



BACKGROUND ON ENERGY IN EUROPE

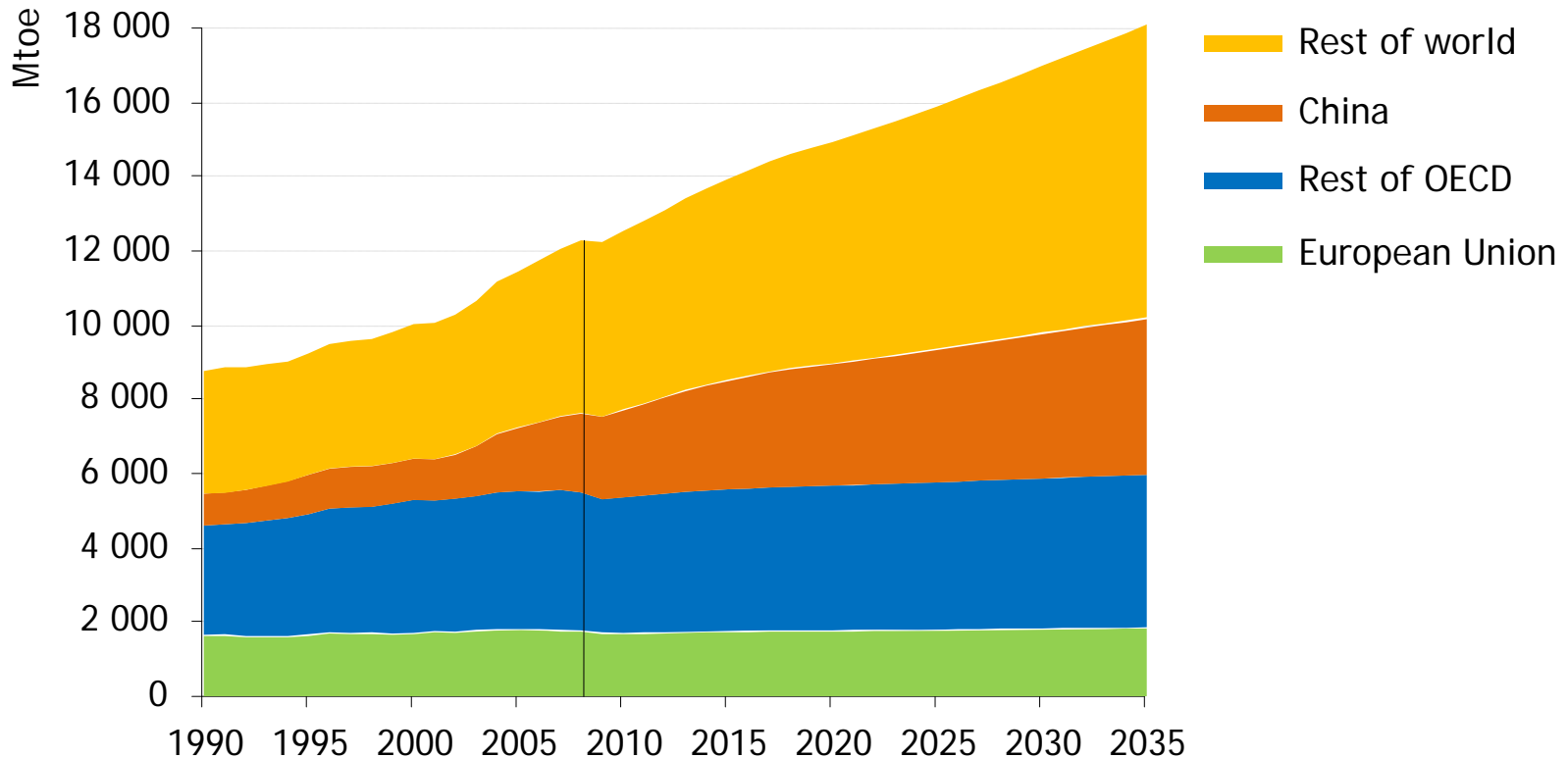
Information prepared for the European Council,
4 February 2011

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Key facts about energy and the EU

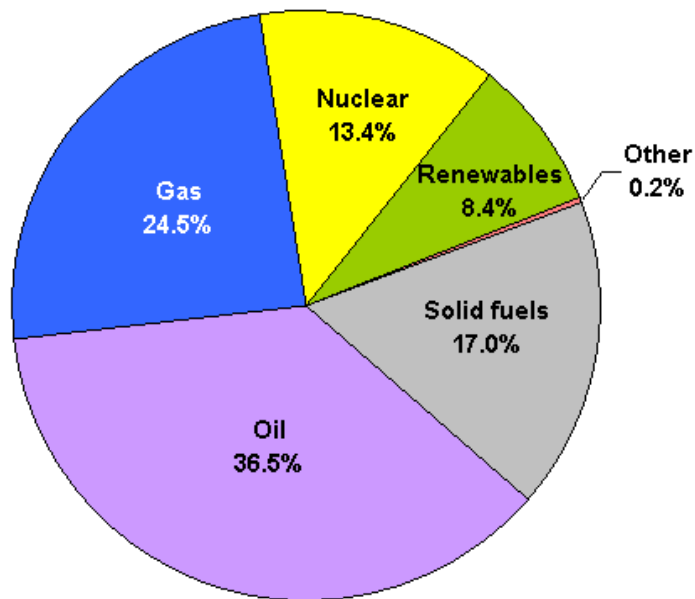
World energy demand is on the rise



EU energy consumption is expected to level out in future but world energy consumption will continue to grow due to global population growth and economic catching up. Overall, world energy demand may grow by 45 % between 2006 and 2030. In China and India, demand will nearly double.

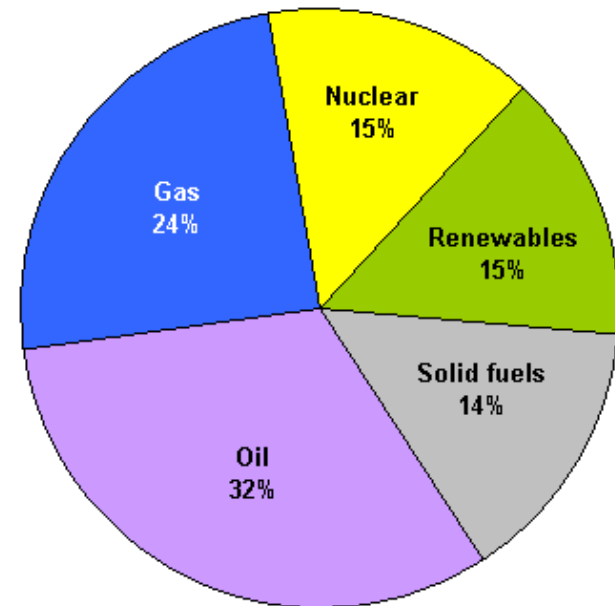
The EU energy mix is slowly changing

EU Gross inland consumption 2008



in % (1799 Mtoe; 2008)

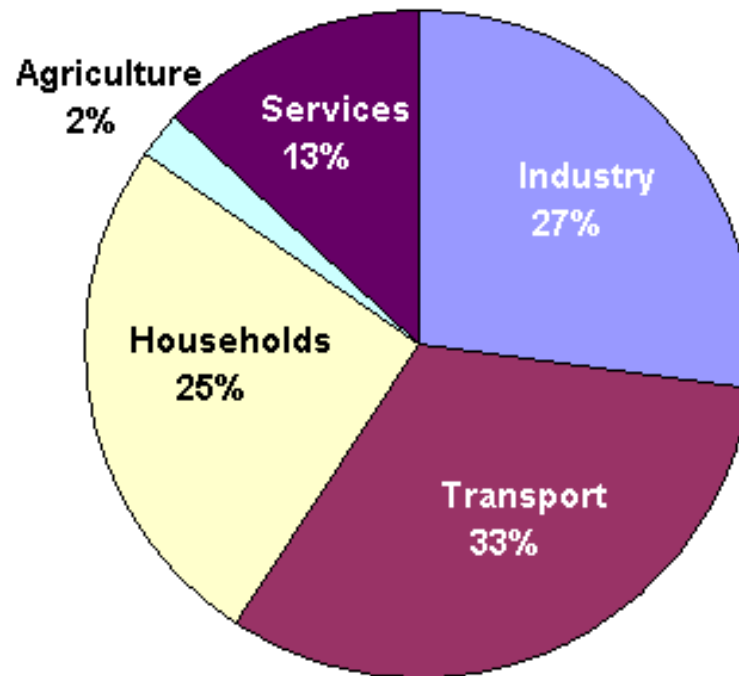
EU Gross inland consumption 2030



in % (1807 Mtoe; 2030 « business as usual »)

Fossil fuels represent up to 80% of our energy mix today. In a “business as usual” scenario, the share may still be 70% by 2030, but renewable sources are expected to account for an increasing proportion.

Energy powers our society and economy



EU-27 Total Final Energy Consumption (2008) Total = 1168.63 Mtoe

Transport and industry consume more than half of the total energy in the EU, while a quarter of energy is consumed by households.

A key sector for the economy

In 2008, the European electricity market was worth around 620 billion Euros. This figure represents 5% of EU GDP.

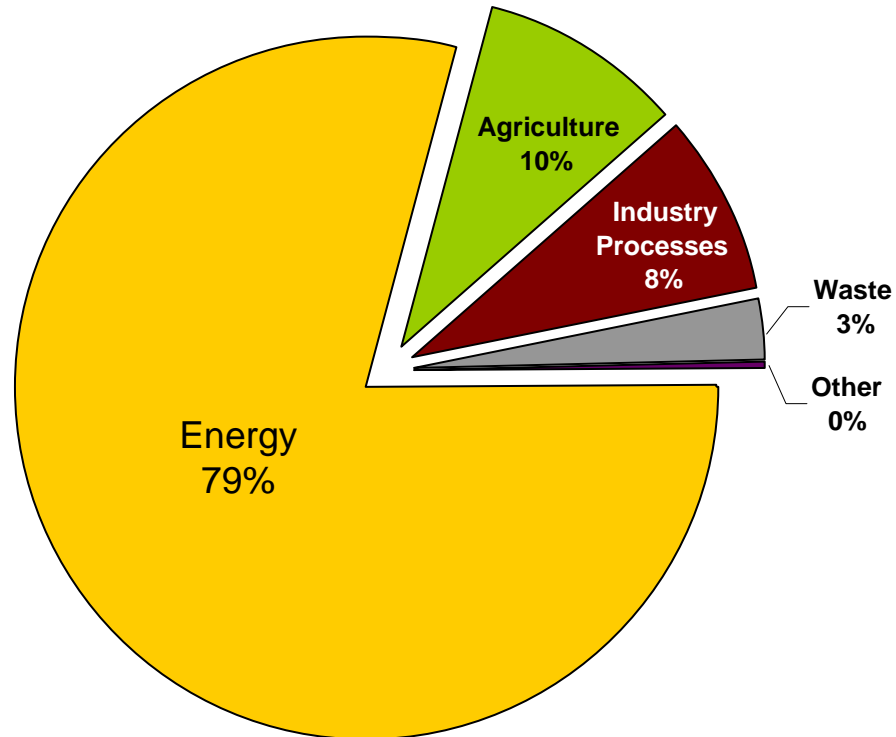
In 2007, the total number of employees in the energy sector was 1.6 million, representing 1.3% of the EU economy.

This represents highly qualified jobs (average personnel costs per employee in the energy sector were 40% above the average).

Energy costs represent 1% to 10 % of industrial production costs (excluding personnel costs).

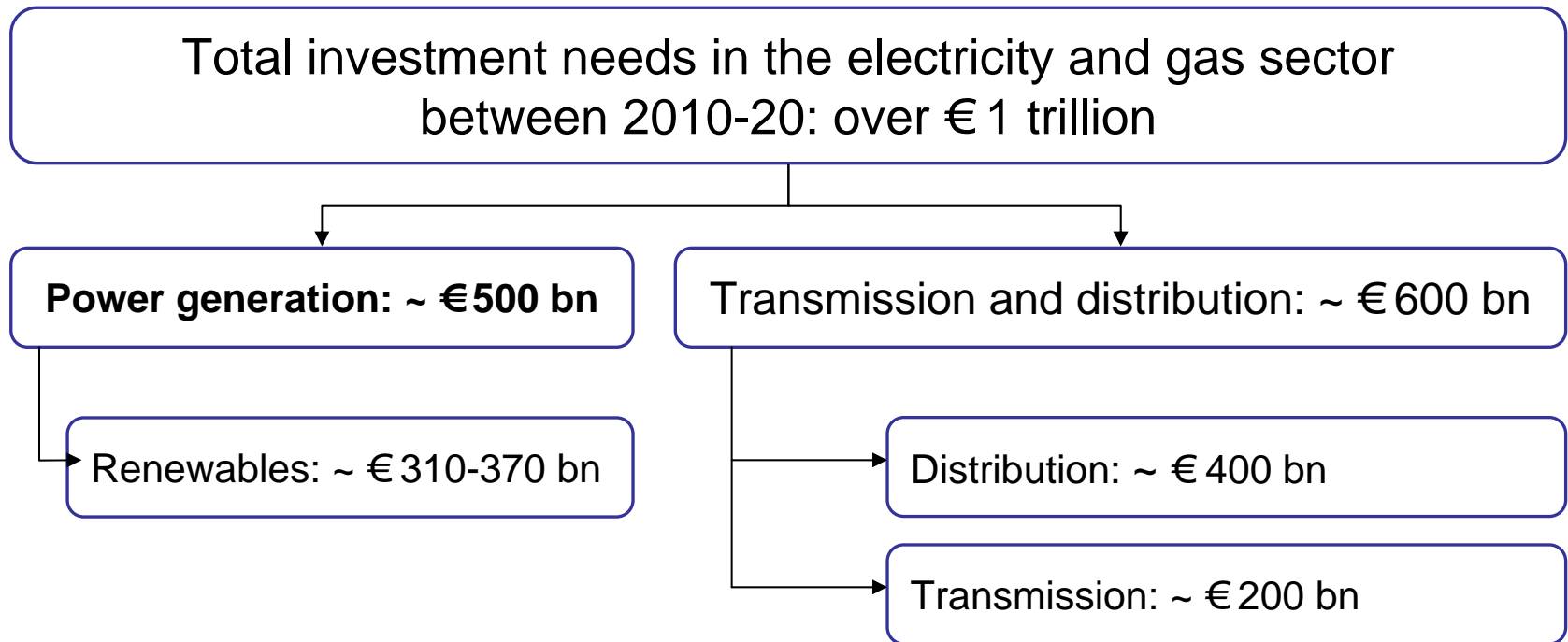
A major source of emissions

Share of greenhouse gas emissions in 2008



The use of energy is responsible for the majority of greenhouse gas emissions, with the energy sector representing 31%, transport 19%, industry 13%, households 9% and others 7%.

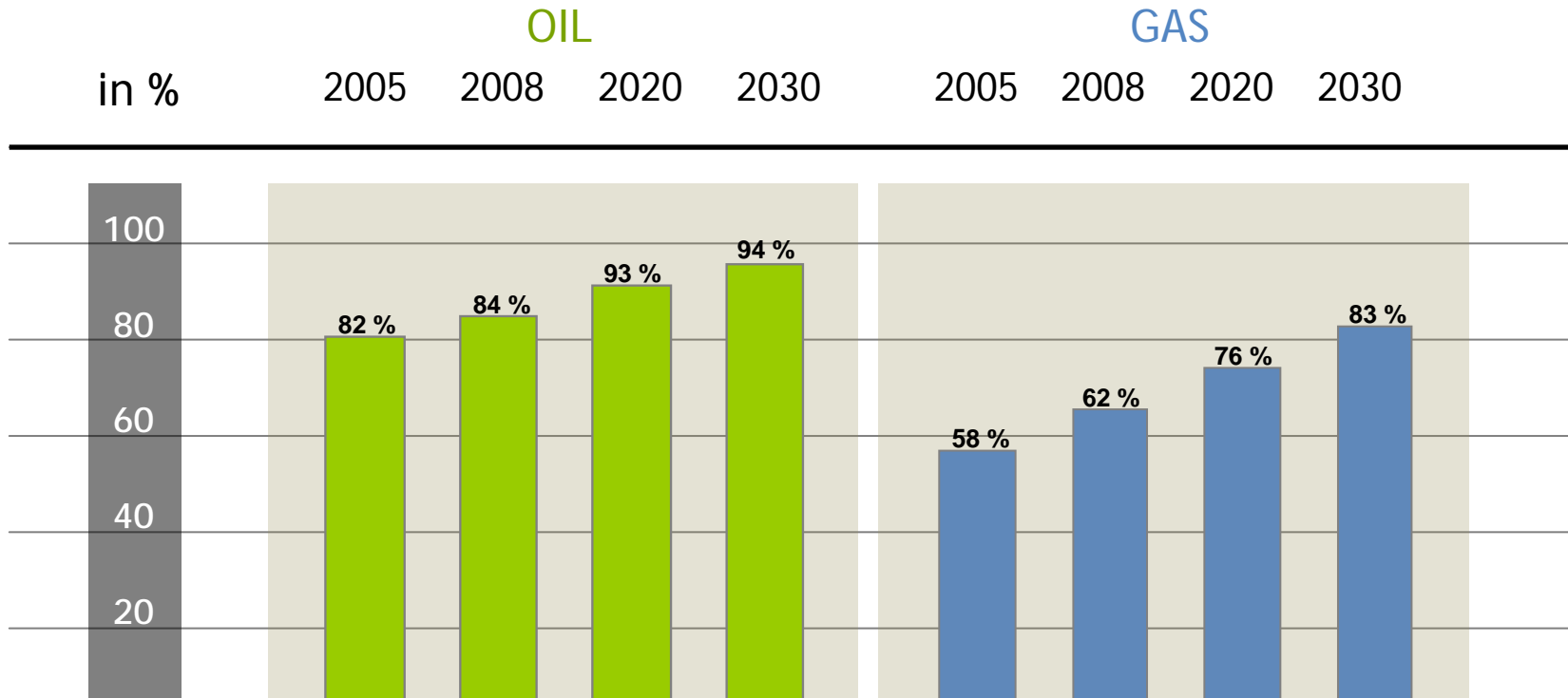
Massive modernisation investment is needed



Investments of over €1 trillion will be needed by 2020 to replace obsolete power plants, to modernise and adapt infrastructure to the latest technologies and to cater for demand for low carbon energy.

Dependence on imports is likely to grow

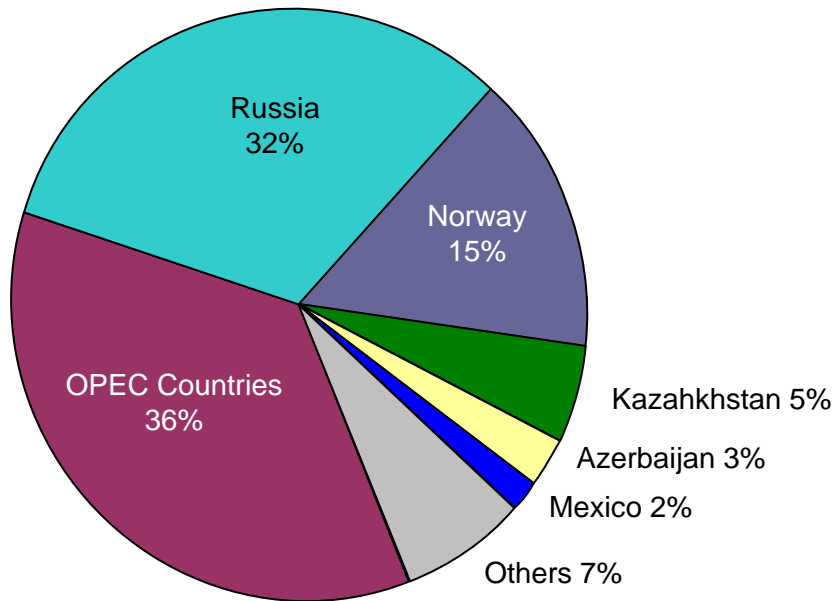
« Business as usual » scenario based on 2009 figures



Today, Europe imports more than half of the energy it uses. If nothing changes, our dependence on fossil fuel imports will rise by 2030.

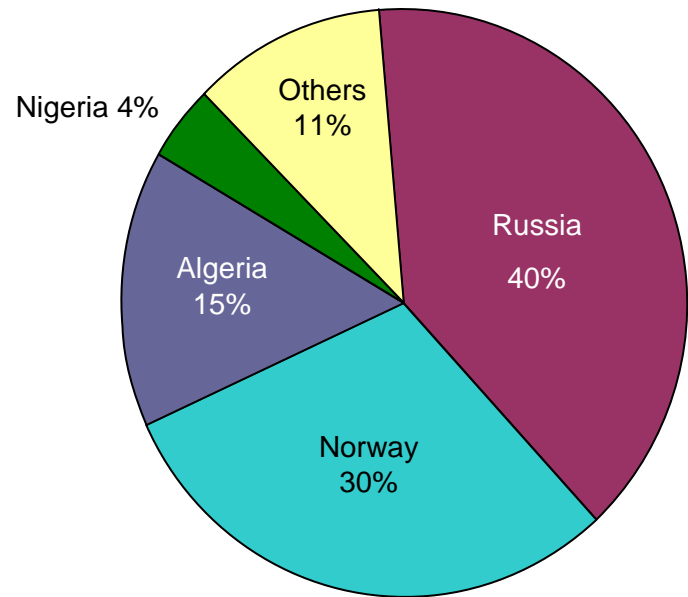
The EU depends on a few suppliers

EU imports of crude oil



in % (2008, total = 561,46 Mt)

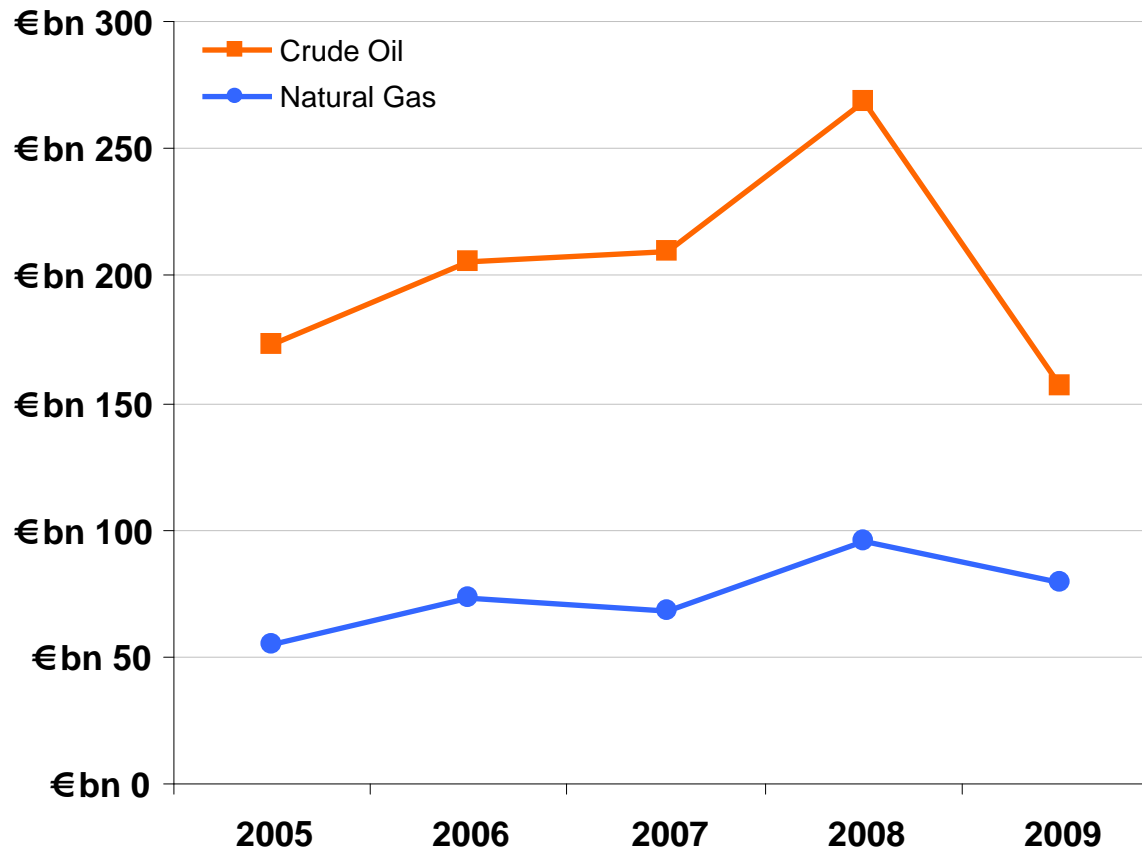
EU imports of natural gas



in % (2008, total = 12,958,133 TJ)

Today, the EU is very reliant on a few partners for its oil and gas supplies. Diversification of routes and sources is a strategic priority for the EU.

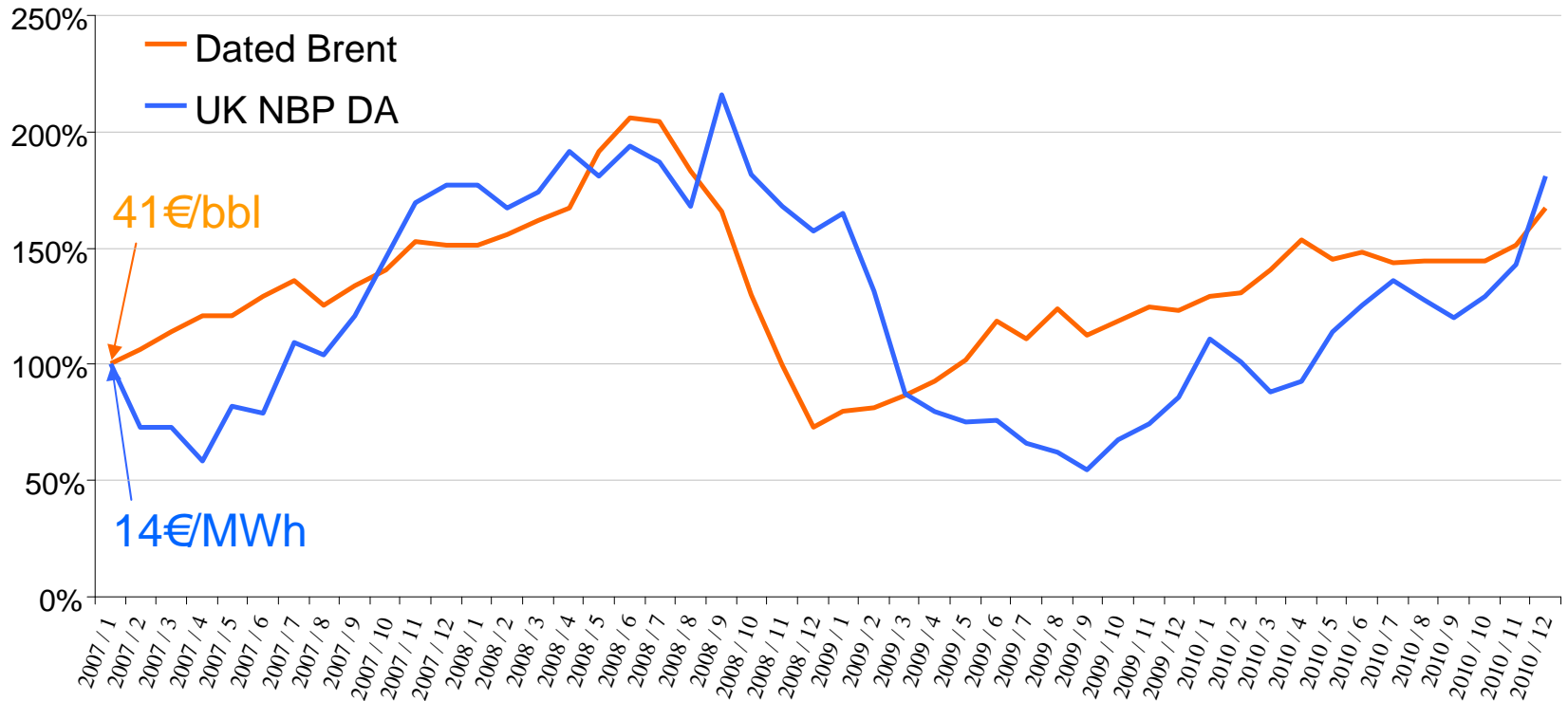
Evolution of the EU gas and oil import bill



The increase between 2007 and 2008 of the import bill due to high crude oil prices had a cost equivalent to 0.5% of the 2008 EU GDP.

Oil and gas price evolution 2007-2010

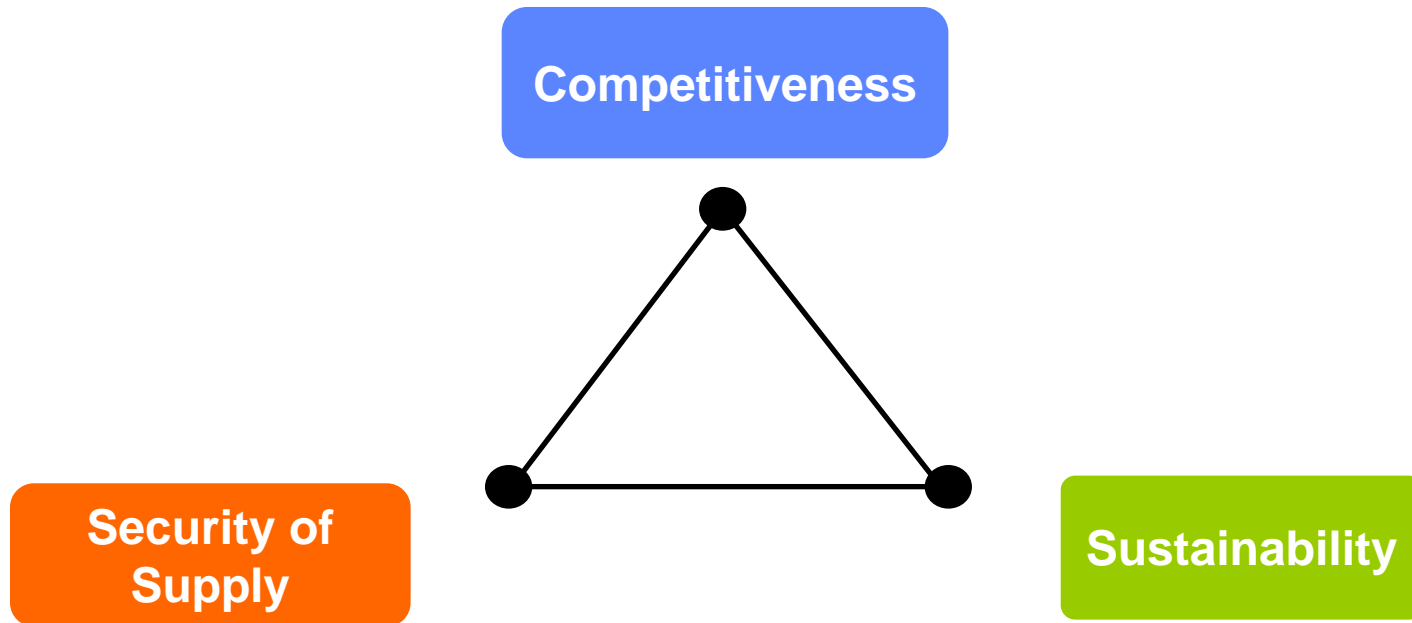
Monthly Average Spot price in €/bbl or €/MWh
(January 2007=100)



Energy prices have a huge impact on the EU economy. However, they are very unstable.

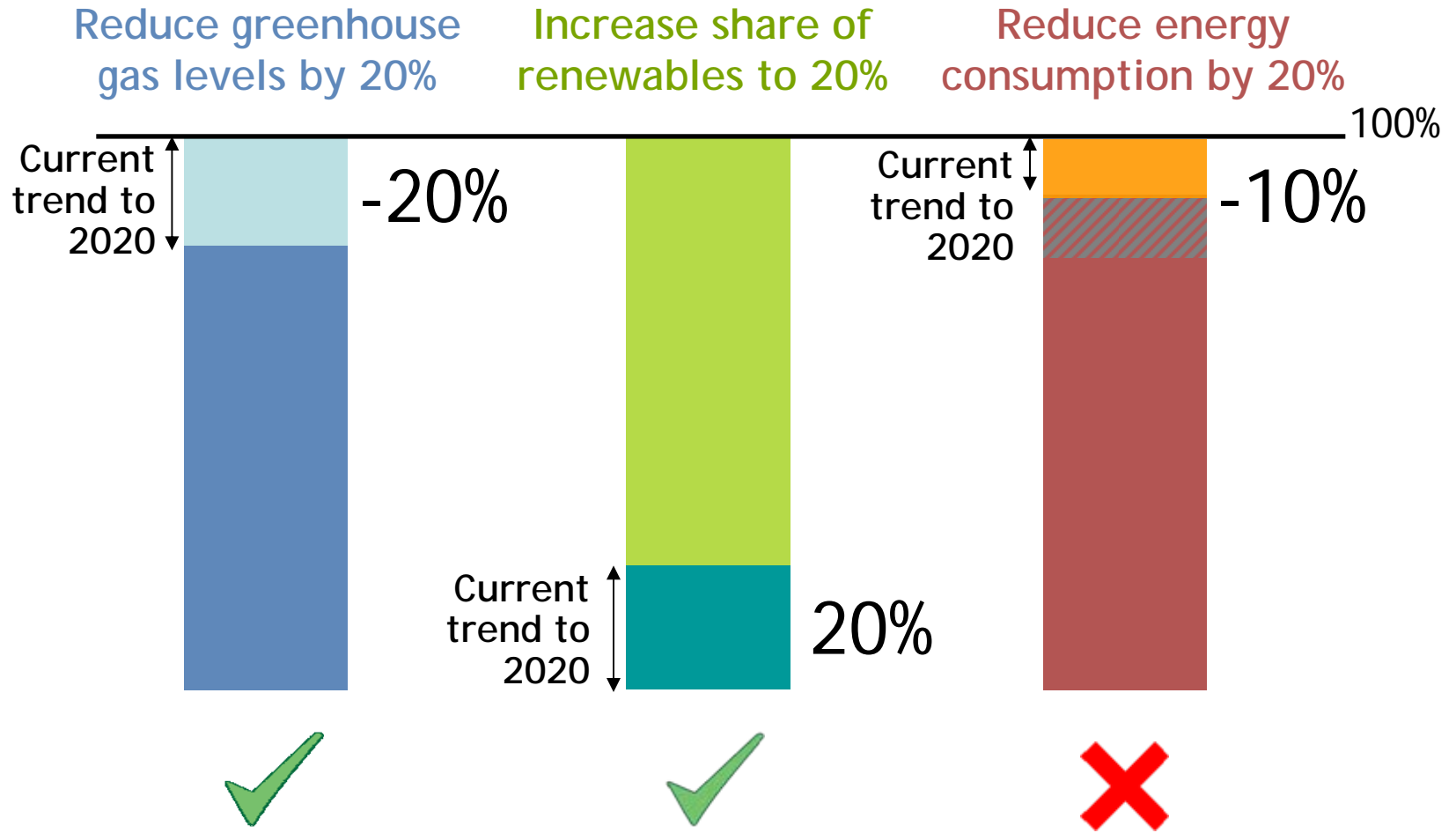
EU energy goals and priorities

EU energy goals



Energy policy has been a cornerstone of European integration since its very beginning through the European Coal and Steel Community. In its daily activities, the EU contributes to delivering competitive, secure and sustainable energy for Europe. For detailed information, see: http://ec.europa.eu/energy/strategies/2010/2020_en.htm

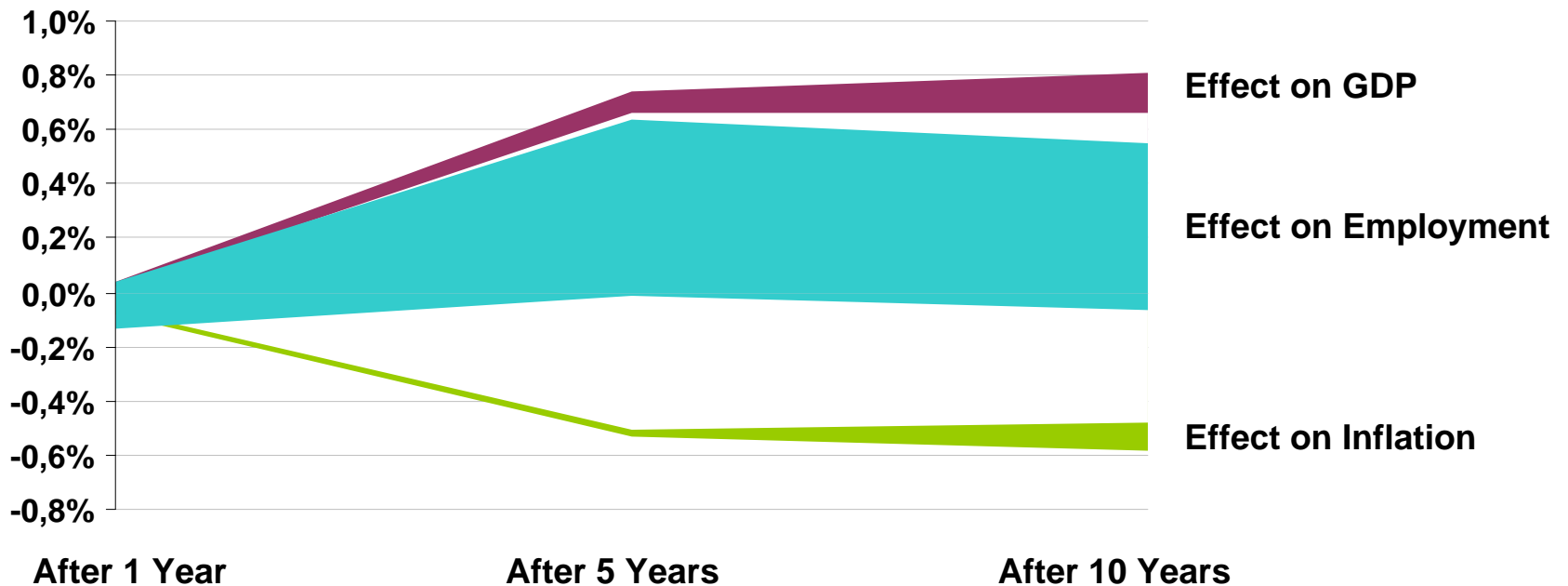
Meeting our “20-20-20 by 2020” goals



An integrated energy market

Completion of the internal energy market will bring benefits

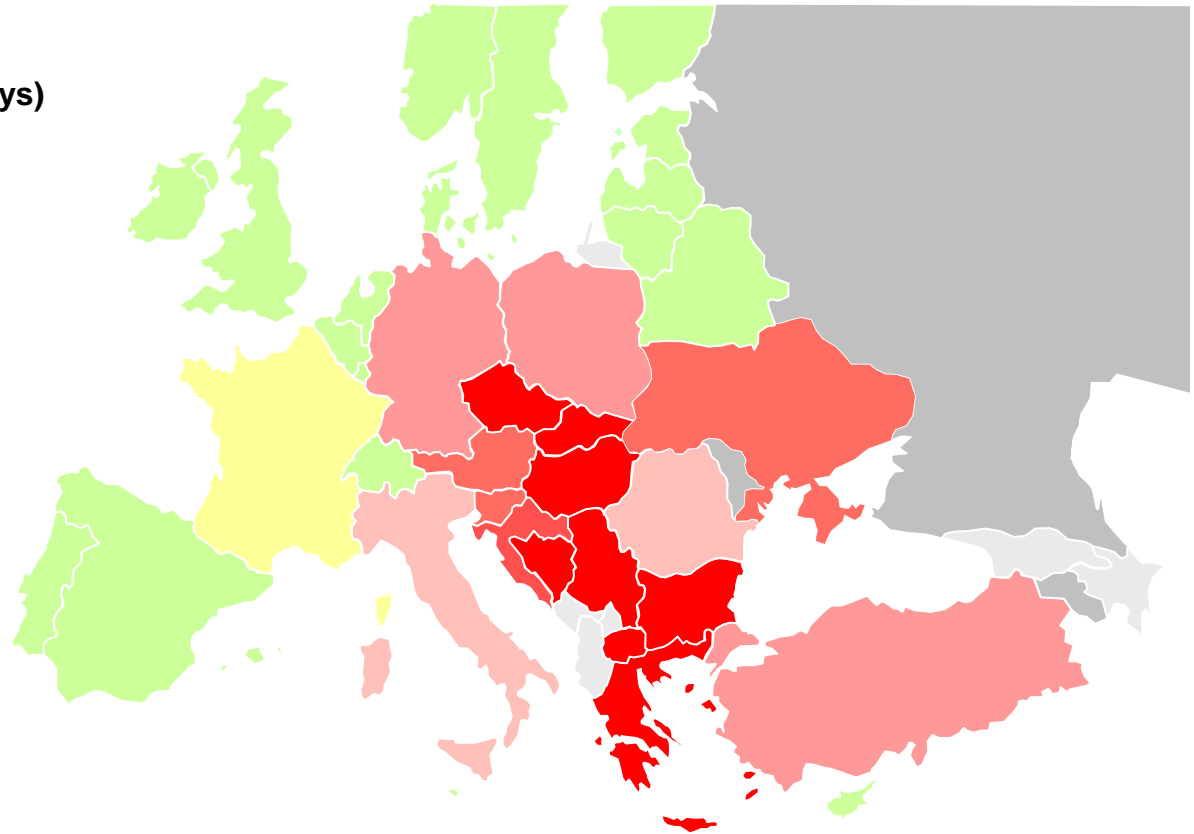
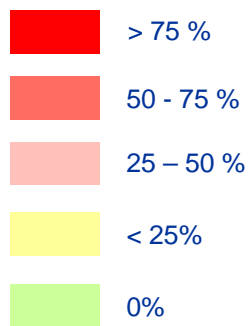
Estimated effects of opening gas & electricity markets (ranges)



Achieving a fully functioning and competitive European electricity and gas market can add an extra 0.6% - 0.8% to EU GDP by 2020, create employment and curtail inflation.

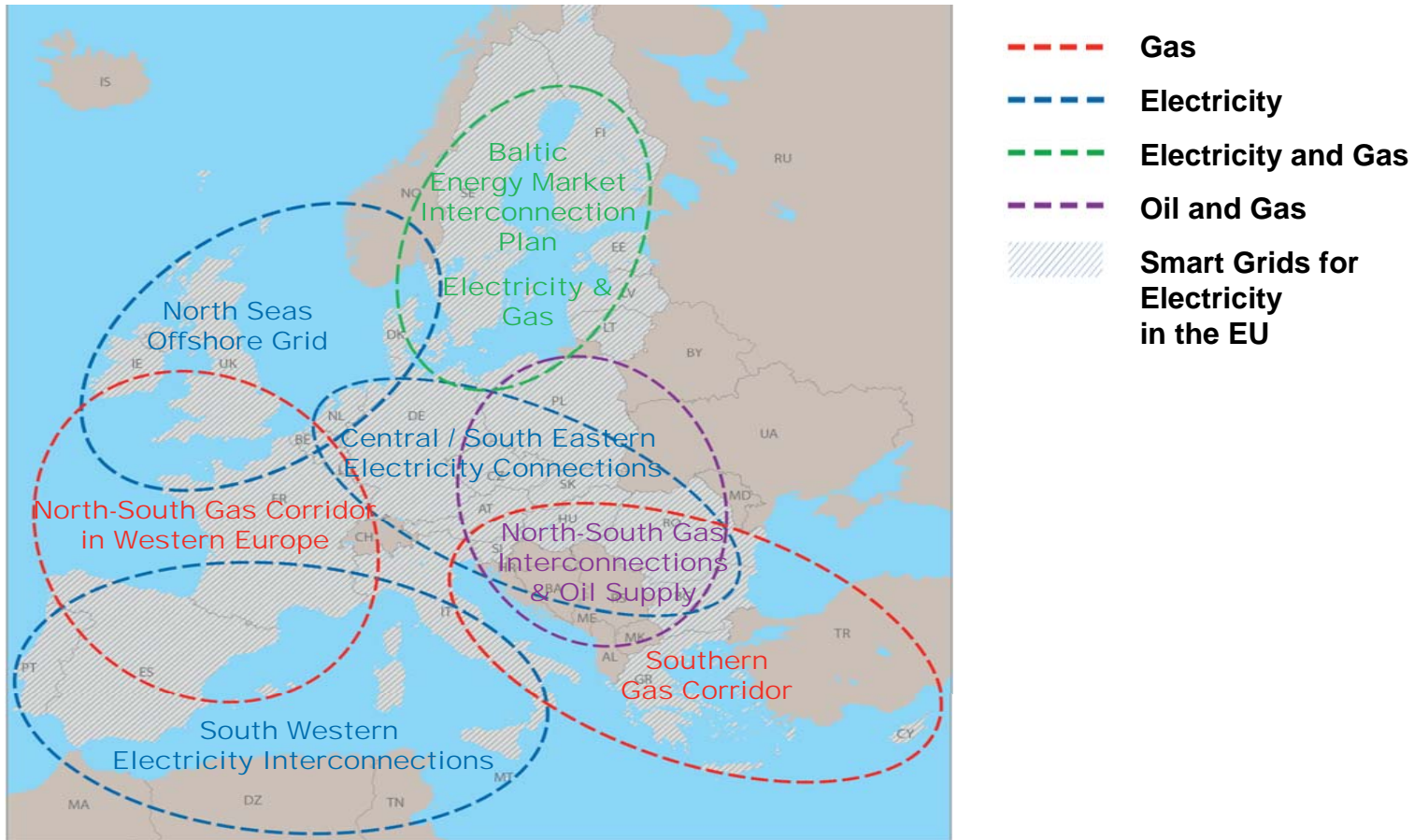
Recent gas crises are illustrative

% of missing gas supply
from 6 to 20 January 2009
(- 300 million m³/day for 14 days)



The January 2009 gas crisis showed the lack of physical interconnections and the poor functioning of the EU internal market, with several Member States facing severe energy shortages for several days.

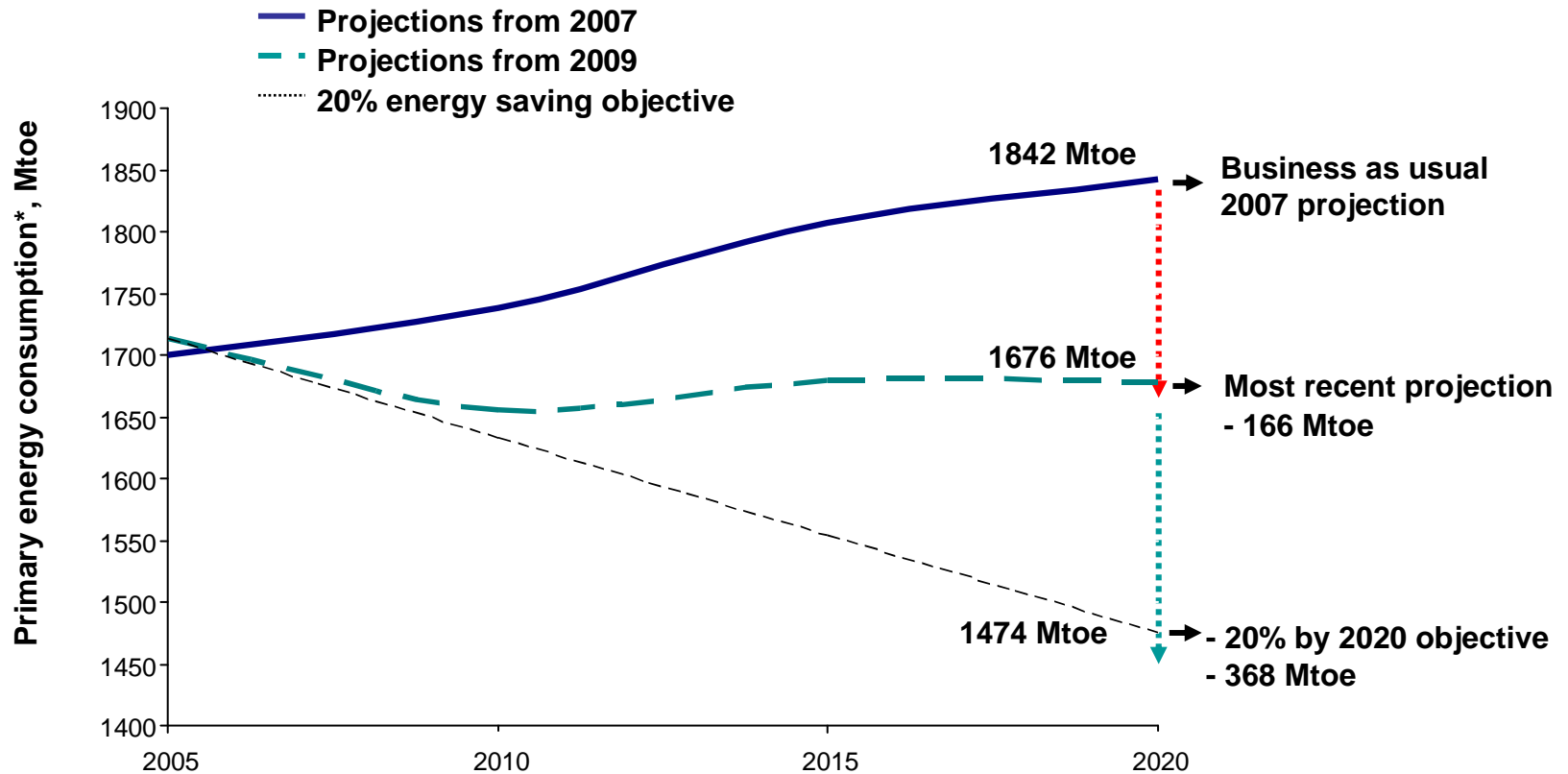
Infrastructure priorities by 2020



The Commission has identified priority infrastructures of European interest to be delivered by 2020. See: http://ec.europa.eu/energy/infrastructure/strategy/2020_en.htm

Energy efficiency

The EU is not on track to meet its target

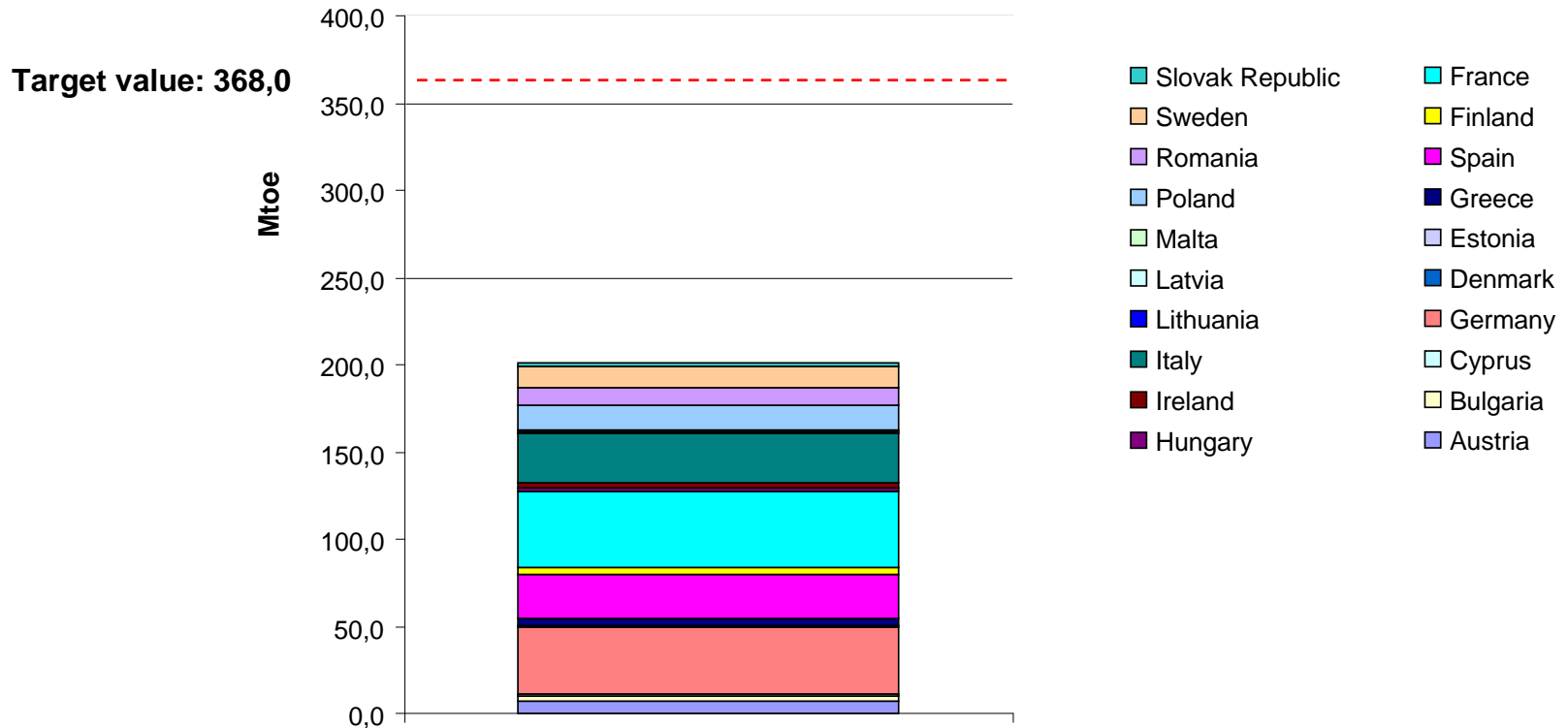


* Gross inland consumption minus non-energy uses

In spite of progress, significant additional efforts are needed to achieve the - 20% energy consumption target. Most recent projections show that with current policies we will only achieve a 10% cut.

National intentions will not suffice

Estimated absolute contribution to EU target by targets defined by 20 Member States so far

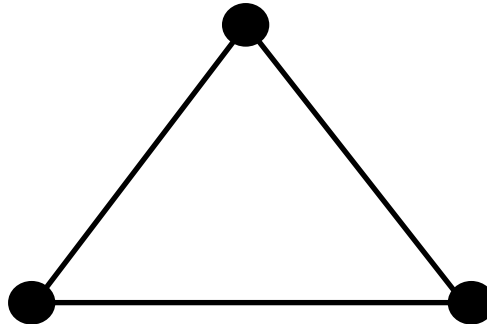


As part of the Europe 2020 strategy for smart, sustainable and inclusive growth, Member States are committed to setting national targets for energy efficiency. First indications show that the degree of precision and levels of ambition are insufficient.

Energy efficiency has multiple benefits

COMPETITIVENESS

- cut Europe's energy bill by about €200 billion / year in 2020
- lower households' bills by about €1000 per household / year
- create up to 2 million jobs by 2020
- boost R&D and create markets where EU can become a global leader



SECURITY OF SUPPLY

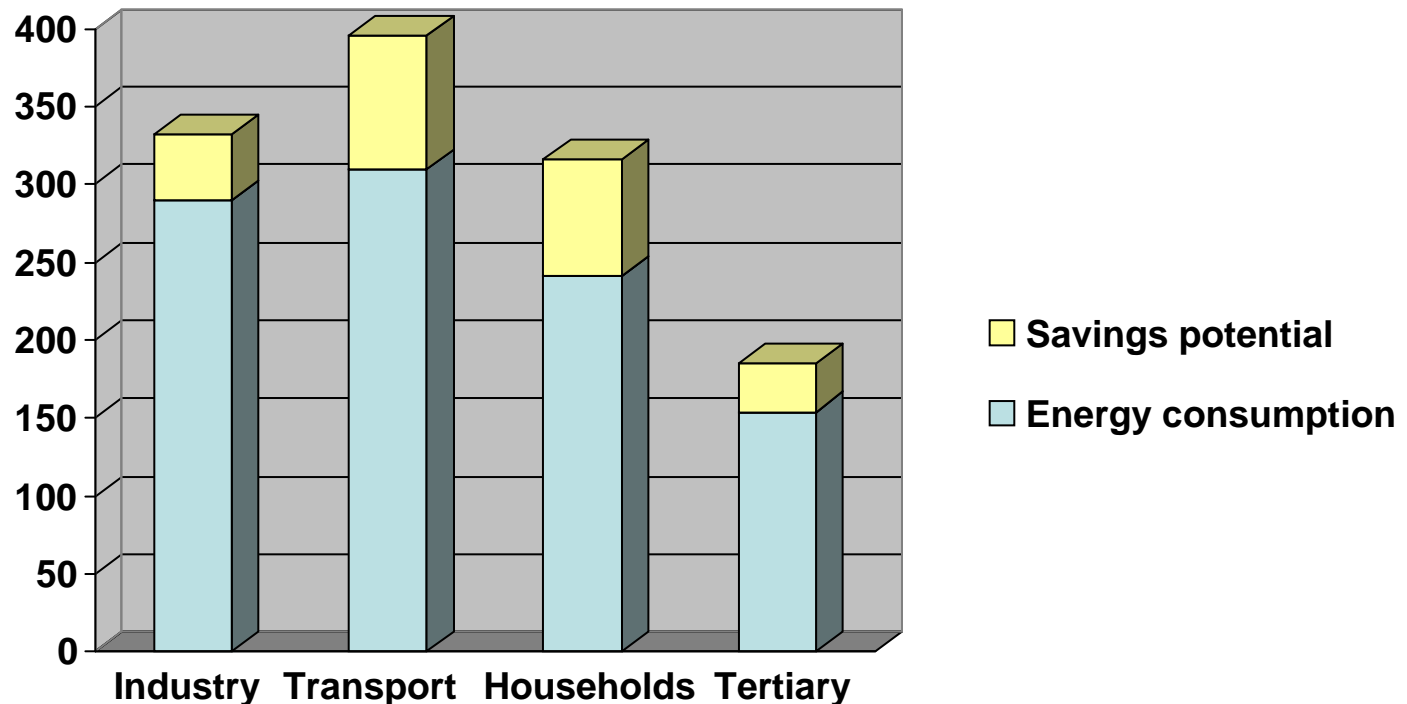
- decrease our energy dependence
- help balance our trade
- alleviate the need for gas pipelines and grid investments

SUSTAINABILITY

- help fight climate change:
 - 740 Mt CO₂ / year in 2020
- limit environmental degradation

Energy savings potential can be tapped

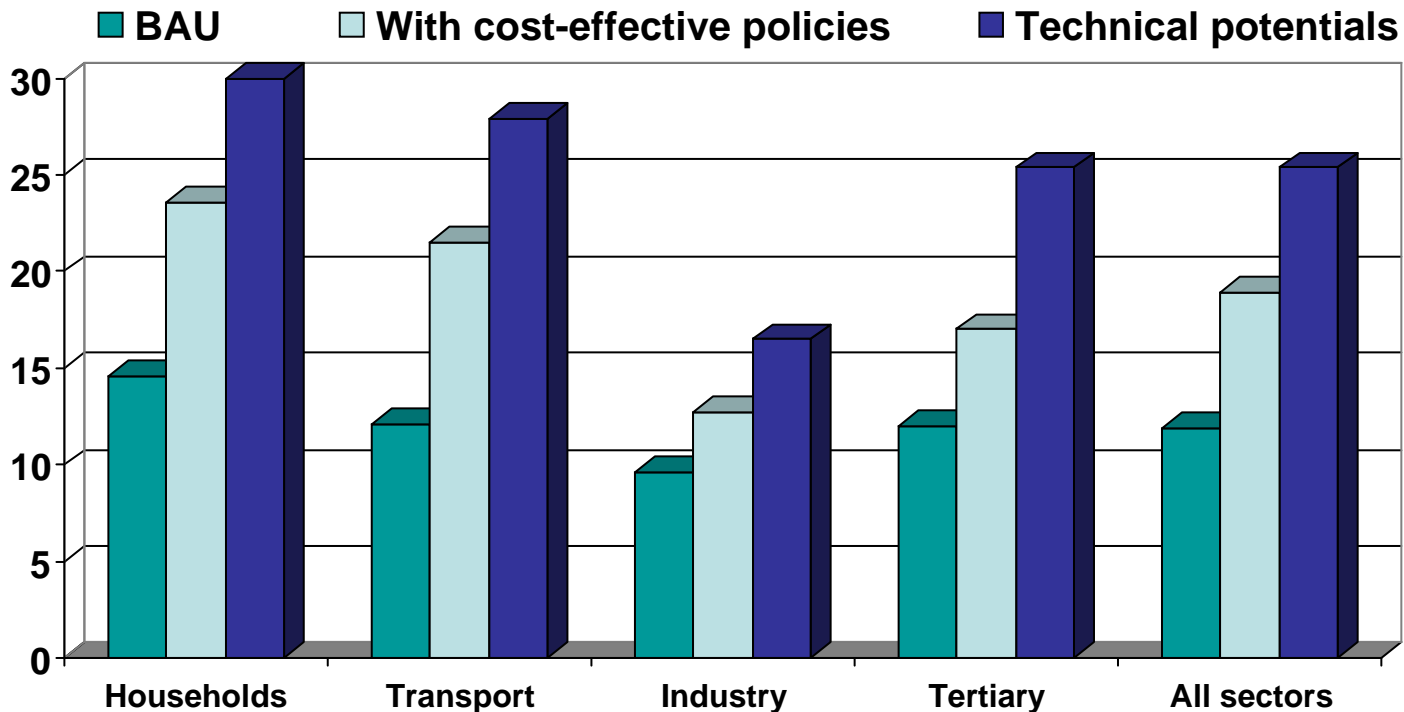
Final energy in 2020 (in Mtoe)



Transport and households, in particular buildings, are two sectors with great potential for energy efficiency gains. Measures to save energy in transport and accelerate the renovation rate of buildings are crucial.

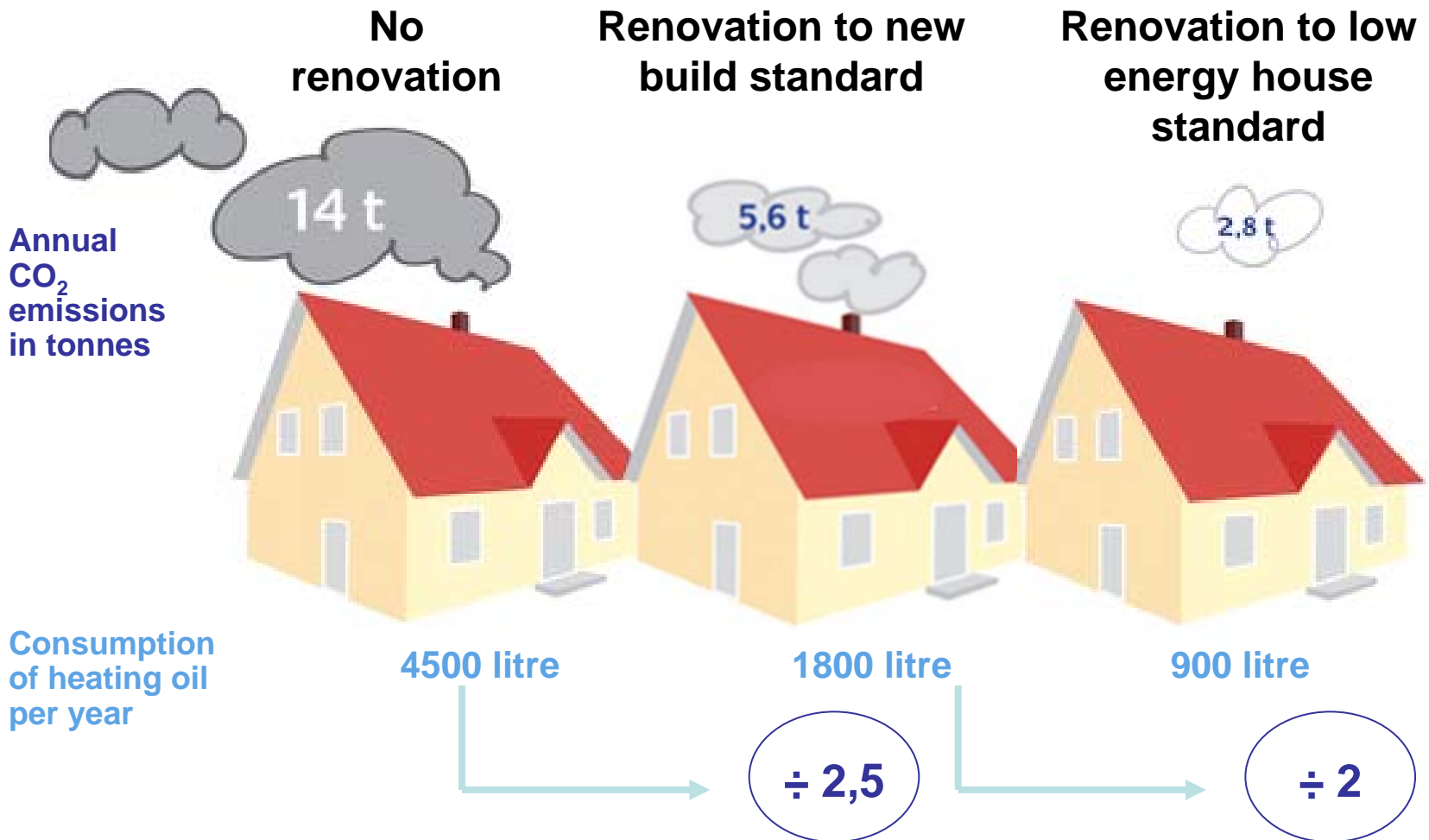
This can be done in a cost-effective manner

Potential of consumption reduction by sector by 2020 (%)



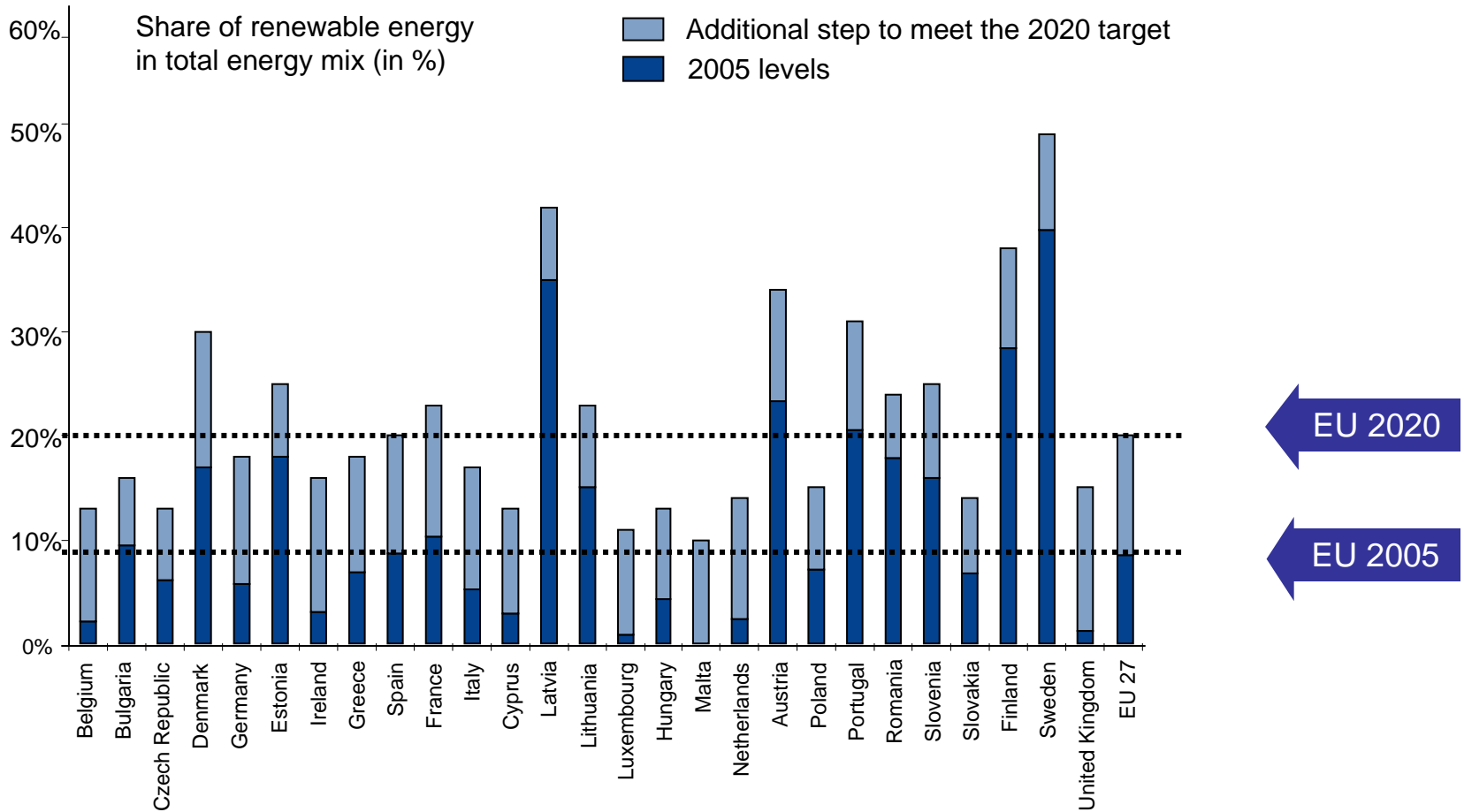
While technologies are available for substantial energy savings, some may be too costly. Existing energy saving commitments can be achieved with cost-effective policies. The “business as usual” (BAU) scenario will not deliver.

What improving energy efficiency means for a single family house built in the 70s (150 m²)



Renewable energy

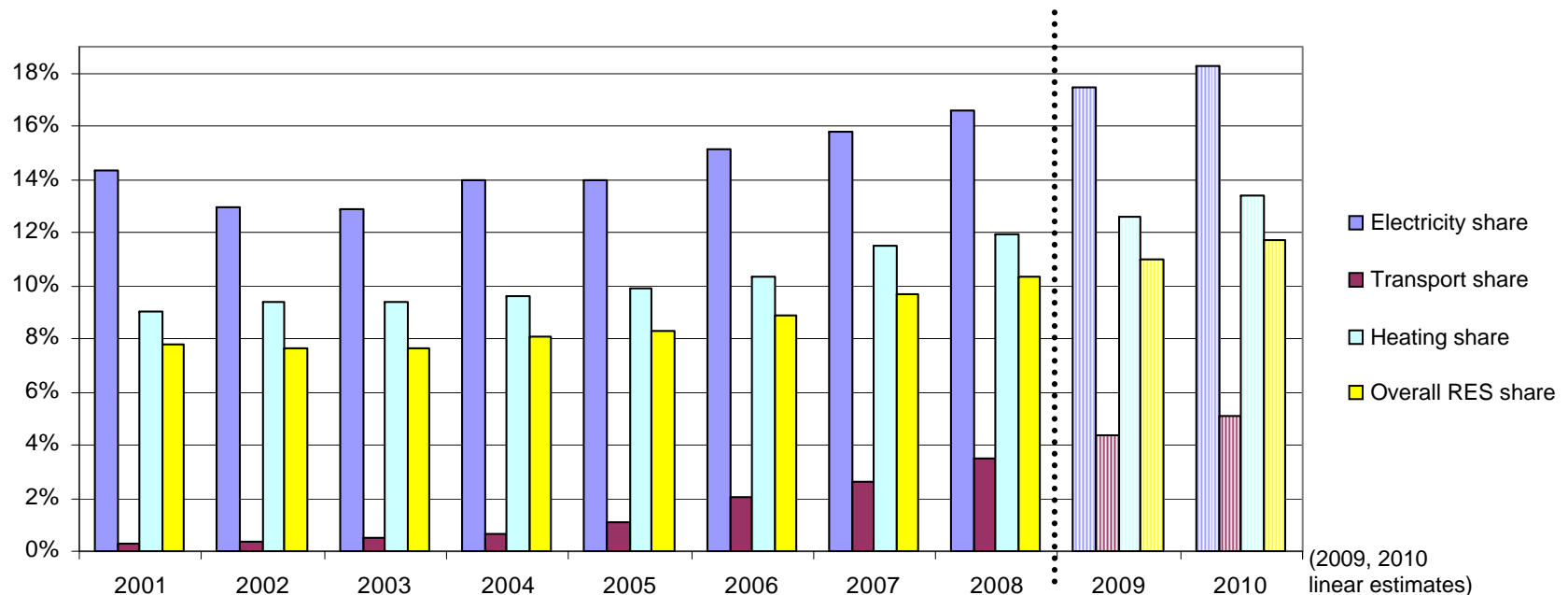
What the EU renewable target means



Each Member State has a binding target - set as a combination of renewable potential and GDP - to increase its share of renewable energy by 2020.

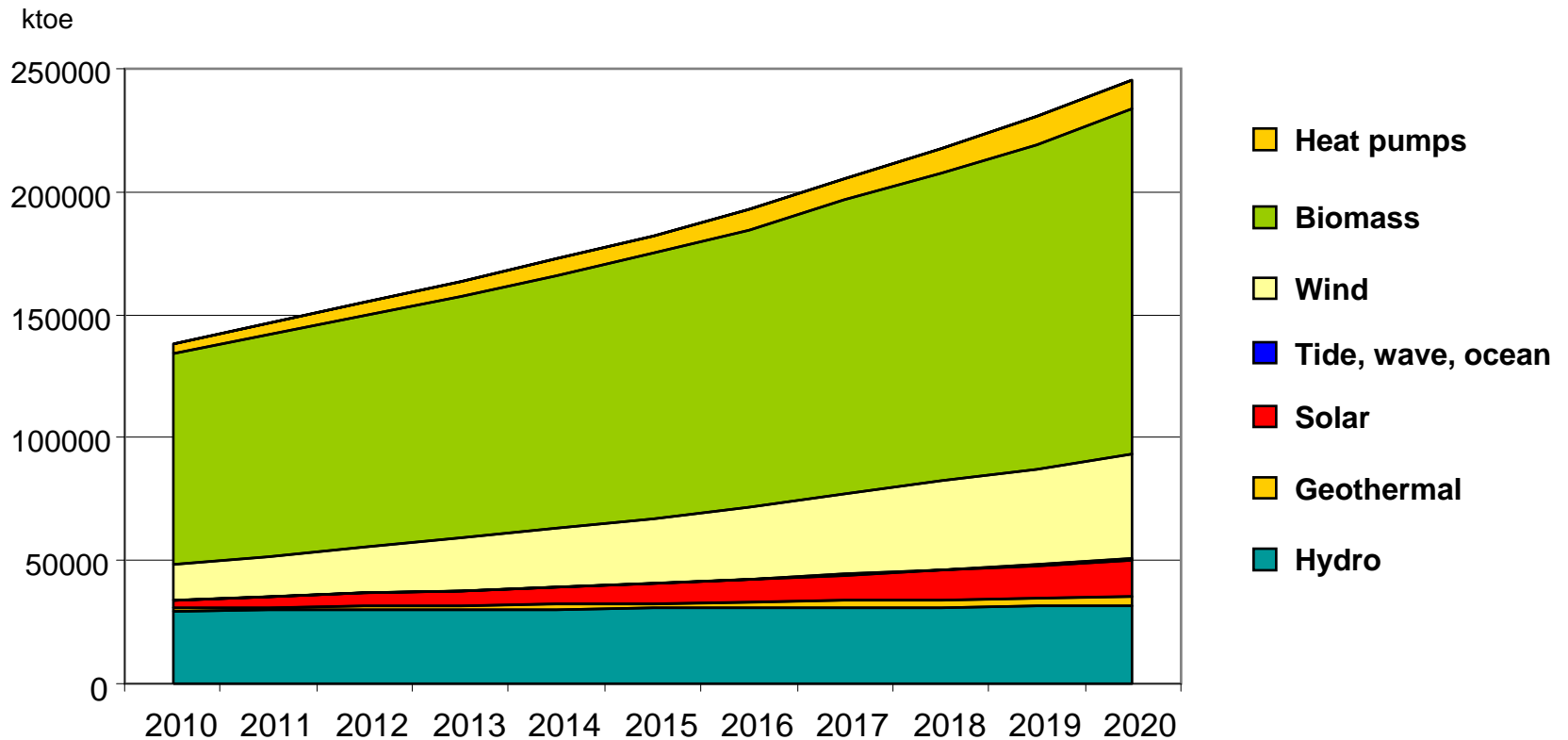
Renewable energy is taking off in the EU

Sectoral and overall growth of renewable energy in the EU



The EU has made progress and seems to be on track to meet its target of 20% renewable energy in its energy mix by 2020. The contribution of renewable sources will vary significantly from one sector to the other.

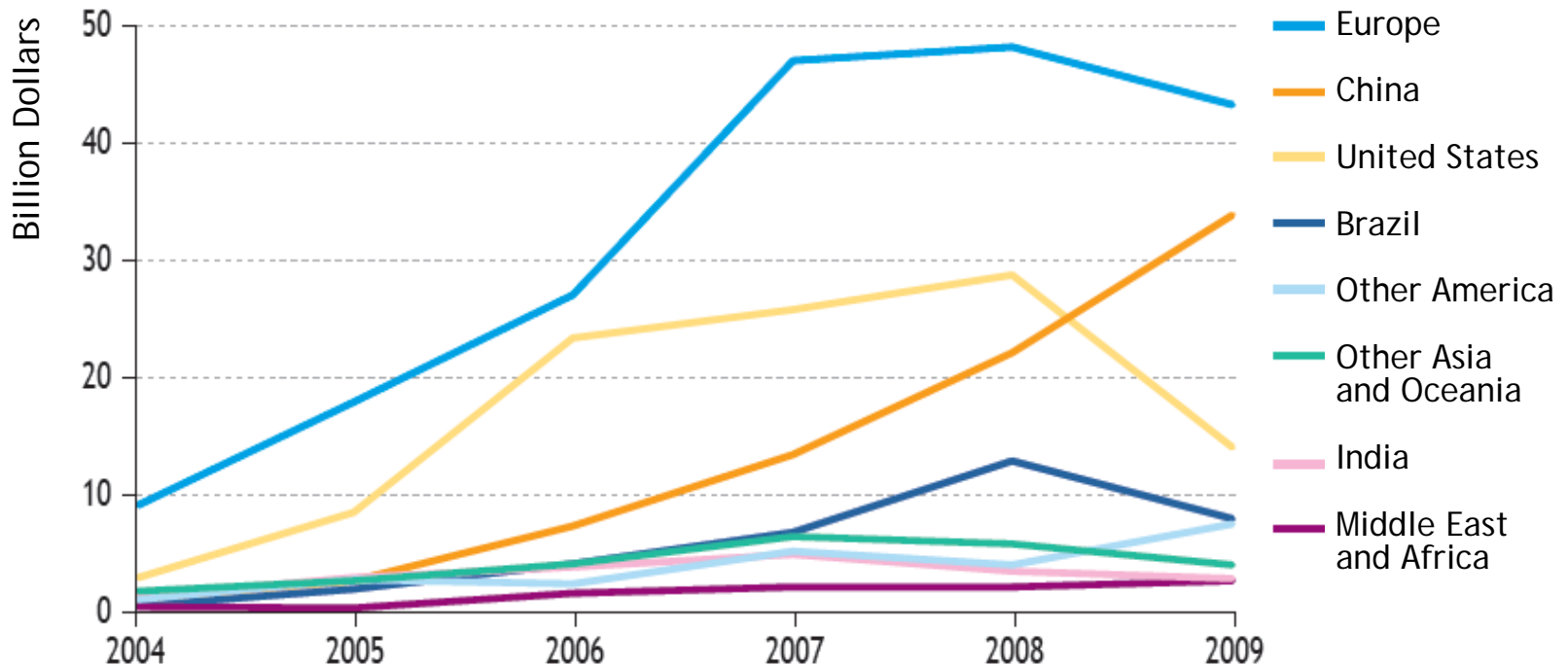
Growth and share of various types of renewable technologies



Solar, wind and biomass are the technologies progressing most rapidly. Solar and wind develop for electricity generation while biomass remains dominant for the heating sector.

Significant global investments in renewables

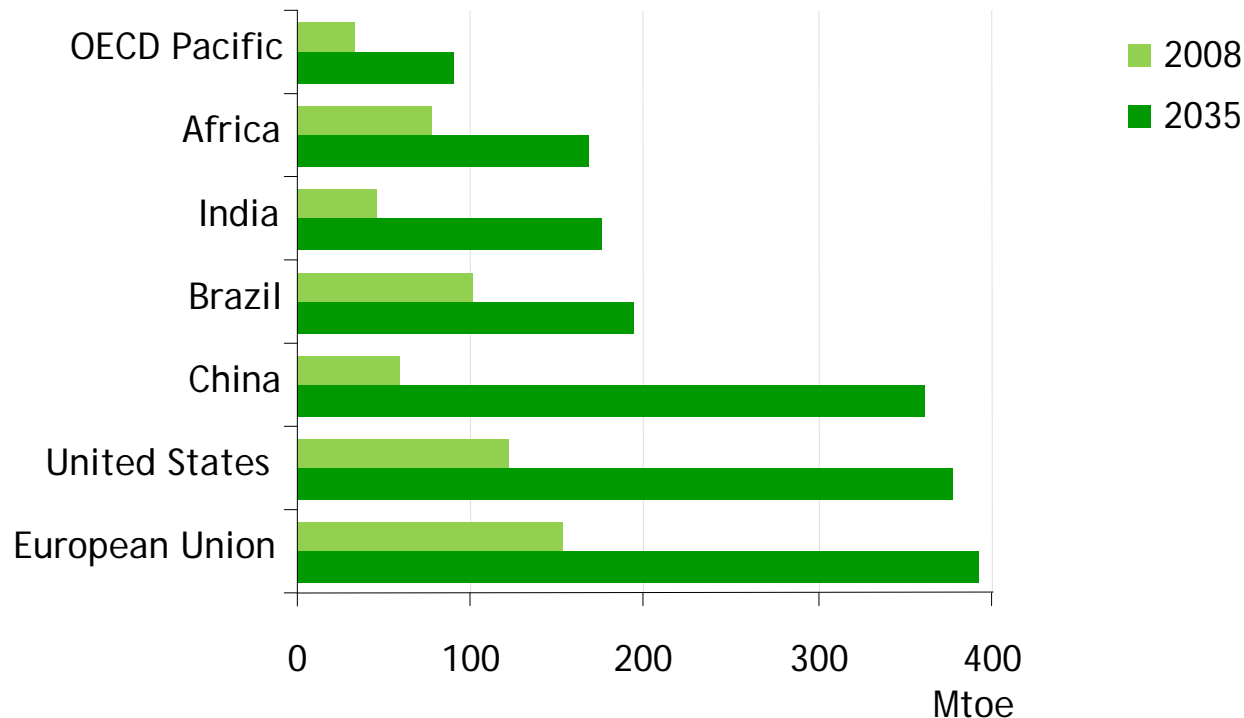
Investments in renewable energy at global level



In 2009, investment in renewable energy fell in the EU by 10% in the context of the economic crisis, while it increased by more than 50% in China.

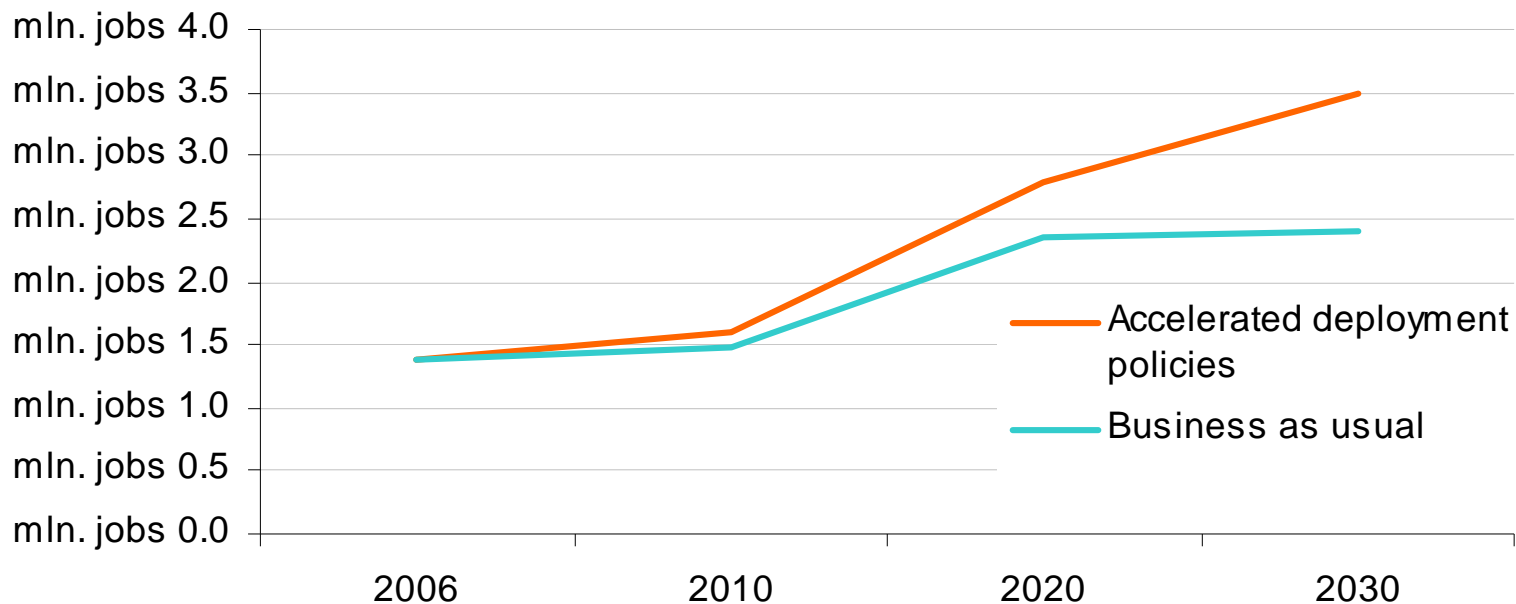
New markets are expanding at home and abroad

Global renewable energy demand 2008-2035



Demand for renewable energy is expected to triple, creating new market opportunities. The EU, the US and China will be the largest global markets.

The renewable energy industry offers good job prospects

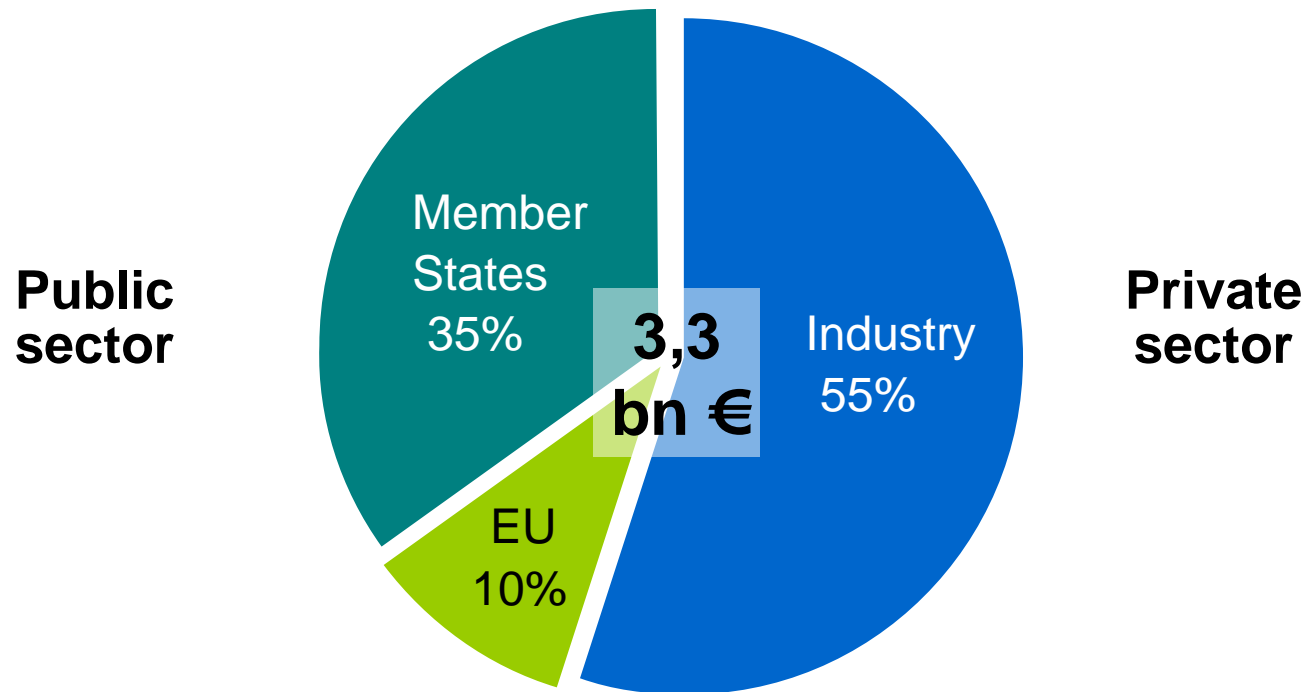


Achieving the 2020 renewable energy target will deliver 2.8 million jobs in total.

Technological challenge

Investment in energy R&D in the EU

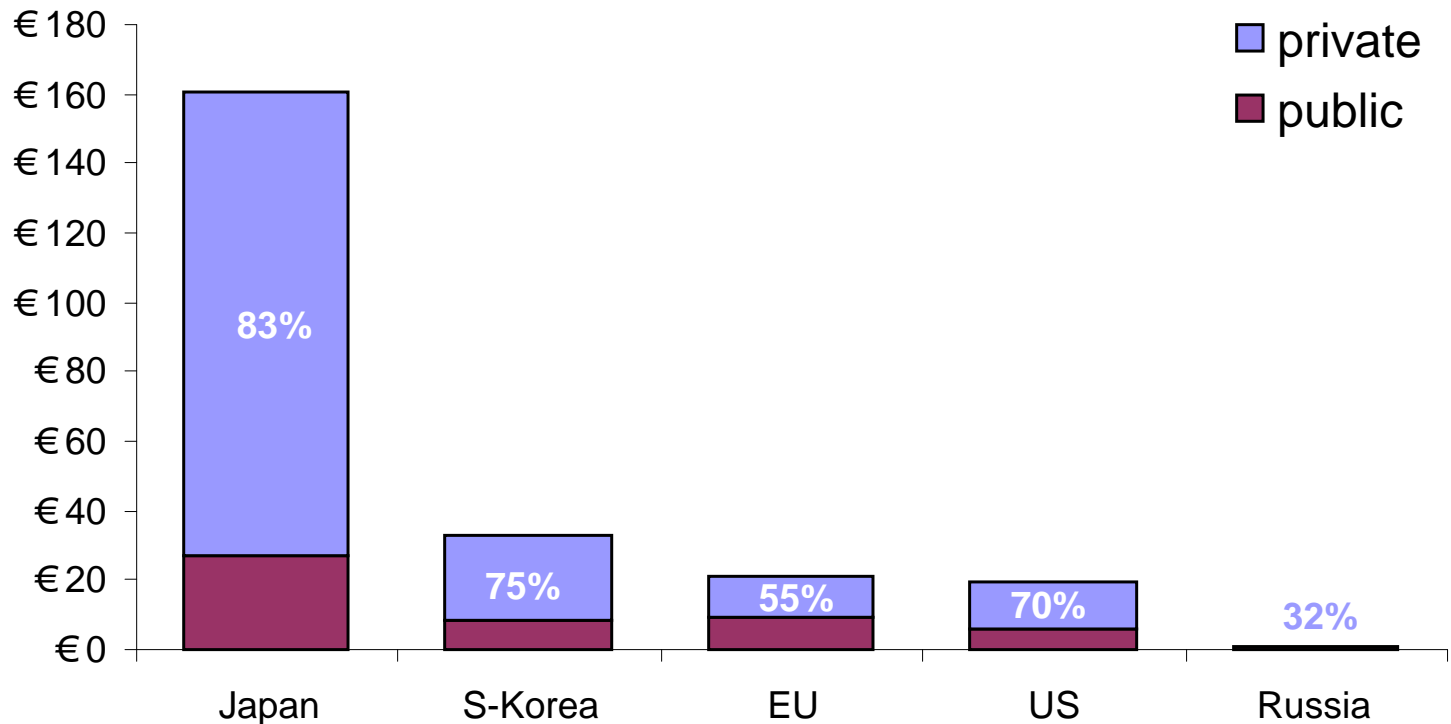
Share of energy investments in 2007



Investment in energy R&D is mostly driven by the private sector, with public authorities at national and EU level also contributing significantly.

Europe risks losing its technological edge

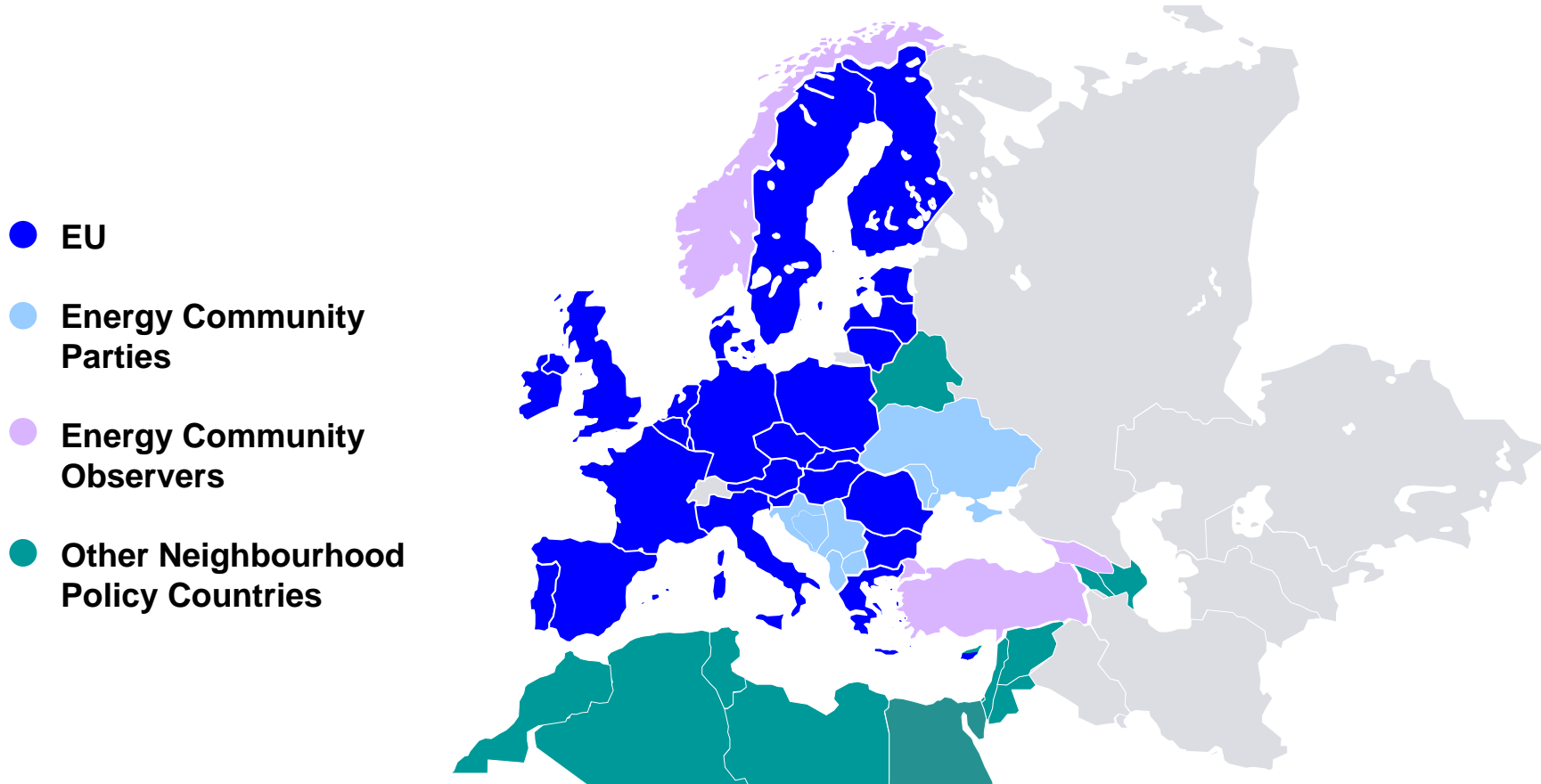
R&D expenditure in energy in 2007
(€per inhabitant)



Europe spends on average €20 on energy R&D per inhabitant, with the private sector contributing for a half (55%).

External dimension

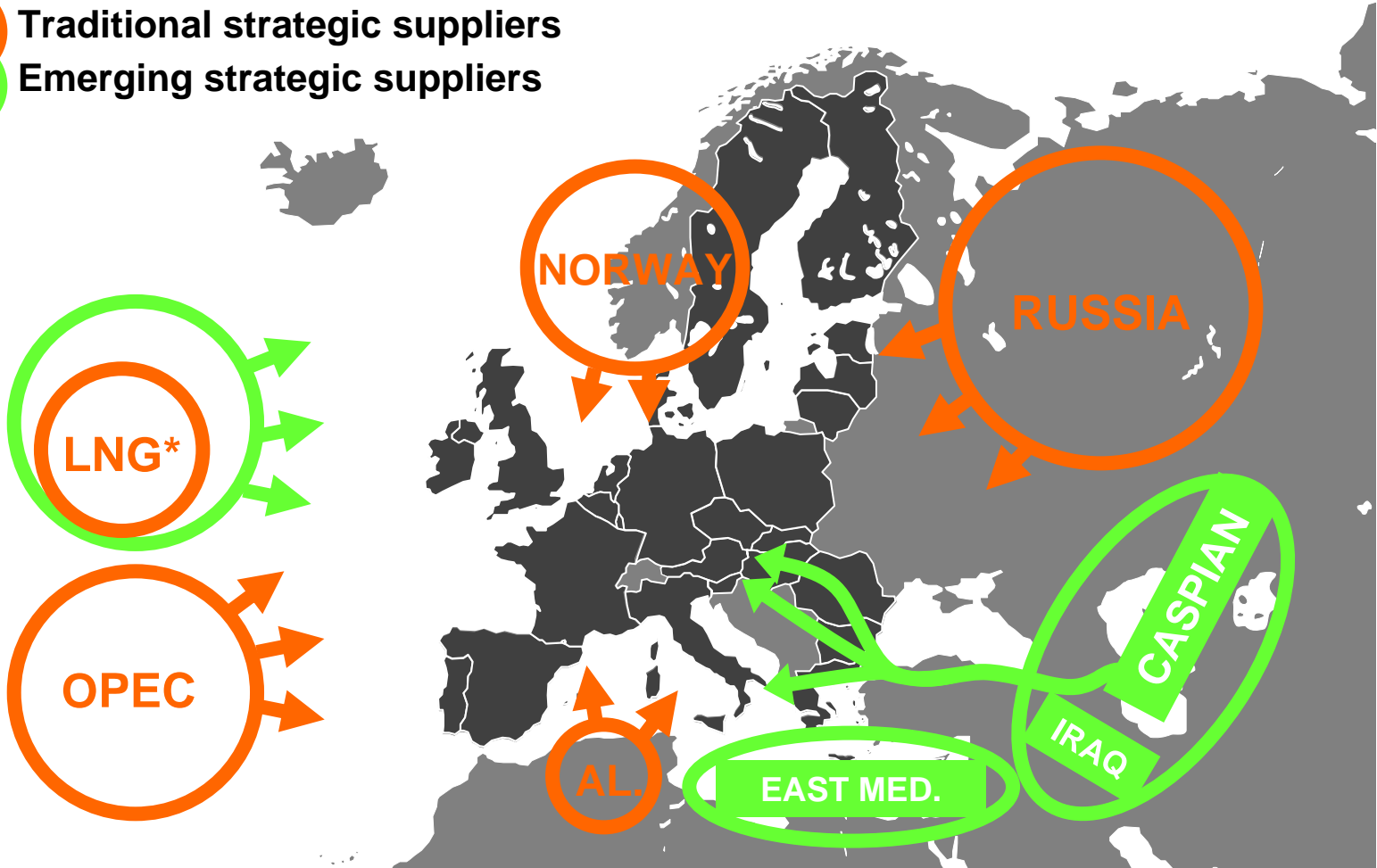
Extension of the EU energy market to the neighbourhood



The EU is projecting its energy market model as well as political and economic stability in neighbouring countries including through the Energy Community Treaty. See: <http://www.energy-community.org>

Traditional and emerging hydrocarbon suppliers

- Traditional strategic suppliers
- Emerging strategic suppliers



* LNG: Liquefied natural gas (Qatar, Algeria, Nigeria, etc.)

