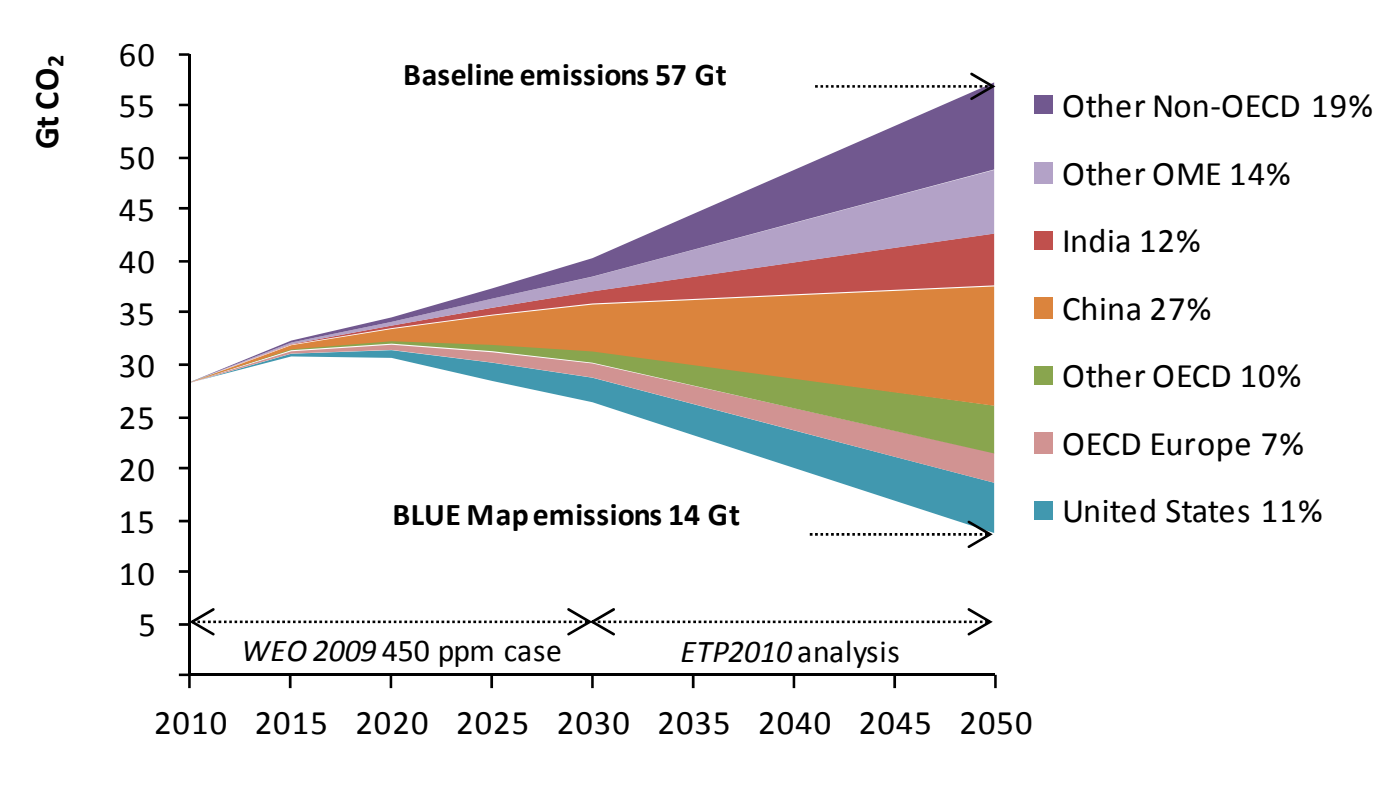
Global CO_2 emissions double in the Baseline, but in the BLUE Map scenario abatement across all sectors reduces emissions to half 2005 levels by 2050.

ETP 2010: Key technologies for reducing global CO_2 emissions



A wide range of technologies will be necessary to reduce energy-related CO_2 emissions substantially.

ETP 2010: World energy-related CO_2 emissions abatement by region

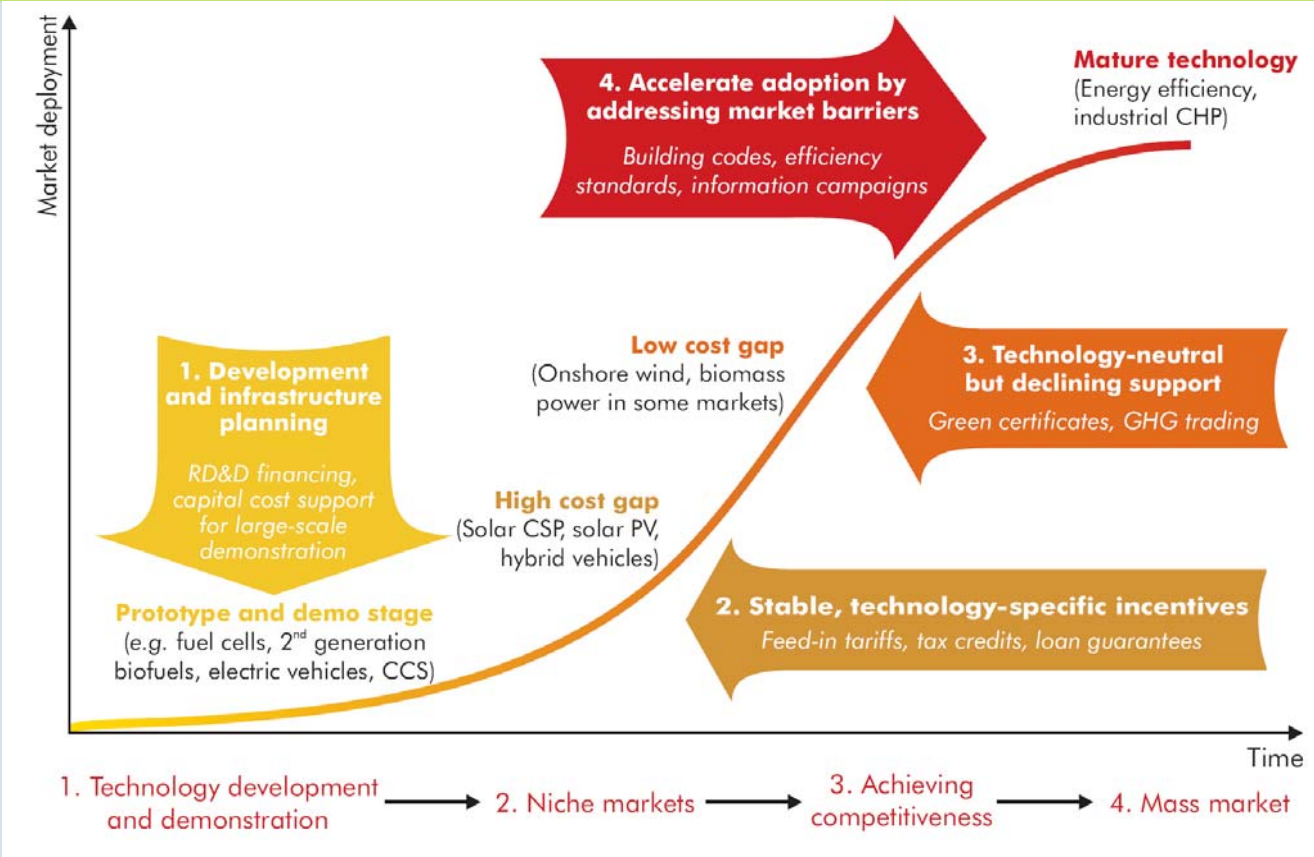


In the BLUE Map scenario, most of the reductions in energy-related CO_2 emissions are in non-OECD countries.

ETP 2010: Technology policies

- Public RD&D spending must increase 2 to 5 times current level
- Governments need to implement best practices in energy RD&D
- A number of enabling actions are also needed:
  - Private sector leadership
  - Greater government outreach and planning on infrastructure needs
  - Expanded human capacity with more effective international collaboration
- Carbon pricing is important, but should be complemented by other policies
- Policies must be tailored to the technology's stage of development

ETP 2010: Policies for supporting low-carbon technologies



Supporting policies need to be appropriately tailored to the stage(s) of technological development.

WEO, ETP and Roadmaps: basis for decisions

Scenarios and roadmaps show us problems and needs.

But: how to stay on track?

CERT-meeting 3./4. Nov 2010 will discuss

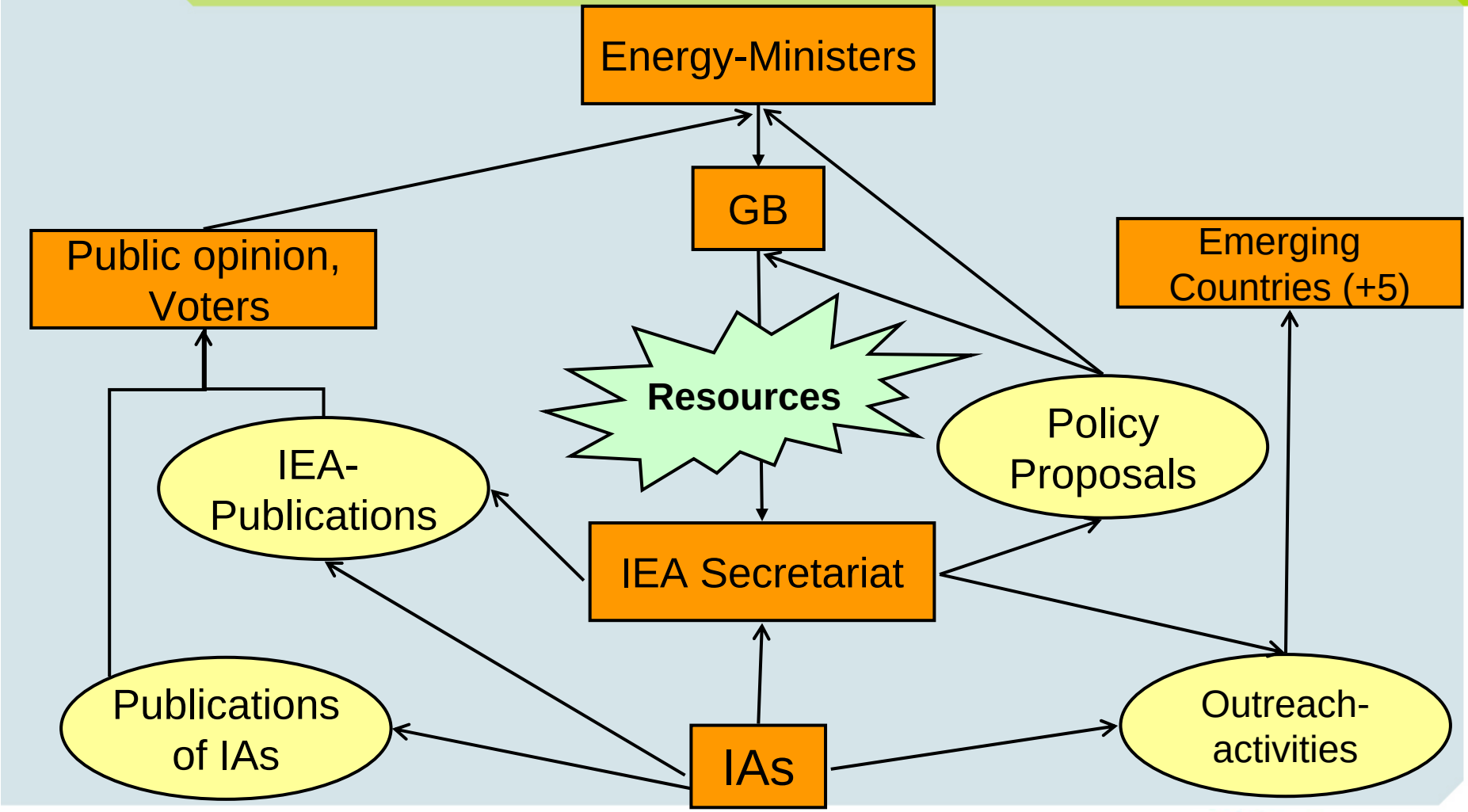
- The use of Roadmaps for policy making
- Are we doing enough for the implementation of Roadmaps?

Decisions are easier if popular

- Money is tight
- Politicians want to be re-elected

How to create popularity for our issues?

Exertion of influence



The importance of science

Wealth decreases if you keep on spending it.
Knowledge increases the more you make use of it.

- Policy is strongly limited by country-borders, not so science
- Innovative policy is dependent on technological progress and input from science

We have to foster and strengthen the scientific community by

- Stronger international RD&D collaboration
- Stronger visibility and outreach of scientific results
- More funds for demonstration and pilot plants

Meetings of Scientists and Engineers foster the sense of solidarity in a inevitably increasing inter-dependency.
To make this possible is the main task of the CERT.

Much information can be found in the Web

- Home: www.iea.org
- Technology: http://www.iea.org/techno/index.asp
- By Topics: http://www.iea.org/subjectqueries/index.asp
- Input for G8 und G20: http://www.iea.org/G8/index.asp
- IEA Open Bulletin: http://mailing.iea.org/