

# **EU-China Cooperation in Energy Research State of Play and Perspectives**

**EU-China S&T Cooperation  
China-EU Science & Technology Year (CESTY)  
Brussels, 11 October 2006**

**European Commission  
DG Research – Dir. Energy  
Mr. Angel Perez Sainz  
Head of Unit**

- **Share of common concerns and views**

- **Sustainable development of energy systems**

- **Security of energy supply and Climate Change**

- **Competitiveness of Industry**

## A Green Paper :

### A European Strategy for Sustainable Competitive and Secure Energy

- ***Six Priorities:***

- Completing European Energy (Gas and Electricity) markets
- Internal market to guarantee EU security of supply
- Towards a more sustainable, efficient and diverse energy mix
- An integrated approach to climate change
- **Innovation: A strategic European Technology Plan**
- Towards a EU external energy policy

# EU-China Cooperation

- **Complexity of Interactions between Energy, Environment, Research and other policies**
- **Balancing Sustainable Development, Competitiveness and Security Supply**
- **Energy is technology dependent : New technologies are critical in addressing the challenges**
- **Common need for cooperation in S&T Development :**
  - *Strategic Energy Technologies*
  - *Energy Strategies and Long term energy scenarios*

### ✓ Strong and lasting S&T cooperation

- **ITER:** joint international R&D project that aims to demonstrate the scientific and technical feasibility of fusion
- **At bilateral level**
  - *S&T agreement based on reciprocity and mutual interest*
  - *EU-China **Clean Coal** action plan (May 2005)*
  - *Participation in EU/China regular Energy/Environment Dialogues addressing S&T and energy Strategies*
- **At multilateral level**
  - *Implementing Agreement of the IEA (IEA **Clean Coal**)*
  - *International Partnership for the **Hydrogen Economy** (IPHE)*
  - ***Carbon Sequestration Leadership Forum** (CSLF)*

# EU-China Cooperation (NNE)

## Specific S&T initiatives

### ➤ Past activities aimed at identify common S&T priorities and enhance RTD cooperation opportunities

- EU-China workshop on **Hydrogen and Fuel Cells** (May 2004)
- EU-China RTD workshop on **Liquid Biofuels** (November 2004)
  - Joint organisation MOST and DG RTD
  - More than 100 EU and CN participants from academia and Industry
- EU-China workshop on **Photovoltaics** (October 2005)
  - Joint organisation CMRS (Chinese Materials Research Society) and EMRS (European Research Society) with participation of DG RTD
  - High level EU and CN experts from academia, leading Industries, JRC
- EC-China experts meeting in **Carbon Capture and Storage** (November 2005)
- International workshop on **Near-Zero Emissions Coal – Power Generation with CCS in China**
  - To address the implementation of the EU-China MoU

**5 Sep 2005** Joint Declaration on Climate Change at the 8th EU-China Summit

**23 Dec 2005** The EC decides to give the go-ahead for the signature of a EU-China MoU to cooperate on near-zero Emissions Power Generation Technology through CCS

**20 Feb 2006** Signature of the EU-China MoU in Shanghai

*EU-China Cooperation foresees three phases :*

**Phase 1:** *Exploring the feasibility of, and options for, near-zero emissions coal technology in China through carbon dioxide capture and storage;*

**Phase 2:** *Defining and designing a demonstration project; and*

**Phase 3:** *Construction and operation of a demonstration project.*

*The EU-China MoU focuses on PHASE 1*

# Participation of China in the Thematic Energy area within FP6

- **Participation of China in FP6 contracts (EC financing to China: 1,3 M€)**
  - ✓ 6 projects H2/FC
  - ✓ 1 in CO2 Capture/Sequestration
  - ✓ 1 in support to Policy decision
- **Participation of China in ENERGY-4 (EC financing to China: 1,1M€)**
  - Specially design to stimulate cooperation through IPHE and CSLF frameworks and initiative with MOST.
  - 6 projects negotiated inc. 17 Chinese participants :
    - ✓ 6 in H2/FC
    - ✓ 3 in CO2 Capture/Sequestration
    - ✓ 1 in Biomass
- **Topping up Call (EC financing to China: 0,5 M€)**
  - Open to third countries participation (inc. China) in on-going projects
  - 3 projects negotiated incl. 4 Chinese participants :
    - ✓ 1 in Wind
    - ✓ 1 in Ocean Energy
    - ✓ 2 in Fuel Cells

**Excellent results: 28 participants in 19 projects (~3 ME funding)**

# FP7 (2007-2013)

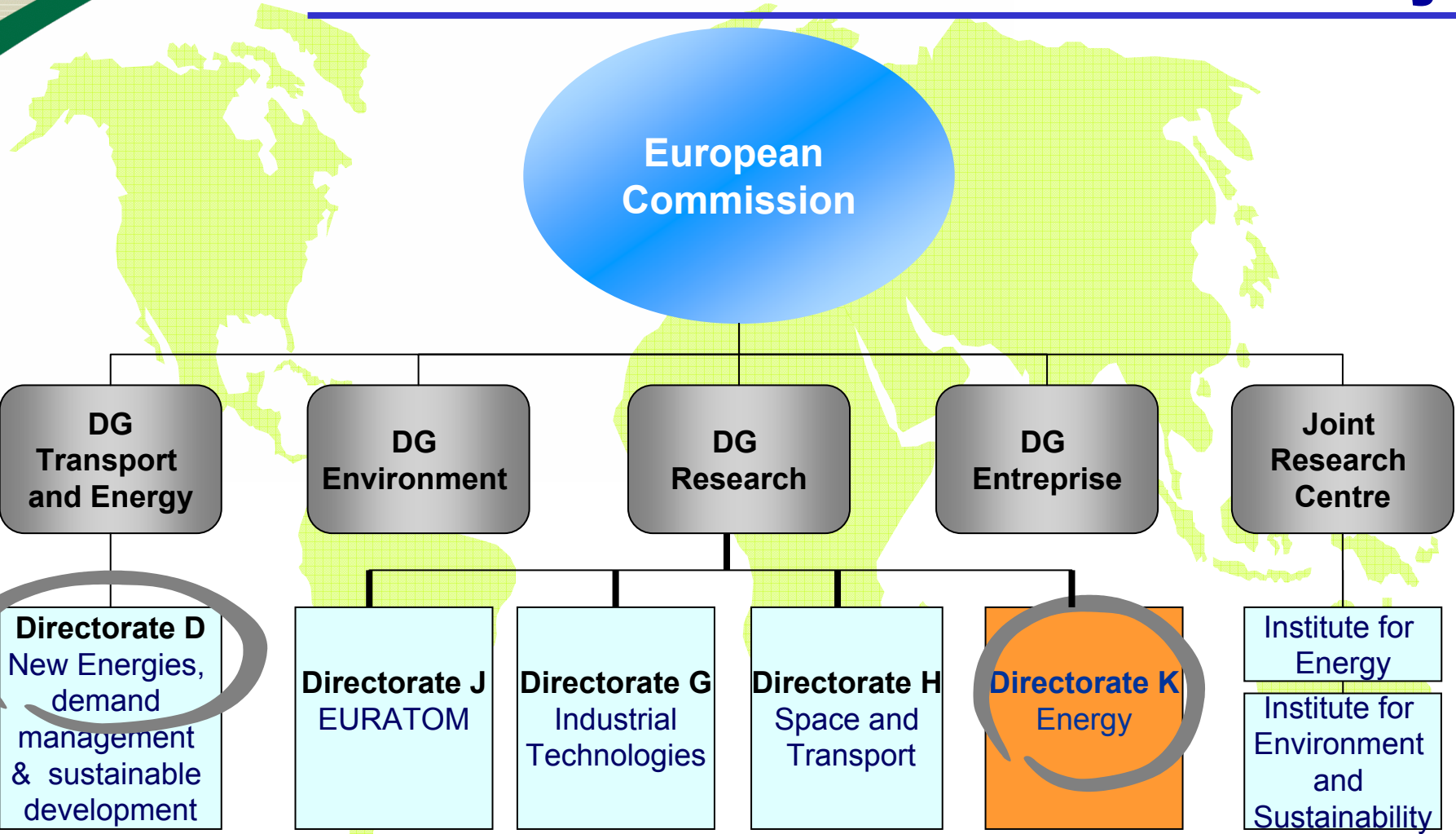
## 'Cooperation' indicative budget breakdown

### Theme

### Budget Breakdown (M€)

1. Health	5,984	19 %
2. Food, agriculture and biotechnology,	1,935	6 %
3. Information and Communication Technologies	9,110	29 %
4. Nanosciences, Nanotechnologies, materials and new production technologies	3,467	11 %
5. Energy	2,265	7 %
6. Environment (including Climate change)	1,886	6 %
7. Transport (including Aeronautics)	4,180	13 %
8. Socio-economic sciences and the Humanities	607	2 %
9. Security and space	2,858	9 %
<b>TOTAL</b>	<b>32,292</b>	

# Energy RTD Directorates-General “Family”



# Energy Research in FP7

## KEY CHALLENGES

- **Global energy demand** predicted to increase by 60% over the next 30 years
- **EU energy dependence** could rise from 50% to 70% by 2030; damaging volatility of oil prices and geopolitical instability
- Over 90% of EU CO<sub>2</sub> emissions, causing **climate change**, are attributable to energy
- **Global energy investments** of €12 trillion required up to 2030

# Energy Research in FP7

## OBJECTIVE

Transforming the current fossil-fuel based energy system into a more **sustainable** one based on a diverse **portfolio** of energy sources and carriers combined with enhanced energy efficiency, to address the pressing challenges of **security of supply** and **climate change**, whilst increasing the **competitiveness** of Europe's industries.

# FP7 – Proposed Priority Topics in Energy

**Hydrogen and fuel cells**

**Energy savings and energy  
efficiency**

**Renewable electricity generation**

**CO2 capture and storage  
technologies for zero emission  
power generation**

**Renewable fuel production**

**Clean coal technologies**

**Renewables for heating and  
cooling**

**Smart energy networks**

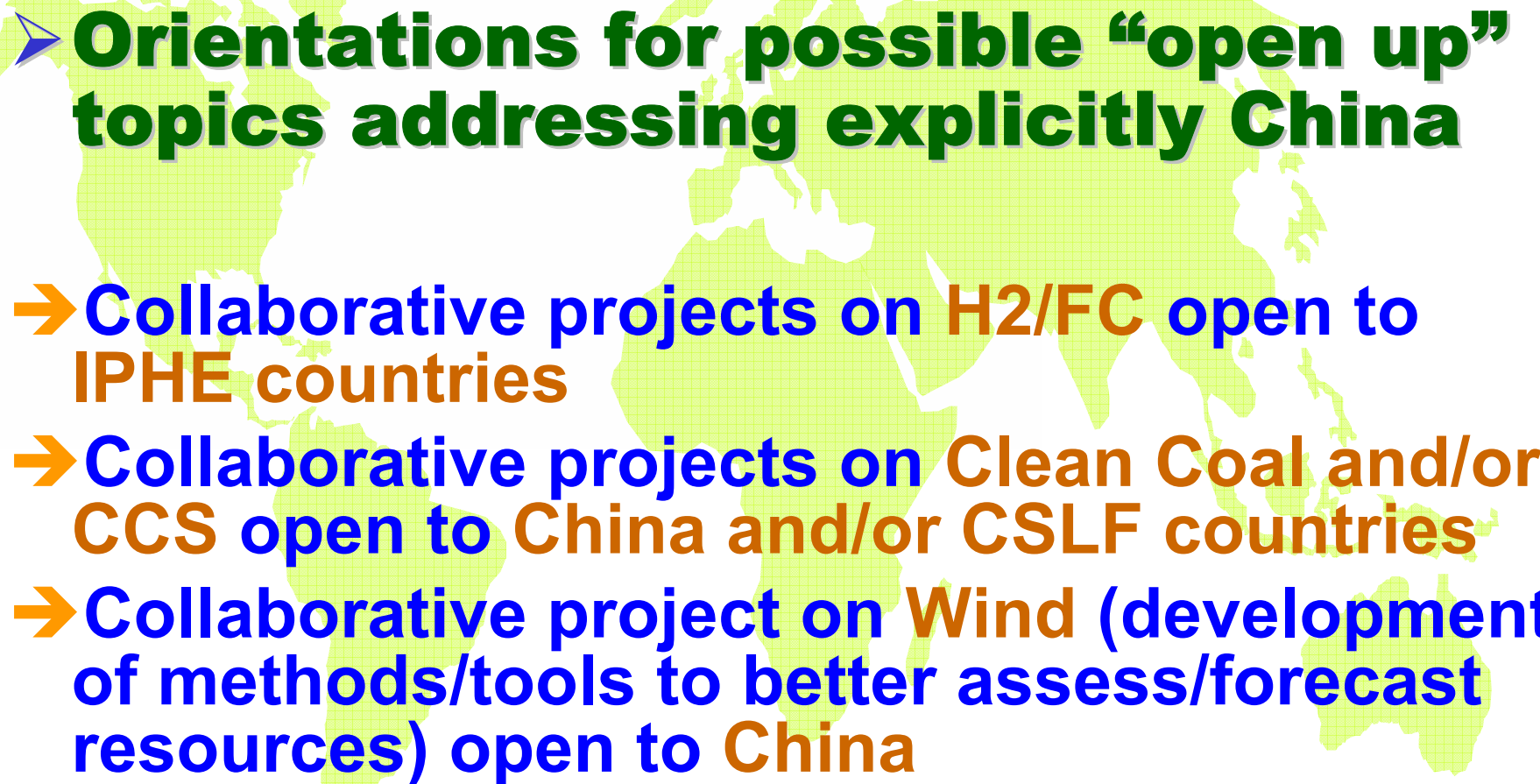
**Knowledge for energy policy making**

# International cooperation

## FP 7 energy thematic programme

### Opening of all activities to intern. cooperation

- **China** can in principle participate in all themes.
- **ICPC** may be funded in general, while Industrialised countries only if specified in the work programme.
- In some topics open in the Call, the participation of third countries is **encouraged**, particularly those engaged on strategic dialogues, partnerships or agreement.
- The third country partner is in addition to the legal minimum consortium of 3 legal entities MS/AC for collaborative projects or of 1 legal entities MS/AC for CSA

- 
- **Orientations for possible “open up” topics addressing explicitly China**
- ➔ Collaborative projects on **H2/FC** open to **IPHE** countries
  - ➔ Collaborative projects on **Clean Coal and/or CCS** open to **China** and/or **CSLF** countries
  - ➔ Collaborative project on **Wind** (development of methods/tools to better assess/forecast resources) open to **China**

# International cooperation FP 7 energy thematic programme

## Specific International Cooperation actions (SICA)

- Topics especially designed and devoted to the international cooperation with targeted countries or regions
- Priorities for activities are identified through dialogues with third countries and based on mutual interest and benefit: **EC and China to deliver !**
- Targeted to ICPC countries.
- At least 4 legal entities: 2 MS/AC + 2 ICPC.
- Specific evaluation criteria
- Indicative allocated budget

- 
- **Ideas for the WP on possible Specific International Cooperation actions with China**
    - ➔ Support to international collaboration in zero emission power generation
    - ➔ Support to the development of strategies on Energy technology Transfer and capacity building
    - ➔ Support to the promotion of International Cooperation
  - **ERA NET on International Cooperation**

# Implementation of the FP7 Energy thematic area

## × Preliminary information:

- First Calls (RTD and TREN): 01/2007
- Deadline: Spring 2007
- Indicative Budget: 250 M€

# EU-China Cooperation – FP7

## Key Messages

---

- 
- Last and current achievements are a good starting basis
  - Continuation and reinforcement of the bilateral cooperation, building also on multilateral fora (IEA, IPHE, CSLF, ...)
  - Continue to support the MoU on CCS (to go into phases 2 and 3)
  - Assessment and further exploitation of outcomes from past and on-going EU-China S&T initiatives and projects

# EU-China Cooperation – FP7

## Key Messages

---

- 
- Continue and further enhance the EU-China relationships and dialogue on energy research matters
  - Further explore and develop new cooperation on energy technology and strategy research topics of common interest
    - ✓ To increase quality of proposals
    - ✓ To increase CN participation in FP7
    - ✓ To increase participation of EU researchers in CN projects/programmes
    - ✓ To develop new Specific Cooperation International Actions with China

# EU-China Cooperation – FP7

## Key Messages

---

### **A challenge for the recently opened EU –China Science and Technology year**

- Identify Strategic Technological fields for large, goal oriented initiatives of common interest and benefit, co-funded by both EU and China
- Overcoming Energy and Environmental challenges through development and deployment of Strategic Technologies should be the common driver for these initiatives



**Xíe Xíe Nínmen**

**Thank you**

