



Greening the economy in the pan-European region: focus on energy



Context

Major challenges for the pan-European region in the energy sector are to **improve both energy intensity and energy security** and to **achieve long-term Greenhouse Gases (GHG) reduction targets**. Meeting these challenges will require acting at scale and quickly on both demand and supply.

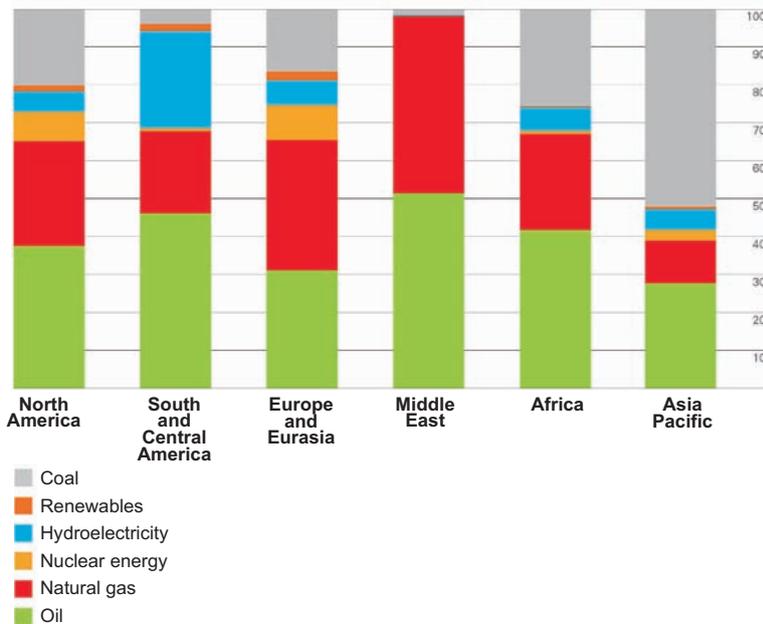
Energy productivity, the contribution the energy sector makes to economies and society, **must be improved substantially** enhanced by **reducing energy intensities** and by **relieving the carbon footprint** of the energy sector.

Efforts are under way to decarbonize the energy sector:

- **improve primary fuel resource management**
- **raise the efficiency of fossil fuel-fired power stations** (e.g., clean coal)
- encourage the replacement of carbon-intensive fuels by alternatives
- **develop cost-effective technology** to remove carbon
- and **encourage** the development and deployment of **carbon-neutral or carbon-free alternatives**

The US Energy Information Administration (EIA) projects that renewable sources will fuel around 12.5% of total United States electricity generation in 2030, and in the European Union (EU) the target is to source 20% of energy from renewables by 2020.

Regional Primary Energy Supply Mix (%), 2010



Source: BP Statistical Review, 2011



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The way forward

UNECE is active across many fronts to reduce the carbon intensity of the energy sector, with a view that **all technologies and all approaches will be needed if the challenges are to be met:**

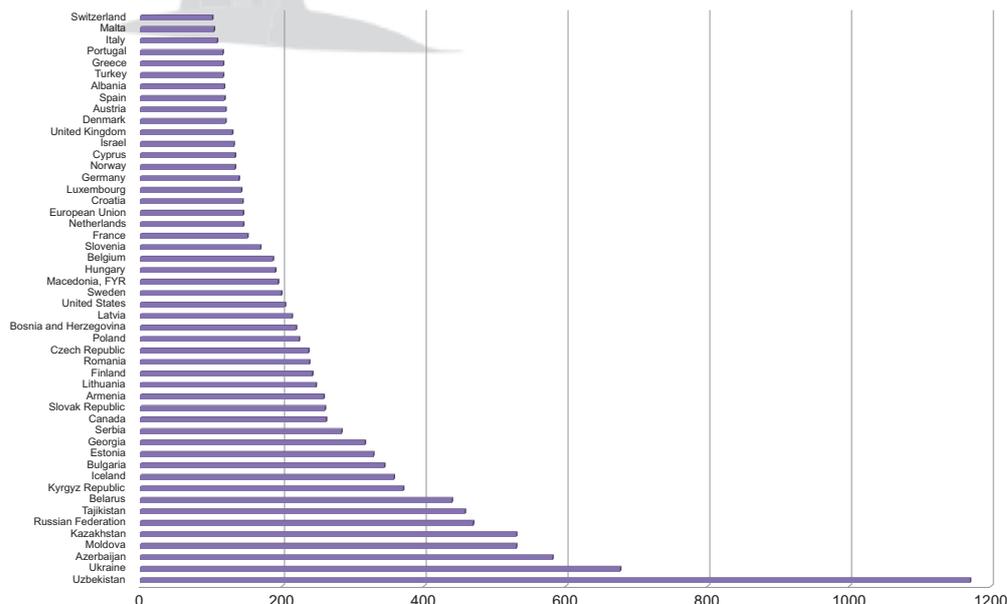
- assist coal producing countries in improving safety and reducing GHG emissions by applying United Nations best practices in coal mines
- provide technical assistance to improve the thermal efficiency of fossil-fuel fired power stations
- enhance the operational efficiency of gas markets
- engage in energy efficiency market formation. The **Energy Efficiency 21 Programme** promotes policy reform, technical assistance, and innovative financing mechanisms for energy efficiency and renewable energy.
- develop **clear policy** and **common standards** across the region to ensure **interoperability of gas and power grids**, as well as **smart meters/grids**, batteries, electric vehicles, and other next generation technology. Smart meters/grids and power grids are key elements in realizing the potential for energy savings and renewable energy.
- develop targeted policies to enable the investments in networks that are needed to ensure the continuity of supply.

Energy subsidies are a particularly egregious issue in the pan-European region. **Fossil fuel subsidies run counter to the imperative to reduce fossil fuel use.** Subsidies of other energy sources and of energy consumption interfere with rational investment decisions and impede the attainment of end-use efficiency targets.

Fossil fuel consumption subsidy rates as a proportion of the full cost of supply, top six countries, 2009

	Average subsidization rate (%)	Subsidy (US\$/person)	Total subsidy, as share of gross domestic product (GDP) (%)
Turkmenistan	66.9	667.0	12.7
Uzbekistan	56.7	383.8	32.1
Ukraine	26.1	119.4	4.7
Russian Federation	22.6	238.7	2.7
Azerbaijan	21.7	77.0	1.6
Kazakhstan	15.6	147.1	2.1

Energy use (kg of oil equivalent) per \$1,000 GDP (constant 2005, at purchasing power parity), annual average, 1993–2007



Source: Greening the economy: mainstreaming the environment into economic development (ECE/ASTANA.CONF/2011/4)

Conference documents and materials are available on the website
<http://www.unece.org/env/efe/Astana/documents.html>