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# EUROPEAN STRATEGIC ENERGY TECHNOLOGY PLAN (SET-Plan)

European Commission

DG Energy and Transport

Innovation and technological development in Energy

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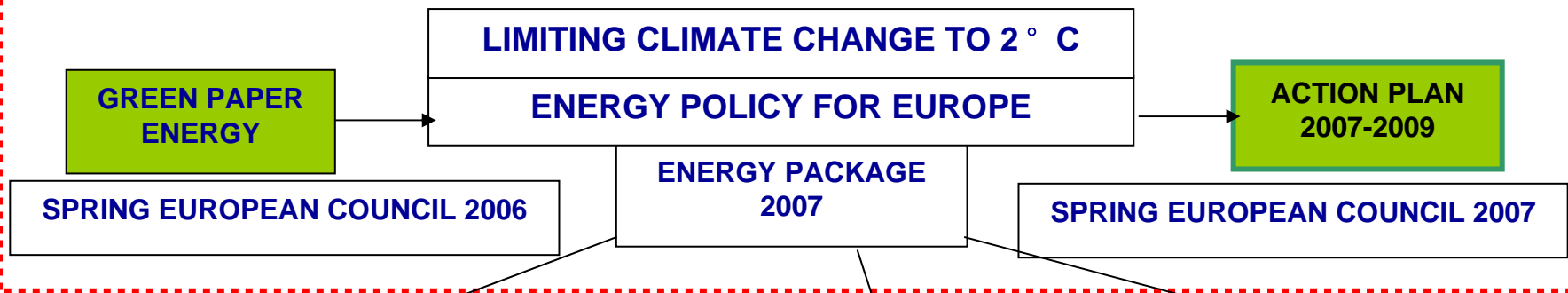
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# ENERGY FOR A CHANGING WORLD



## SUSTAINABILITY AND LOW-CARBON ECONOMY

RENEWABLE ENERGY ROAD MAP

PROGRESS REPORT BIOFUELS

PROGRESS REPORT RES ELECTRICITY

ENERGY EFFICIENCY ACTION PLAN (19 OCT 2006)

SUSTAINABLE FOSSIL FUEL TECHNOLOGIES

ILLUSTRATIVE NUCLEAR PROGRAMME (PINC)

## INTERNAL MARKET

DG COMP SECTOR INQUIRY

REPORT ON FUNCTIONING OF INTERNAL MARKET

PRIORITY INTERCONNECTION PLAN

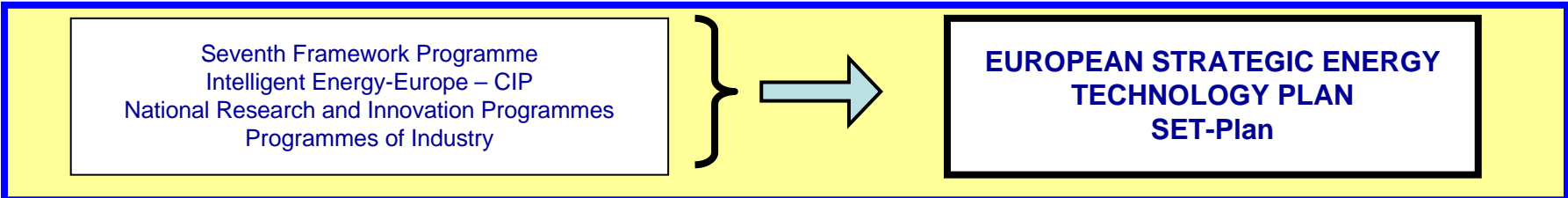
## EXTERNAL RELATIONS

JOINT COMMISSION/ HR /COUNCIL JUNE PAPER AND COM PAPER OCT 2006

NEGOTIATION MANDATE FOR NEW AGREEMENT WITH RUSSIA

DIALOGUE WITH PRODUCERS: OPEC-NORWAY-GCC-ALGERIA-CASPIAN BASIN (BAKU PROCESS)

DIALOGUE WITH CONSUMERS: CHINA, US, INDIA, JAPAN





# European Council 8-9 March 2007

.../...

The Energy Action Plan sets out the way in which significant progress in the efficient operation and completion of the EU's **internal market** for gas and electricity and a more **interconnected** and integrated market can be achieved. It envisages the nomination of EU coordinators for four priority projects of European interest. It also addresses the crucial issue of security of energy supply and the **response to potential crises**. It develops clear orientations for an effective European international energy policy **speaking with a single voice**. It fixes highly ambitious quantified **targets** on energy **efficiency**, **renewable** energies and the use of **biofuels** and **calls for a European Strategic Energy Technology Plan**, including environmentally safe Carbon Capture and Sequestration, **to be examined at the Spring 2008 European Council meeting**.

.../...

Recognizing the need to strengthen energy research in particular to accelerate the competitiveness of sustainable energies, notably **renewables**, and **low carbon technologies** and the further development of **energy efficiency technologies**, the European Council:

- welcomes the Commission's intention to table a European Strategic Energy Technology Plan during 2007 for consideration at the latest by the 2008 Spring European Council.

.../...



# Berlin Declaration

## 25 March 2007

.../...

### II

- We are facing major challenges which do not stop at national borders. The European Union is our response to these challenges.

.../...

- We intend jointly to lead the way in energy policy and climate protection and make our contribution to averting the global threat of climate change.

.../...

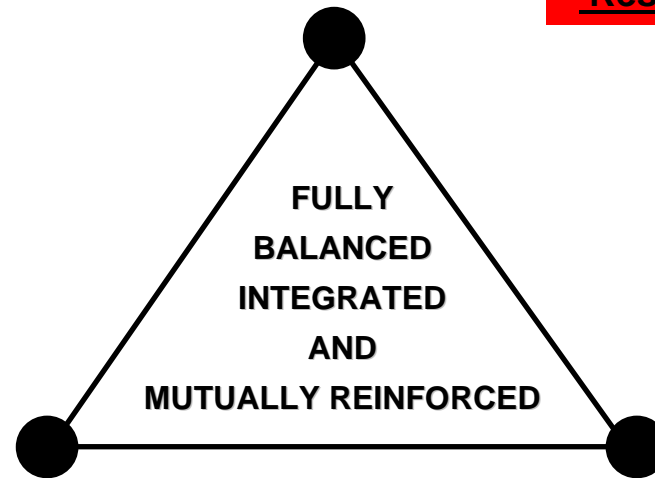


# THE THREE CHALLENGES



## Competitiveness “ LISBON ”

- Internal Market
- Interconnections (Trans-European networks)
- European electricity and gas network
- Research and innovation



## Sustainable Development “ KYOTO ”

- Renewable energy
- Energy efficiency
- Nuclear
- Research and innovation
- Emission trading

## Security of supply “ MOSCOW ”

- International Dialogue
- European stock management (oil/gas)
- Refining capacity and energy storage
- Diversification
- Research and innovation



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## **II. Towards a European Strategic Energy Technology Plan (COM(2006)847)**



# Towards a European Strategic Energy Technology Plan



- **The European Energy Challenge**

- C + CC + SES
- Targets 2020
  - ◆ 30% GHG (20%)
  - ◆ 20% EE
  - ◆ 20% RES (10%BF)
- Targets 2050
  - ◆ 60-80% GHG

- **A vision of Europe's energy future**

- Efficiency
- Diversification
- Decarbonisation
- Liberalisation

- **The Vital Role of Energy Technology**

- Technologies and not sources
- Growth without a –
- Opportunity

- **What has been achieved to date**

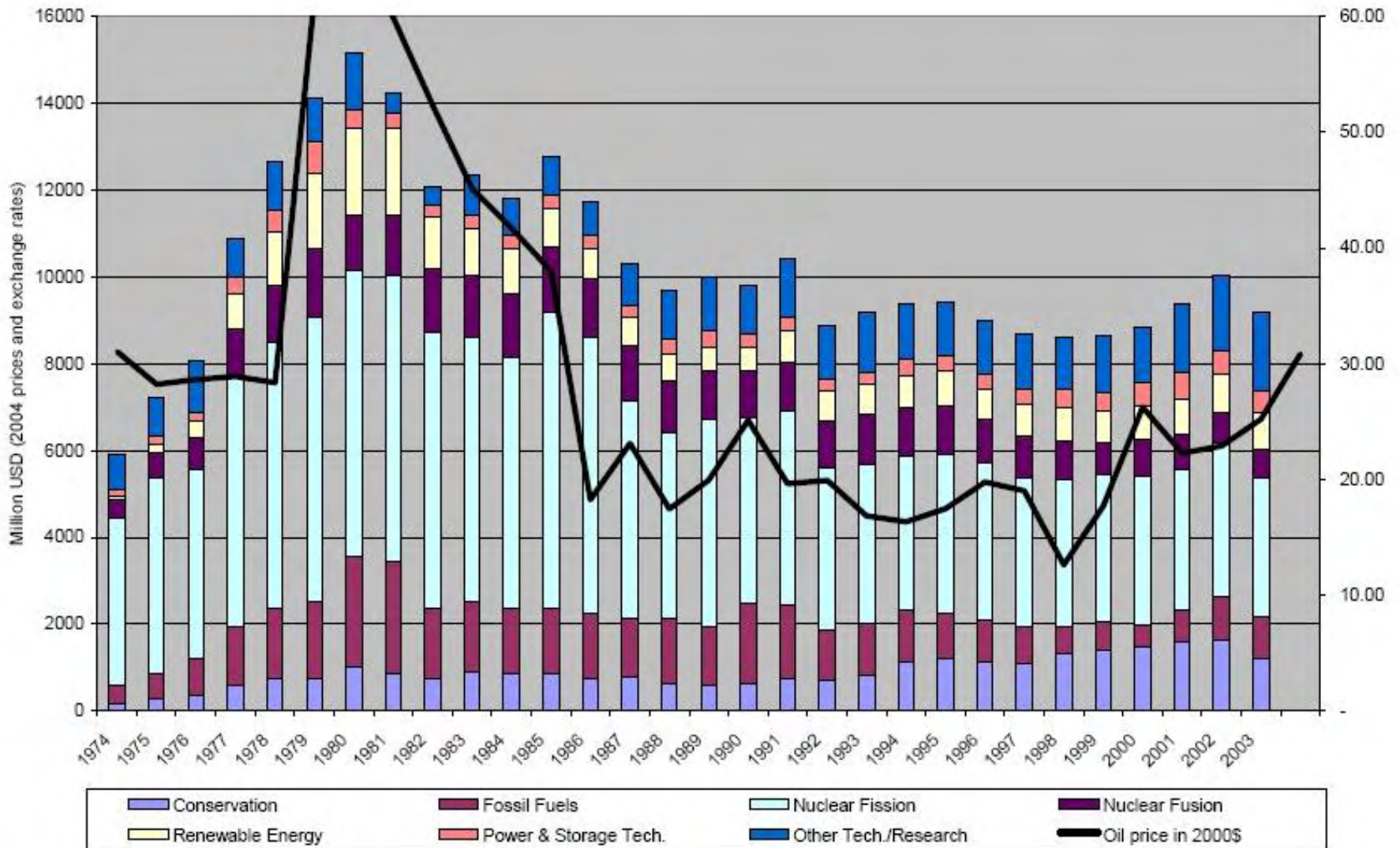
- New technologies
- Constant support
- Technology Platforms



# The insufficient scale of the current effort

- **'Business as usual' is not an option**
  - ➔ Current trends and their projections show that we are not doing enough, by 2030
    - ◆ CO<sub>2</sub> – 5% increase in the EU and 55% globally
    - ◆ SES – from 50% to 65% dependence
- **Structural weaknesses in the energy research and innovation system**
  - ➔ Long lead times to market
  - ➔ Locked-in infrastructure investment
  - ➔ Market failure ('Stern Report')
  - ➔ Dominant actors and network connection challenges
  - ➔ Scattered and un-coordinated market incentives (e.g. innovation programmes)
  - ➔ Reduction of Energy research funds (OCDE Report – «halved since the 80's»)
  - ➔ Scattered, fragmented and sub-critical research and innovation capacities
  - ➔ Strong international competition and weak cooperation

Figure B: R&D expenditure in IEA countries and oil price 1974 - 2004



(\*) OCDE report, June 2006



# Transforming energy research and innovation system to accelerate market take-up

- The **EU must act jointly and urgently**
  - **JOINTLY** - Developing a broad portfolio of technologies to spread risk and avoid locking-in; Member States in isolation can not afford it
  - **URGENTLY** - Transforming the energy system will take decades, but we need to transform now the research and innovation system
- **Public policy** has many instruments available:
  - **TECHNOLOGY PUSH**: Research programmes (RSFF, JTI, ERA-NET), Venture capital, EIB, Structural funds, ETP
  - **MARKET PULL**: Regulations, Pricing (ETS, taxes), Standards, Labelling, Feed-in tariffs, Quotas, Obligations, Green and White Certificates, Public Procurement, Trade agreements
  - **INNOVATION**: EIT, Intelligent energy programme
- **Essence of SET-Plan**: matching technologies with instruments and proposing the optimal scale – «*different horses for different courses*»



# '2007 European Strategic Energy Technology Plan' (SET-Plan)

- **Several Targeted Large-Scale European Initiatives;**
  - E.g. energy efficiency in buildings; energy efficiency in industry; energy efficiency in transport; European grid; energy storage; second generation biofuels; carbon capture and storage; fuel cells and hydrogen; off-shore wind; photovoltaic; concentrated solar power; nuclear fission; nuclear waste; nuclear fusion; and basic research for energy (materials, nanotechnologies, computation, biotechnologies).
- **Some Support Actions;**
  - Technology watch
  - Capacities watch
  - Low-carbon energy technologies information system
- **Governance** of the plan
  - Raise political profile of energy technology – European Council 2008
  - Energy and Research Council - MS Steering Group
  - Jointly planning, coordinating, monitoring and evaluating programmes and initiatives
  - Energy Technology Forum



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# Process to arrive at the SET-Plan

- **To develop a vision**
- **To analyse the research and innovation system**
- **To assess different technology avenues**
- **Two-pronged consultation:**
  - ➔ With experts groups: through hearings with Technology Platforms and workshops; through established forums
  - ➔ Open to the general public:  
[http://ec.europa.eu/energy/res/consultation/setplan\\_en.htm](http://ec.europa.eu/energy/res/consultation/setplan_en.htm)



# Conclusions

- The world has entered a new energy era
- Energy technology has a vital role to play
- Adequate combination of innovation and regulatory measures has produced some results, but 'business as usual' is no longer an option
- MS and industry should at least match the increased budgets of FP7 and IEE
- The European Union must act jointly and urgently
- SET-Plan must stem from a shared and inclusive European vision, involving all relevant actors.
- SET Plan must be ambitious in setting targets, but realistic and pragmatic regarding resources.
- The strategic element of the SET-Plan will be to identify those technologies for which it is essential that the European Union as a whole finds a more powerful way of mobilising resources in ambitious result-oriented actions to accelerate their pathway to the market.



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- **Many thanks for your attention**