



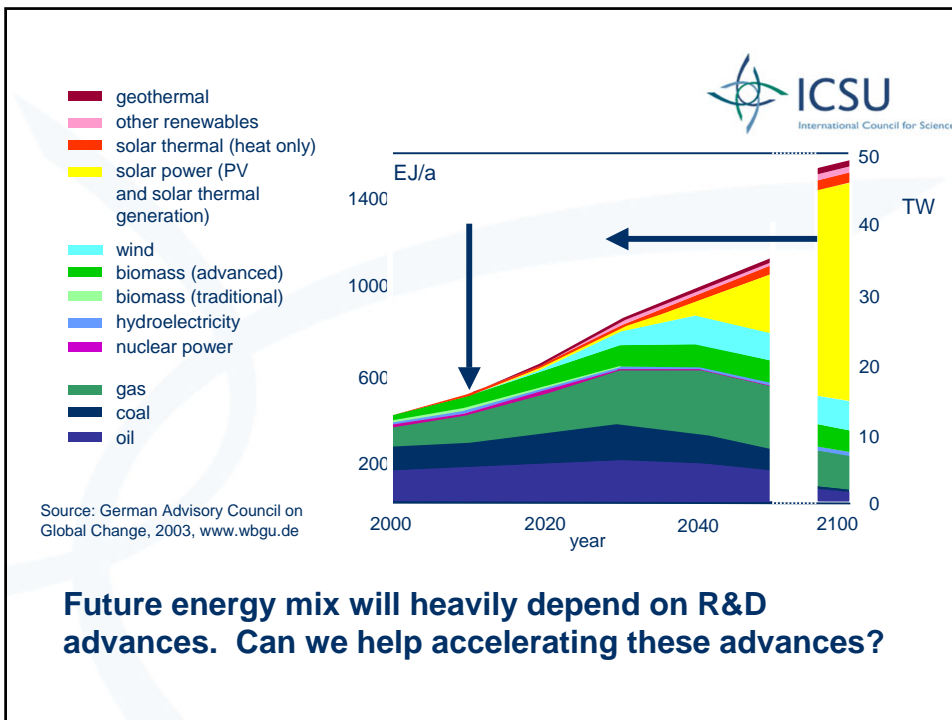
ISPRE  *International Science Panel on Renewable Energies*

Décio Luiz Gazzoni, member

 **ICSU**
International Council for Science

 **CAETS**
International Council of Academies of Engineering and Technological Sciences

 **REN21** Renewable Energy Policy Network for the 21st Century
International Energy Policy Network for the 21st Century



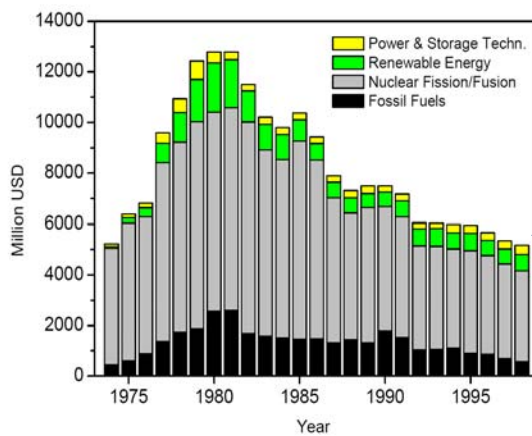


To accelerate the process of translating scientific ideas to real-world applications, we need:



- Strong and stable R&D funding
- Long-term, coherent strategies
- Strong links between basic research and applied R&D communities
- Optimal international co-operation through specialized networks

Energy R&D budgets in OECD countries



Not only on OECD!

Source: IEA Energy Technology R&D Statistics Service

Why not only on OECD?



***History taught us that
natural advantages do
not resist to changes on
technological
paradigms!***

ISPRES: Motivation and Goals



1. To provide an objective source of information about the current status of renewable energy R&D efforts
2. To provide strategic guidance to improve the effectiveness and coherence of R&D efforts worldwide
3. To foster greater interaction among nationally- and regionally-focused R&D efforts (especially with developing countries), and among the different sectors of renewable energy R&D
4. To promote the importance of long-term basic research (along with shorter-term market-oriented development efforts) as a fundamental basis for rapid, cost-effective transformation of the global energy systems towards sustainability

ISPRES: Focal Topics



Disciplinary



- Biomass energy and bio-fuels
- Photovoltaics
- Solar thermal power plants
- Wind energy systems
- Small hydro energy systems
- Solar heating, cooling and dehumidification

Cross-cutting

- Energy policy and economics research
- Environmental impacts and “sustainable potentials”
- Resource assessment and mapping, energy meteorology
- Public acceptance of energy technologies and policies
- Energy systems (energy storage, grid integration)



Bionergy and Climate Changes



ISPRES History



Establishment of ISPRES called for at Bonn Renewables 2004 conference.

A Planning Group, appointed by ICSU in 2005, developed a proposal.

Three international organizations agreed to co-sponsor the effort:

- * **International Council for Science (ICSU)**
- * **Intl Council of Academies of Engineering and Tech. Sciences (CAETS)**
- * **Renewable Energy Policy Network for the 21st Century (REN21)**

ISPRES established and first meeting held in Paris (Jan.2007)

Initial financial support has been provided by the German Government

ISPRES: Initial Activity



A 'meta-analysis' of renewable energy R&D activities is being carried out worldwide.

Goals: to compile and examine information on current R&D activities and strategies for future R&D activities, and to identify gaps, needs, and future priorities.

Initial focus: photovoltaics, wind, and biomass
Subsequent analyses may include: solar thermal power plants, solar thermal heating/cooling, geothermal, wave / tidal / small hydro.



Main findings (draft)

1. R&D efforts are concentrated on USA, EU and Japan
2. Among developing countries, China and India are the leaders on R&D investments
3. New paradigms on biomass production (feedstocks) will be necessary for the 20s
4. Lignocellulosic ethanol is the most likely breakthrough for next decade
5. Biomass to liquid biofuels and biomass gasification will receive high attention from R&D networks







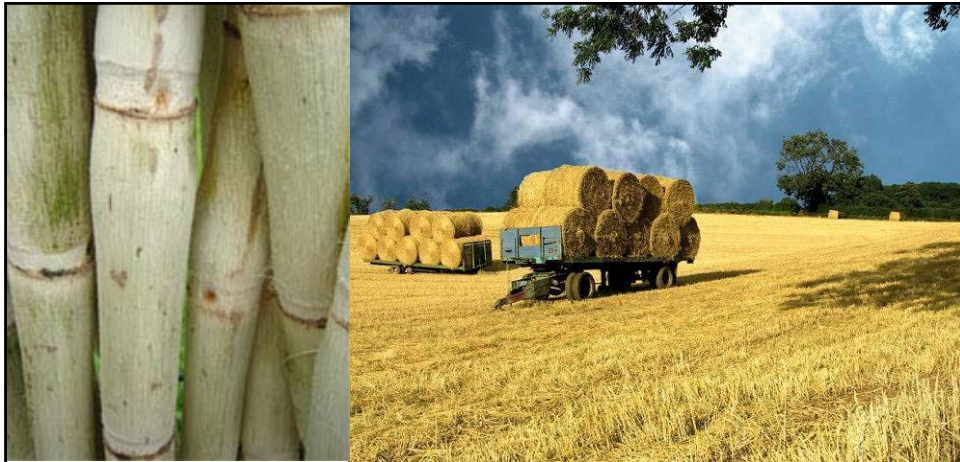
Demand forecast



Bio-ethanol:

1. USA – 150 GL by 2017
2. European Union – 130 GL by 2020
3. Japan – 30 GL by 2015
4. Brazil - 40 GL by 2020
5. China, Índia - ??





**20 M ha of sugar cane or
700 M t of lignocellulosic biomass**

Embrapa

Demand forecast



M ton

**2020 Forecast:
Only biodiesel
demand will
require more
oil than
produced
worldwide in
2006**

Countries	2010	2020
Germany	4,4	15,3
Canada	1,8	6,3
USA	14,8	51,5
France	3,3	11,5
Italy	2,1	7,3
United Kingdom	1,9	6,6
Brazil	2,0	20,0
Japan	4,4	15,3
Total	34,7	133,8

Source: EIA

ISPRE: Proposed future activities



1. 'Potentials Analysis' on different renewable energy technologies, including theoretical, conversion, technical, economic and ecologically sustainable potentials
2. Development of strategic research agendas for individual technologies and science areas
3. Organization of workshops or conferences on strategic research agendas – possible co-operation with IEA's NEET initiative

ISPRE will closely coordinate its efforts with the following International Energy Agency programs:



1) Energy Technology Implementing Agreements.

Over 40 international co-operation agreements in energy technology R&D, deployment and information dissemination

2) Networks Of Expertise in Energy Technology (NEET)

Goal is to work with select non-OECD countries, to organize workshops that bring together stakeholders from government, industry, finance, and R&D communities, to enhance awareness of energy technology collaboration opportunities.

3) Ad-Hoc Group on Science and Energy Technology (AHGSET)

Goals are to raise awareness about the need to support 'basic science' energy R&D, and to improve linkages between the basic science and applied energy R&D communities.



Other possible joint activities with organizations in the ICSU family

Scientific Committee on Problems of the Environment (SCOPE): developing plans for assessment on *Biofuels: Environmental Benefits and Costs*.

Earth System Science Partnership (ESSP): also considering plans for assessing activities related to the sustainability of biofuels.

ISPRE membership (13 scientists)



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Carlos ROLZ [Guatemala], Academia de Ciencias de Guatemala
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