



# **ENERGY FOR A CHANGING WORLD**

**EU Energy and Climate Policies adopted by the European Commission**

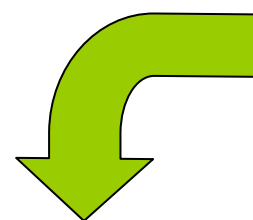
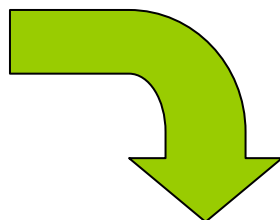
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Head of the Energy Policy and Security of Supply Unit  
DG ENERGY AND TRANSPORT**



# **INTEGRATING ENERGY & ENVIRONMENT**

**Energy Policy for Europe  
(Strategic Energy Review)**

**Limiting Global Climate  
Change to 2°C**



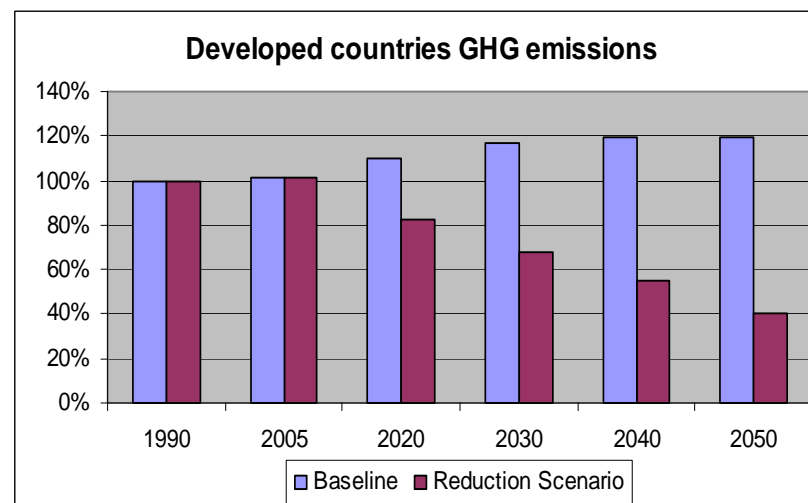
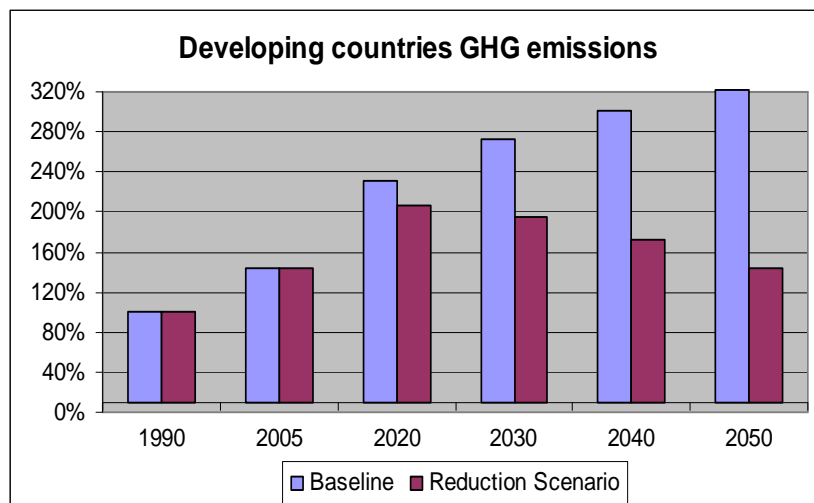
## **STRATEGIC OBJECTIVE**

**A unilateral *EU* independent commitment of  
at least **20%** GHG emission reduction by 2020,  
compared to 1990 levels  
And a 30% reduction if broader participation**

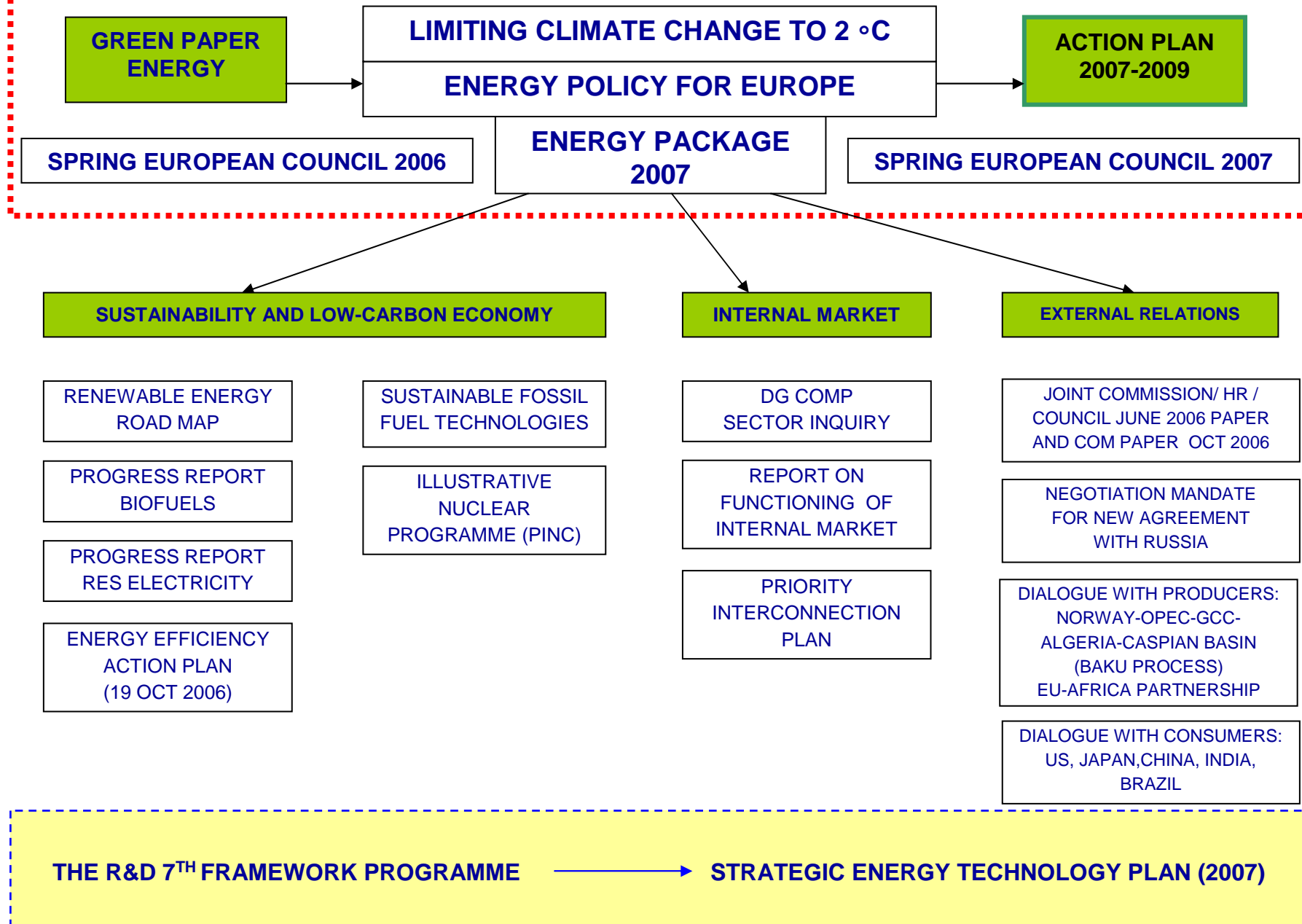


# THE STRATEGIC OBJECTIVE

- At EU level at least **20%** GHG emission reduction by 2020, compared to 1990 levels
- For negotiations with developed countries: **30%** GHG emission reduction target by 2020, compared to 1990 levels
- Developing countries: Decoupling emissions and growth *asap*, absolute reductions after 2020
- Deforestation: halt within two decades and then reverse



# ENERGY FOR A CHANGING WORLD

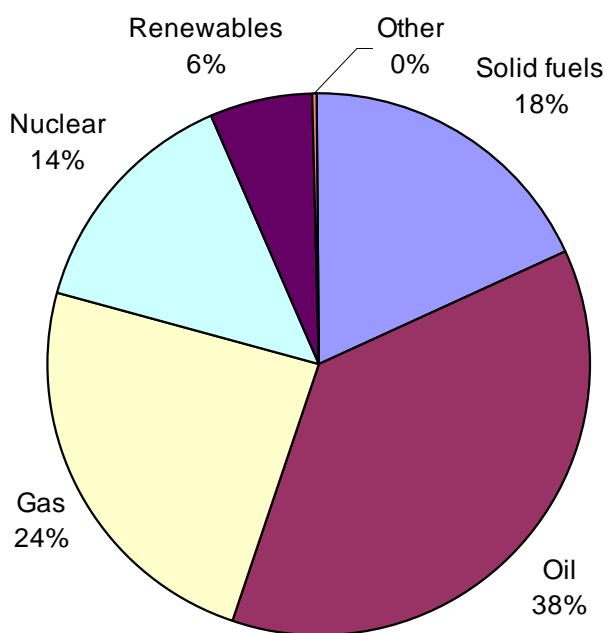




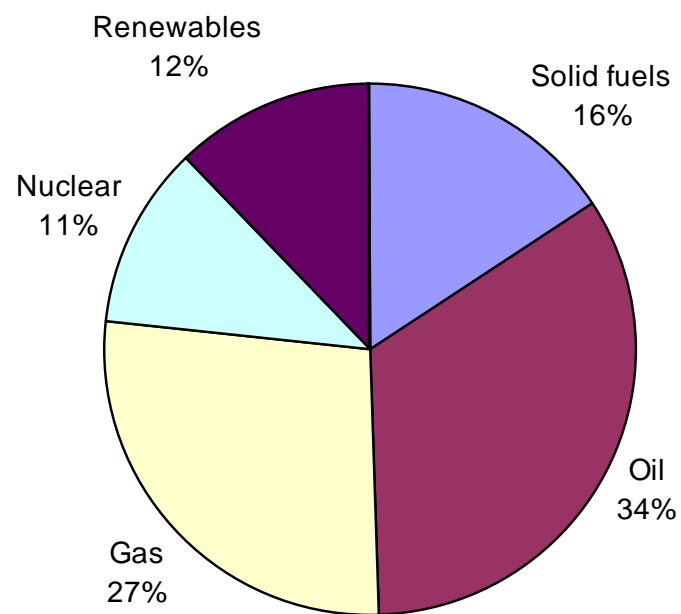
# EU-27 ENERGY MIX

High dependence on fossil fuels

=> Business as usual is **NOT SUSTAINABLE**



**2004**

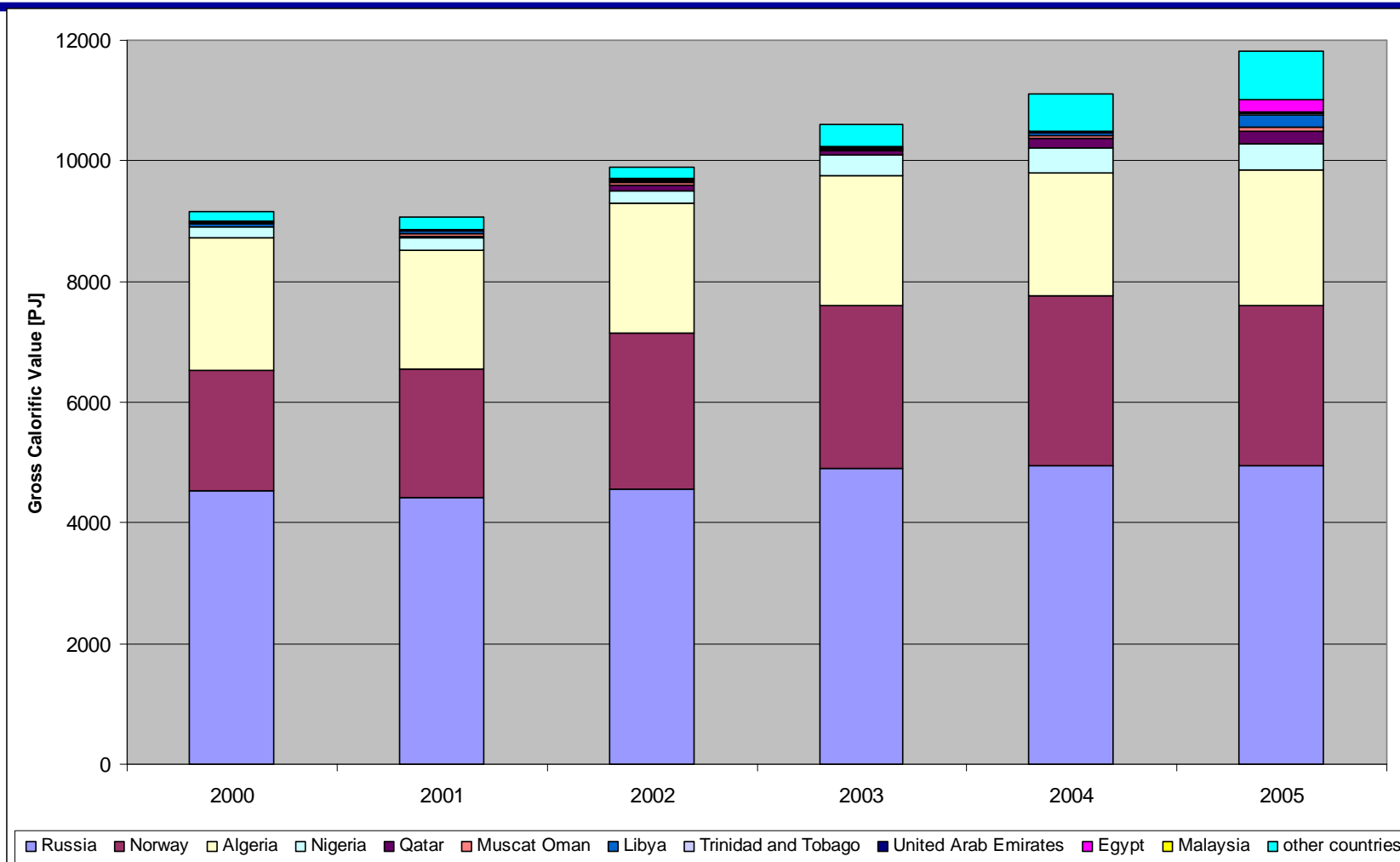


**2030 (BaU)**

Source: EUROSTAT

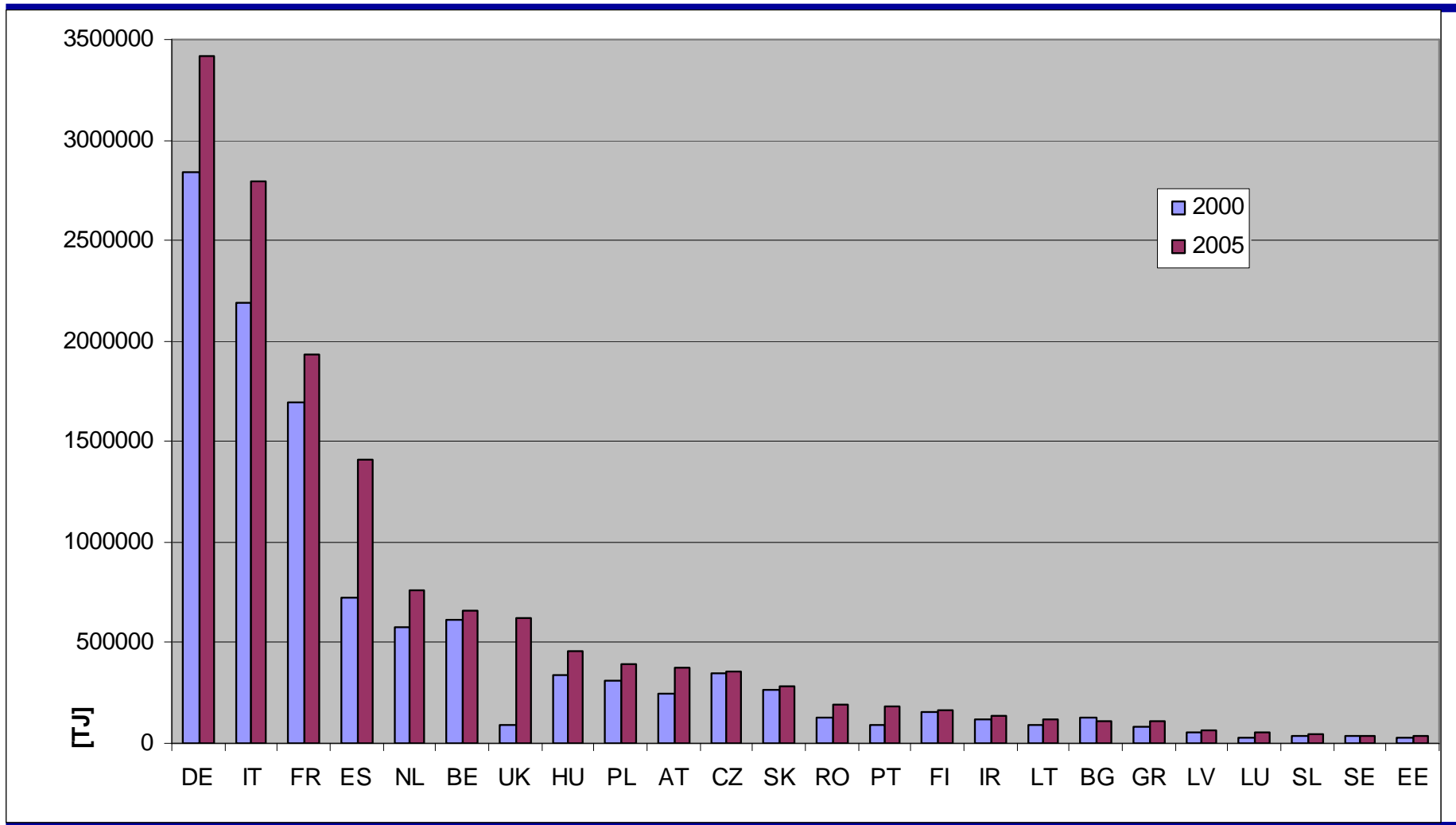


# EU-27 Import of Natural Gas 2000-2005





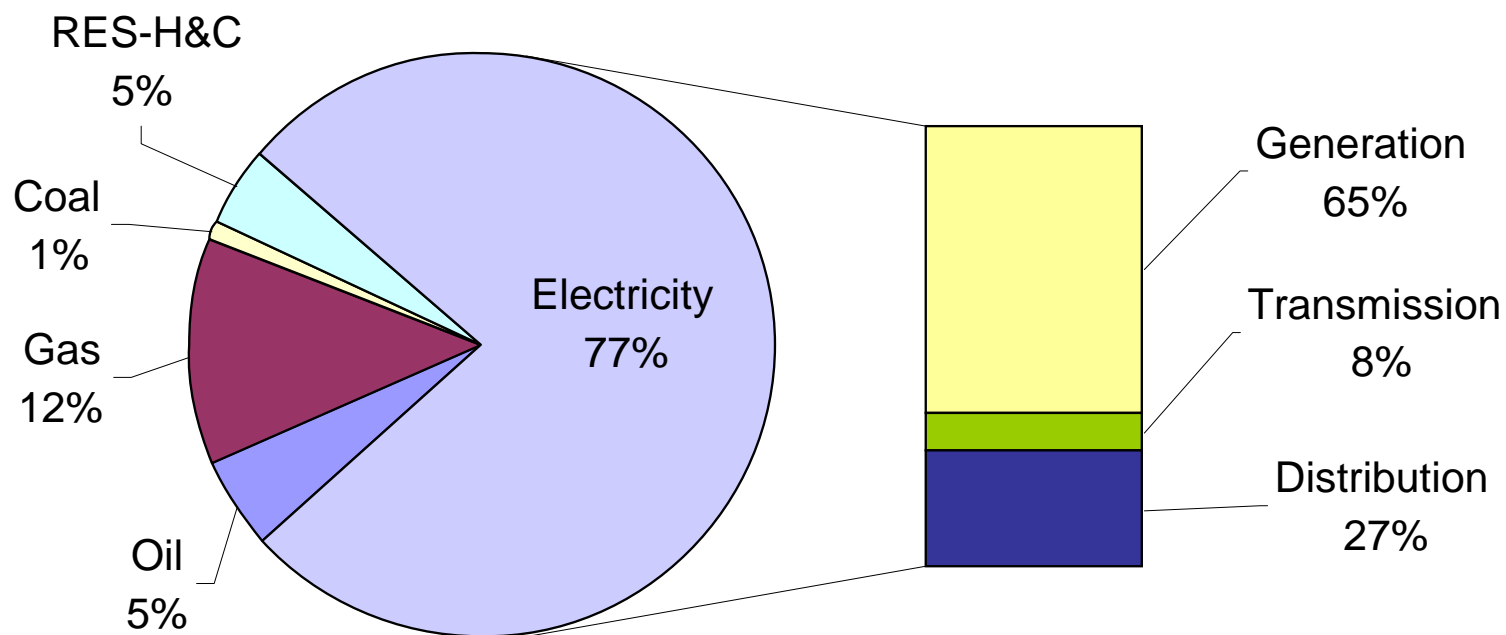
# EU-27 Member States Import of Natural Gas





# EU-27 INVESTMENT NEEDS up to 2030

€1.79 trillion



Source: EUROSTAT



## ***II. Actions for a Post-Industrial Revolution***

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### **THE ACTION PLAN**

- **Fully realising the Internal market for electricity and gas and improving interconnections**
- **Making solidarity a daily reality**
- **Strong measures to improve energy efficiency**
- **Longer term and binding targets for renewables**
- **A strategic approach to energy technology, with a priority for low carbon technologies**
- **A clear perspective on nuclear**
- **A common international energy policy and a common voice in negotiations with external partners**
- **Market analysis and reporting**



# 1. INTERNAL ENERGY MARKET

## Policy Actions (1)

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- **Enhancing the role of national regulators:**
  - On third party access to networks and gas storage
  - Balancing mechanisms
  - Cross-border issues
  - Market surveillance and consumer protection
  
- **Reinforcing co-ordination of regulators at EU level => OPTIONS**
  - Enhanced co-operation between national regulators
  - Binding power decision making to the European Regulators Group for Gas and Electricity
  - A new, single Community body



# 1. INTERNAL ENERGY MARKET

## Policy Actions (2)

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- **Non-discriminatory access to networks through unbundling => 2 OPTIONS**
  - Ownership unbundling as the most efficient means
  - Independent System Operator (ISO) second-best
- **Interconnection: more co-ordination between Transmission System Operators (TSOs)**
- **Increased Transparency of the market**
- **Binding network security standards**
- **Energy Customers Rights Charter**
- **Assessment of Investment needs**



# 1. INTERNAL ENERGY MARKET

## Priority Interconnection Plan

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- **Continuous identification of missing infrastructure**
- **European coordinators for 4 priority projects:**
  - Power-Link Germany, Poland Lithuania,
  - Connections to off-shore wind power Northern Europe,
  - Electricity interconnections France-Spain,
  - Nabucco pipeline
- **TEN-E projects of “European interest”: planning and approval procedures to be completed in maximum 5 years**
- **Possibility to increase funding for TEN-E (155 millions € for the period 2007-2013)**
- **New Community mechanism for TSOs coordination of network planning**



## 2. SOLIDARITY IN SECURITY OF SUPPLY

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- **A fully functioning internal energy market is the best guarantee of supply security and contributes to a better prediction of demand**
- **Gas Coordination Group**
- **Oil Supply Group**
- **Energy Correspondents Network**
- **Communication on strategic stocks (oil and gas)**
- **Effective mechanisms for energy crisis management**
- **Electricity Interconnections**



## 3. ENERGY EFFICIENCY

**Saving 20% energy by 2020**

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**Energy Efficiency Action Plan** - adopted on 19 October 2006

### **Realising the Potential:**

- **Transport: fuel efficient cars; better use of public transport; introduction of biofuels**
- **Appliances: tougher standards and better labelling**
- **Buildings: improving the energy performance of the EU's building stock**
- **Improving the efficiency of heat and electricity generation, transmission and distribution**
- **Competitiveness and Innovation Programme (CIP) funds the intelligent energy-Europe programme  
=> 640 millions € for the period 2007-2013**



## 4. RENEWABLE ENERGY SOURCES

**20% RES by 2020**

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- **Commission proposes a binding overall EU 20% target by 2020 and a 10% minimum binding target for biofuels for each Member State.**
- **Member States to set national targets and to adopt action plans on:**
  - **RES in electricity**
  - **Heating and cooling**
  - **Biofuels**



## 5. RESEARCH

### Strategic Energy Technology Plan

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- **Ready by the end 2007**
- **To be discussed by the Spring European Council 2008**
  
- **Sustainable coal and gas: to make power plants Carbon Capture and Storage (CCS) ready by 2020**
- **Second generation biofuels, photovoltaic, large-scale offshore-wind, hydrogen fuel cells**
- **Generation IV fission power, nuclear fusion**
- **Energy efficient transports, appliances and industrial systems**



## 5. RESEARCH Funding

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**In the 7th Framework Programme (FP) energy funds increased by 50% in comparison with the last FP: 2007-2013**

- **Non nuclear Energy: €2350 million (>50% for RES and energy efficiency)**
- **Environment : €1890 million (including climate change)**
- **Nuclear (Euratom): €2751 million (of which €1947 for fusion, €517 CCR research and 287€ for fission)**



## 5. RESEARCH

### Sustainable Fossil Fuels

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- **Up to 12 industrial-scale demonstration facilities of sustainable power generation from fossil fuel in Europe;**
  - **Clear timeframe for installation of CO<sub>2</sub> capture & storage (CCS) for coal- and gas-fired power plants;**
  - **CCS fitting any new fossil fuel plant after 2020;**
  - **Retrofitting of existing plants to be examined**
  - **Improvement of the legal framework (eg CCS in Emission Trading Scheme; storage) and public acceptance**
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## 6. THE FUTURE OF NUCLEAR

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- Around 1/3 of the electricity and 15% of the EU energy mix is from nuclear; 15 Member States concerned
- CO<sub>2</sub>-free source with importance in low emission scenarios
- Concerns on nuclear waste and decommissioning
- Illustrative Nuclear Programme (PINIC) describes present EU and world situation of the nuclear sector

### **Policy Actions:**

- EU High Level Group on Nuclear Safety and Waste Management
- Support R&D on waste management under FP7 research programme
- Nuclear Forum to be set up (with all stakeholders)



## 7. INTERNATIONAL ENERGY POLICY (1)

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- **NEGOTIATIONS & AGREEMENTS on energy, climate, trade and technology:**

- Post-2012 climate regime to be discussed in UN framework
- World Bank Gas Flaring Reduction Partnership
- Extractive Industries Transparency Initiative
- Energy Charter Treaty to be fully functioning
- Extension of Emission Trading Scheme (ETS) to global partners and to other sectors
- International agreement on energy efficiency of interest for all major consumers of energy, including Russia
- Energy Star (office equipment)

- **ENERGY RELATIONS WITH EU NEIGHBOURS:**

(Norway, Energy Community Treaty, European Neighbourhood Policy, Egypt, Mashrek/Magreb, Libya, Algeria, Turkey)



## 7. INTERNATIONAL ENERGY POLICY (2)

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- **EU - RUSSIA ENERGY COOPERATION**
  - Energy partnership in the framework of the post-PCA agreement and strengthening the energy dialogue through joint works.
- **COOPERATION WITH KEY ENERGY PRODUCERS, TRANSIT COUNTRIES AND CONSUMERS**
  - OPEC, Golf Cooperation Council, Central Asia (e.g. MoU Azerbaijan, Kazakhstan), Baku Initiative
  - Latin America, Caribbean
  - Africa-Europe Partnership
- **NETWORK OF ENERGY CORRESPONDENTS**
- **NON-PROLIFERATION and NUCLEAR SAFETY AND SECURITY with IAEA**



## III. Costs and benefits(1)

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- Investments in a low carbon economy:  
0.5% of total global GDP 2013-2030**
  
- 20% share for renewables:**
  - **additional costs of €18 billion/year (oil prices of \$48/barrel by 2020)**
  - **or €10.6 billion (\$78/barrel)**
  - **no additional costs if carbon price at €20**
  
- Business as Usual would cost more: \$100/barrel in 2030 would add €170 billion to our bill**
  
- What about the cost of the uncertainty of oil and gas prices and climate damages?**



## III. Costs and Benefits(2)

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### Improvement of the Emission Trading Scheme

- ✓ Reduction of abatement costs for regulated industries and sectors but need to extend sectoral and geographical coverage;
- ✓ Stimulation of growth and job creation and innovation

### Saving 20% energy by 2020

- ✓ Would save €100 billion and around 780 Mt CO<sub>2</sub>/year in 2020 or 1/5 of today's emissions

### Technical progress fostered by clear policies

- ✓ Efficiency gains
- ✓ New technologies being developed to make fuel mix more sustainable and to deploy renewables sources of energy

### Internal Market

- ✓ Efficiency gains and competitive prices
- ✓ Downward pressure on costs for downstream industries and consumers;
- ✓ Enhanced solidarity between Member States
- ✓ Credibility of EU speaking with common voice



## **IV. ACHIEVING THE EUROPEAN COUNCIL ACTION PLAN 2007-2009**

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- **European Council fully endorsed on 9 March 2007 an action plan for An Energy Policy for Europe, based on Commission's proposals.**
- **European Parliament had been more ambitious in its resolution of 14 December 2006.**
- **Legislative proposals to be tabled by the Commission (eg internal market and Renewables) in autumn 2007.**
- **UNFCCC & Kyoto Protocol processes (2007-2009)**
- **June G8 meeting in Heiligendamm under DE Presidency**



## V. A possible immediate research agenda

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- **Explore further the costs and benefits of a true European dimension vs the costs and benefits of the present superposition of national policies.**
- **What should be the migration path from the present national security of supply organisation to a true European security of supply? Means and measures to achieve it, eg in the gas sector.**
- **How to pool and synergise research means and programmes at European level in the field of energy?**
- **Should we have a more formal forum of energy researchers at EU level?**
- **Should we promote more international research partnerships to support our international policy agenda?**



# ENERGY FOR A CHANGING WORLD

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**THANK YOU FOR YOUR ATTENTION**

All documents on the climate and energy package  
are available on:

[http://ec.europa.eu/energy/energy\\_policy/index\\_en.htm](http://ec.europa.eu/energy/energy_policy/index_en.htm)