

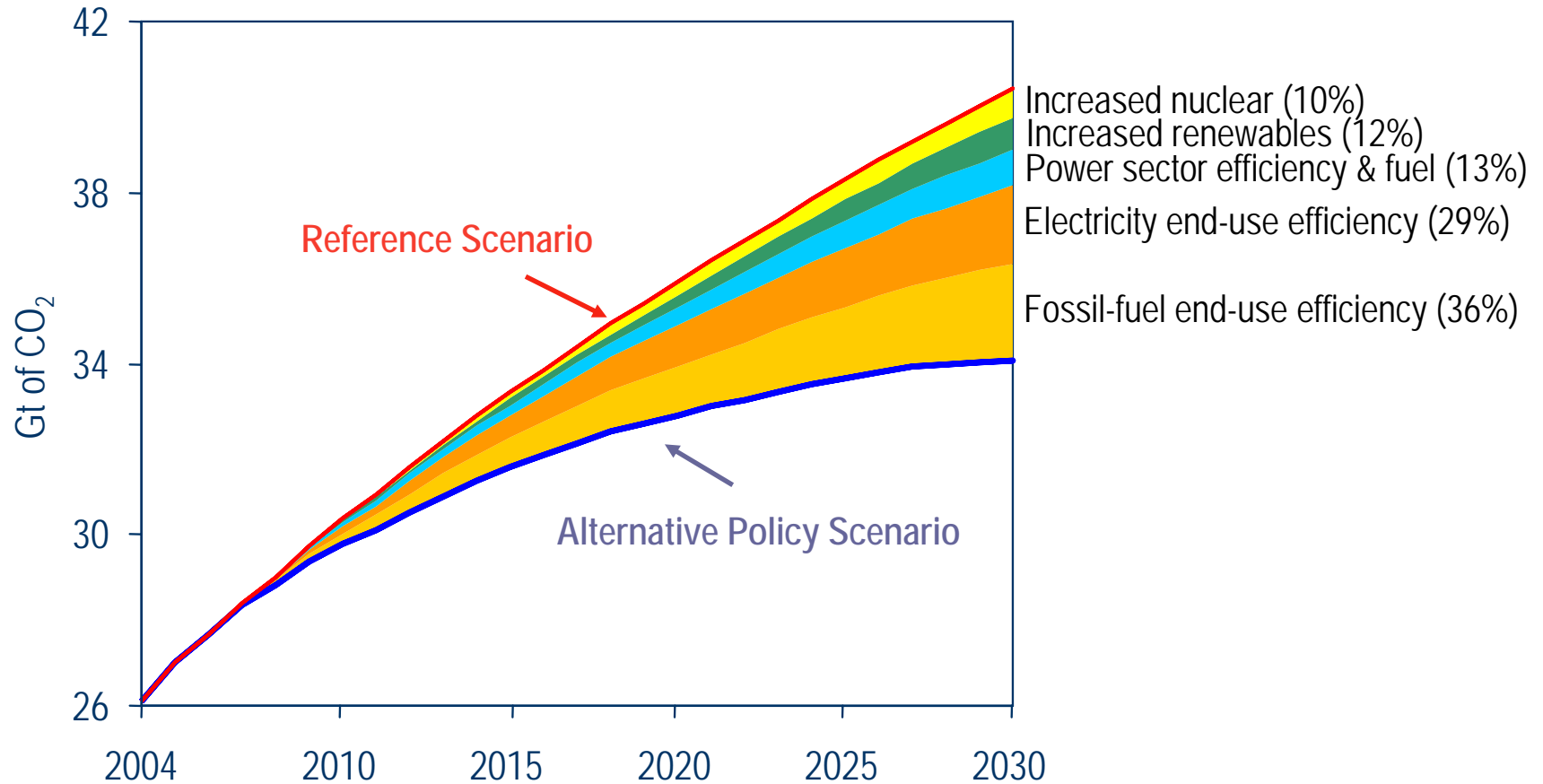
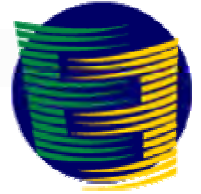


International Cooperation on Energy Technology

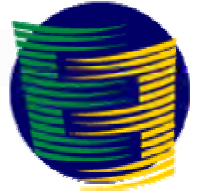
By Ralf Dickel
Energy Charter Secretariat

**Expert Meeting on Bio Energy Technology
Chisinau, Moldova 10 May 2007**

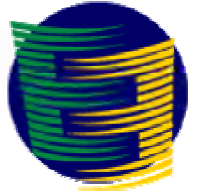
Global Savings in CO₂ Emissions



Addressing GHG emissions: Role of Governments



- Industry will cover development, when commercial
- Need for government involvement in technology development, based on:
 - externalities
 - risks and time needed to develop new technologies
- Possible Government Role:
 - Setting frame to
 - internalize externalities (standards, Pigou taxes, emission trading)
 - Equalize economic efficiency and energy efficiency
 - Financial involvement for R&D for new technology (renewables, nuclear)



Addressing GHG emissions: International Sharing of Technology

Commercial technology

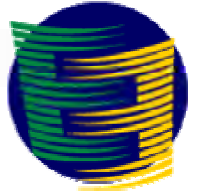
(e.g. energy efficiency, wind power, classic nuclear):

- Transfer of Technology
- Sharing of policy for deployment of technology

Not yet commercial technology

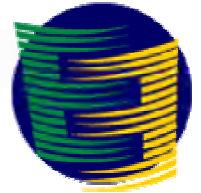
with a need for government involvement (e.g. : most renewables, bio energy technologies, fusion):

- Need for international cooperation for global problems exceeding reach of national Governments

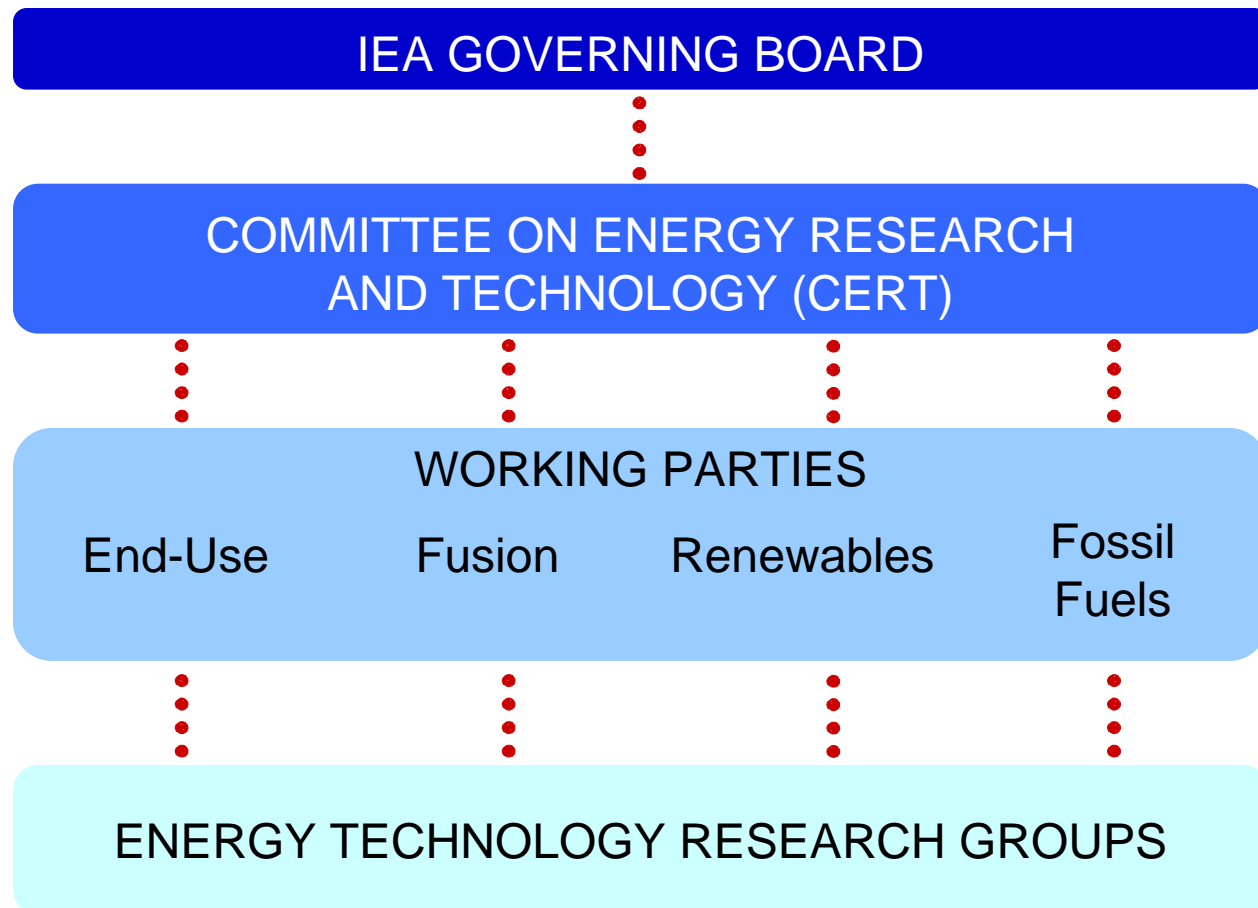


International Cooperation: Main existing fora

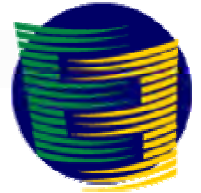
- **UNFCCC – sets framework, translated by countries into domestic policies**
- **IEA –Implementing Agreements: open to all, main participants OECD countries**
- **Carbon Sequestration Leadership Forum**



IEA: Energy Technology Network

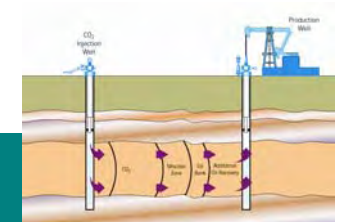


IEA Research Groups

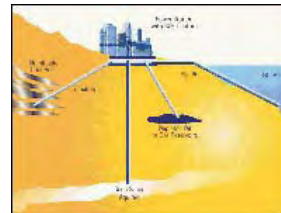


Transport

- Advanced Fuel Cells
- Advanced Materials for Transportation
- Advanced Motor Fuels
- Hybrid and Electric Vehicles
- Buildings and Community Systems
- Demand-Side Management
- District Heating and Cooling
- Energy Storage
- Heat Pumping Technologies
- Emissions Reduction in Combustion
- High-Temperature Superconductivity
- Industrial Energy-Related Technologies



New!!
Electricity Network Analysis and R&D



Fossil Fuels

- Clean Coal Sciences
- Enhanced Oil Recovery
- Fluidized Bed Conversion
- IEA Clean Coal Centre
- IEA Greenhouse Gas RD Programme
- Multiphase Flow Sciences



Renewable Energy Technologies

Bioenergy

Geothermal

Hydrogen

Hydropower

Ocean Energy Systems

Photovoltaic Power Systems

Renewable Energy Technology
Deployment

Solar Heating and Cooling

SolarPACES

Wind Energy Systems



Fusion Power

Environmental, Safety, Economy Fusion

Fusion Materials

Large Tokamaks

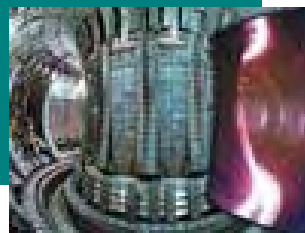
Nuclear Technology of Fusion Reactors

Plasma Wall Interaction in TEXTOR

Reversed Field Pinches

Stellarator Concept

ASDEX-Upgrade



Cross-Sectional (Other)

Technology transfer

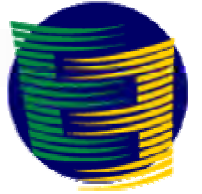
-Climate Technology Initiative

Information exchange

--Energy Technology Data
Exchange

Modeling

-Energy Technology Systems
Analysis



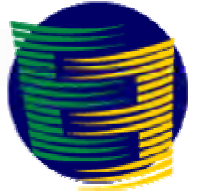
Climate Technology Initiative

- Technology needs assessment
- Capacity building
- Targeted symposia
- Training courses
- Expert exchanges
- Private Financing Advisory Network (PFAN)

Energy Technology Data Exchange

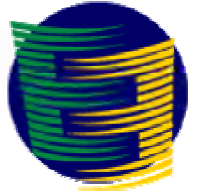


Albania	Guatemala	Pakistan
Algeria	Indonesia	Paraguay
Armenia	Iraq	Peru
Azerbaijan	Jordan	Philippines
Bangladesh	Kazakhstan	Qatar
Belarus	Kenya	Romania
Bolivia	Libya	Senegal
Botswana	Macedonia (FYR)	Serbia/Montenegro
Bulgaria	Madagascar	Sri Lanka
Burkina Faso	Mali	Tajikistan
Cameroon	Mauritius	Thailand
Central African Rep.	Moldova	Tunisia
Colombia	Mongolia	Uganda
Congo (Dem. Rep.)	Morocco	Ukraine
Ecuador	Myanmar	Uzbekistan
Egypt	Namibia	Vietnam
El Salvador	Nicaragua	Yemen (Rep.)
Ethiopia	Niger	Zambia
Georgia	Nigeria	
Ghana		



Network of Expertise in Energy Technology

- **Prepare fact-finding missions to the “Plus-Five” country**
- **Conduct fact-finding mission**
- **Assess and communicate results**
- **Organization of a workshop with partner country**
- **Establish sustainable contacts and flow of information**



Role of the Energy Charter

- **Cooperation with IEA, avoid duplication**
 - **Exchange experience with policies enabling development and deployment of renewable energies**
 - **Foster cooperation in development of new technologies , especially in demand in non-OECD countries**
- =>Focus on renewable energy, mainly bio energy technology**