

Climate and energy in the EU

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Introduction

This March the European Council will evaluate the EU's **new framework for climate and energy until 2030** (you were able to read more about this in the Commission's Column in our last issue of the EU News Monthly).

The framework is based on goals set to be achieved by 2020 and on the European Commission's energy plan and the plan for transition to a competitive low-carbon economy by 2050.

The disclosure about the political framework until 2030 corresponds to the Commission's green book from March 2013, which launched a wide range of public consultations about the best extent and structure for objectives related to climate and energy aimed to be achieved by 2030.

These documents reflect the EU's objective **to reduce greenhouse gas emissions by 2050 by 80-95%** compared to 1990 as part of efforts required from developed nations.

The sustainable growth goals that the EU wants to achieve by 2020 include:

- **reduction of greenhouse gas emissions** by 20% by 2020 (compared to the situation in 1990);
- increasing the share of **renewable resources** in total energy consumption to 20%;
- achieving a 20% increase in **energy efficiency**.

However, in the EU's new framework for 2030, there are even more ambitious plans which have been set by the European Commission and which will be stricter as of 2020.

The main objective of the EU's energy and climate policy, which the EU hopes to achieve by 2030, is a 40% reduction of emissions compared to 1990, which the EU aims to fulfil exclusively through domestic measures.

The European Commission will call on the Council and the European Parliament to express consent by the end of 2014 for the EU to adopt at the beginning of 2015 a commitment to 40% reduction as part of international negotiations regarding a global climate treaty, which is expected to be signed in Paris at the end of 2015.

The European Union's binding goal related to energy from renewable resources making up at least a **27% share by 2030**, based on a more market oriented approach with conditions supporting newly emerging technology, will bring major energy benefits relying on domestic sources of energy, employment and growth.

The goal related to energy from renewable resources at the EU level is necessary, so that it can become an incentive for continuing investments in this area. However, this goal has not been assigned as an internal goal through an EU legal regulation, which leaves member states with **the flexibility to transform their energy systems** based on their own needs and circumstances.

Improving energy efficiency will contribute to achieving all of the goals of the EU's energy policy. A transition to a competitive, safe and sustainable energy system is unthinkable without such improvement. The task of achieving energy efficiency for the climate and energy areas by 2030 will be further evaluated during examination of the directive regarding energy efficiency, which is expected to be carried out during this year.

The Commission will consider the need for potential changes to the directive, as soon as its study is completed. **Energy efficiency** will also have to include domestic energy plans of member states.

However, let's look at this topic in terms of numbers, how individual member states are doing with regard to these indicators and whether the development trend will lead to fulfilment of European and national goals.

Greenhouse gas emissions

In a key area related to greenhouse gas emissions, many member states have made major progress and have contributed to a great extent to **reducing greenhouse gas emissions in the EU**.

The goal to reduce greenhouse gas emissions by 20% by 2020 compared to the situation in 1990 is certainly achievable. Although **Malta** and **Cyprus** have much higher greenhouse gas emissions than in 1990, they are still small producers of emissions.

Besides the joint European goals, national goals have also been set. However, with regard to greenhouse gas emissions, these national goals have been set compared to 2005. The lowest goal, -1%, was set for Portugal.

The Czech Republic is supposed to reach greenhouse gas emissions **by 9% by 2020** compared to 2020. Member states Denmark, Ireland, Luxembourg and Bulgaria are expected to reduce their emissions by a fifth.

The largest reductions in greenhouse gas emissions occurred in the EU (like in the Czech Republic) at the beginning of the 1990s and subsequently after 2007.

However, the developments related to greenhouse gas emissions have not been the same in individual sectors of the economy. For example, reduction occurred in the processing industry, in construction, in energy and in agriculture. **Emissions increased in the transport sector.**

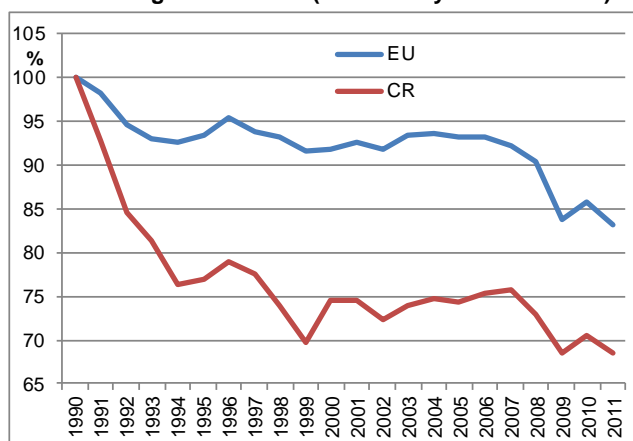
This can be attributed both to the structure of the transport sector and to the openness of the economy as well as to growing demands and distances. Road and air transport has been increasing rapidly, often at the expense of railways.

Greenhouse gas emissions in 2000 and 2001 (reference year 1990 = 100)

| | 2000 | 2011 |
|-----------------------|-----------|-----------|
| Malta | 151 | 151 |
| Cyprus | 147 | 147 |
| Spain | 126 | 126 |
| Portugal | 116 | 116 |
| Greece | 110 | 110 |
| Austria | 108 | 108 |
| Slovenia | 106 | 106 |
| Ireland | 106 | 106 |
| Luxembourg | 100 | 100 |
| Finland | 97 | 97 |
| Italy | 95 | 95 |
| The Netherlands | 95 | 95 |
| Croatia | 89 | 89 |
| France | 89 | 89 |
| Poland | 88 | 88 |
| Sweden | 86 | 86 |
| Belgium | 85 | 85 |
| Denmark | 83 | 83 |
| EU | 83 | 83 |
| UK | 75 | 75 |
| Germany | 74 | 74 |
| Czech Republic | 68 | 68 |
| Hungary | 67 | 67 |
| Slovakia | 63 | 63 |
| Bulgaria | 60 | 60 |
| Estonia | 52 | 52 |
| Romania | 50 | 50 |
| Latvia | 45 | 45 |
| Lithuania | 44 | 44 |

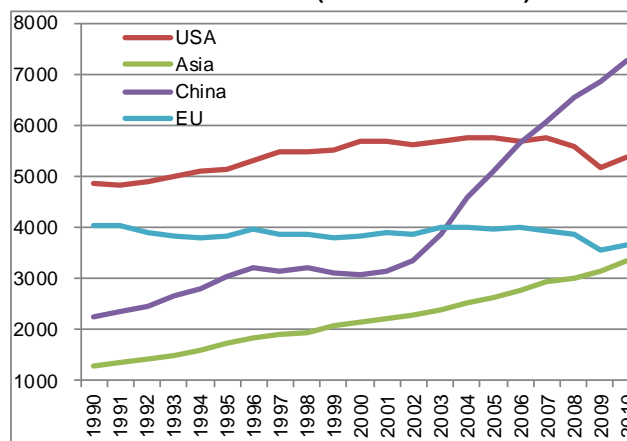
Source: Eurostat

Greenhouse gas emissions (reference year 1990 = 100)



Source: Eurostat

CO₂ emissions in 1990-2010 (in mil. tonnes CO₂)



Source: International Energy Agency (IEA)

Although greenhouse gas emissions have been decreasing in the EU, from a global perspective emissions of carbon dioxide (CO₂), the mainly significant greenhouse gas, have been increasing.

Other greenhouse gases (in the so-called Kyoto basket) besides the already mentioned CO₂ include methane (CH₄), nitrous oxide (N₂O), hydro-fluorocarbons (HCF), perfluorocarbons (PCF) and sulphur fluoride (SF₆). Global emissions of carbon dioxide grew from 1990 to 2010 by 44.%. Developing Asian economies contributed to this to a great extent.

According to data from the **International Energy Agency (IEA)**, carbon dioxide emissions decreased in the EU by approximately 10%, while in the United States they grew by 10%. However, in China's case these are very low numbers.

Still in 1990, China's emissions compared to the EU were approximately half, while today they are twice that level. The change of trend and rapid increase in carbon dioxide emissions in China has been occurring mainly since 2000. Between 2000 and 2010, CO₂ emissions in China increased by nearly two and a half times their previous level.

Goal for greenhouse gas emissions (2020) compared to emissions from 2005

| | | | |
|-----------------|-------------|-----------------------|------------|
| EU* | -20% | Germany | -14% |
| Denmark | -20% | France | -14% |
| Ireland | -20% | Poland | -14% |
| Luxembourg | -20% | Italy | -13% |
| Bulgaria | -20% | Slovakia | -13% |
| Romania | -19% | Estonia | -11% |
| Sweden | -17% | Spain | -10% |
| Latvia | -17% | Hungary | -10% |
| The Netherlands | -16% | Czech Republic | -9% |
| Austria | -16% | Cyprus | -5% |
| Finland | -16% | Malta | -5% |
| UK | -16% | Greece | -4% |
| Belgium | -15% | Slovenia | -4% |
| Litva | -15% | Portugal | -1% |

Source: Eurostat, European Union; *compared to emissions from 1990; data for Croatia are not available

Share of renewable energy in gross energy consumption

The framework for support of energy from renewable resources has been set in order to reduce greenhouse gas emissions and support more environmentally friendly forms of transport. For this purpose, national action plans and conditions for using bio fuels have been defined.

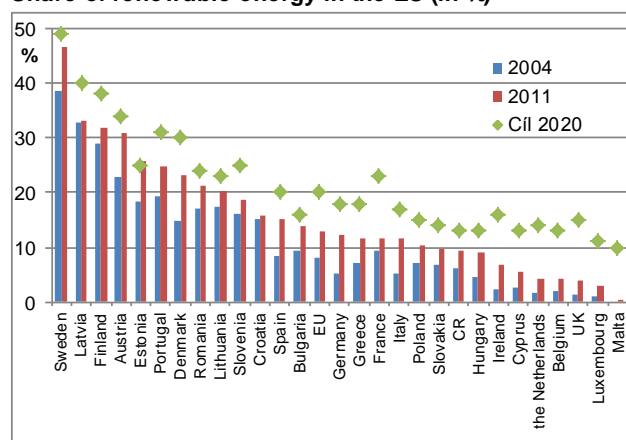
This has been addressed by **European Parliament and Council Directive 2009/28/EC** of 23 April 2009, on support for use of energy from renewable resources and on amendment and subsequent cancellation of Directives 2001/77/EC and 2003/30/EC. Each member state has calculated a goal related to its share of energy from renewable resources in gross final consumption for 2020.

These goals correspond to the European Community's overall goal of **reducing greenhouse gas emissions by 20% by 2020**, increasing the share of renewable resources in overall energy consumption to 20% and achieving a 20% increase in energy efficiency (20-20-20).

Moreover, each member state will ensure that the share of energy from renewable resources in all types of transport in 2020 will amount to **at least 10% of final energy consumption** in transport in the particular member state.

Each member state will adopt a national action plan for energy from renewable resources, which will set target shares of energy from renewable resources in transport and during electric power generation, heating and cooling in 2020.

Share of renewable energy in the EU (in %)



Source: Eurostat; data for Croatia are not available

These action plans must take into consideration the impacts of other measures related to energy efficiency on end consumers of energy (the more significant the reduction **in energy consumption**, the less energy from renewable resources will be necessary for fulfilling the goal).

These plans must also outline procedures for reforming planning systems and creating prices and access to distribution systems for **the benefit of energy from renewable resources**.

The European Commission has proposed achievement of the new goal by 2030, so that the pan-European goal for **the share of renewable resources can be set at 27%**. However, this goal will not create a basis for specific commitments of member states, as similar goals have done so far.

The share of energy from renewable resources in end consumption has been increasing in recent years **in all EU member states**. This to a great extent the result of the rapidly developing solar and wind power generation sectors.

However certain member states are still far from on track to achieve the set national goals by 2020. Nonetheless, most states are on the right path to achieve these goals. In 2011, **Estonia** even achieved its goal by 25%. **Sweden, Romania** and **Bulgaria** are also very close behind.

The most growth in the share of energy from renewable resources since 2004 has been achieved by **Denmark** (by 8.2% to 23.1% in 2011), **Austria** (by 8.1% to 30.9% in 2011) and by **Sweden** (by 8.1% to 46.8% in 2011). Fulfilment of 23% of the share in France appears problematic (in 2011, the share of energy from renewable resources in final consumption amounted to only 11.5%), since the trend of growth of this indicator in recent years has been very low.

In the **Czech Republic's** case, renewable resources in gross end consumption must make up a 13% share. In 2004, the share of renewable resources was only 6%, and was 9.4% in 2011. So the **Czech Republic** can be expected to achieve its goal. The EU's goal to increase the share of renewable resources in its total energy consumption to 20% by 2020 is also achievable (in 2011 this share was 13%)

Energy efficiency

Primary energy consumption is understood as gross domestic consumption of energy, except for any non-energy uses of energy carriers (such as natural gas not used as fuel, but for chemical production). Such figure is important for **measuring actual energy consumption** and its comparison with goals set by the Europe 2020 Strategy.

The percentage of savings is calculated using values from 2005 and prognoses for 2020. The goals set by the Europe 2020 Strategy will be achieved as soon as this value reaches 20%.

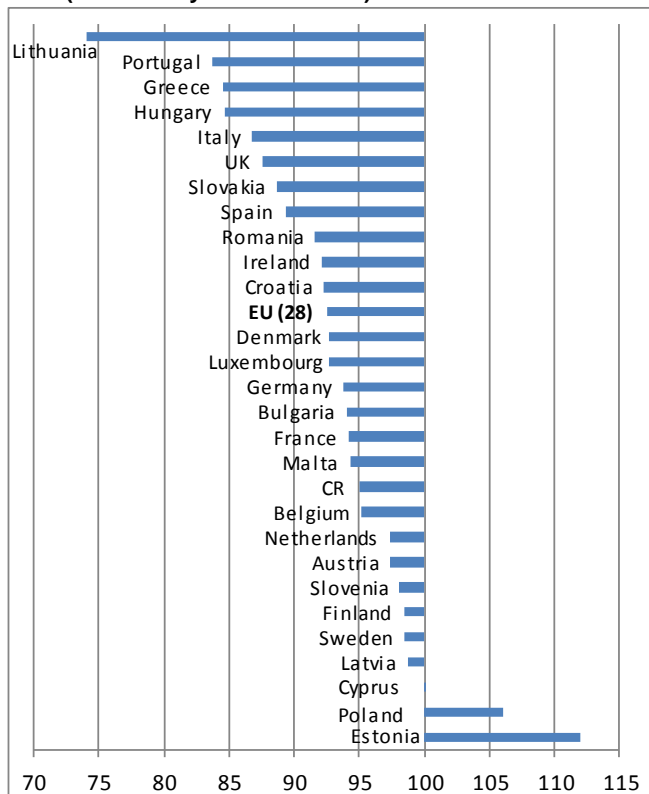
Gross domestic consumption is defined as: **primary production + imports, regenerated products and changes in reserves – exports and deliveries of fuel to a coastal container** (for marine vessels with any flags).

It includes the energy necessary to satisfy domestic consumption within the territory of the particular state.

According to data from Eurostat, consumption of primary energy in the EU in 2012 reached **1,583.5 million tonnes** of oil equivalent (TOE). The trend in consumption of primary energy grew in the EU from the beginning of the 1990s until 2006. However, in recent years there has been a slight decline, and in 2012 the consumption of primary energy returned to the level from 1996.

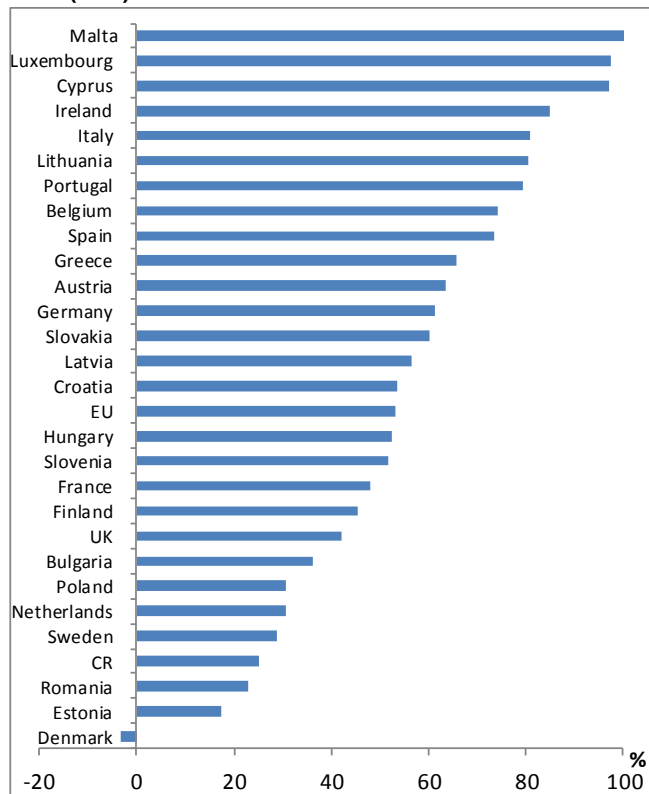
The EU's dependence on energy imports is becoming problematic. More than half of the energy consumed in the EU must be imported. According to information from Eurostat, in 2012 the EU imported **53.3% of its energy**. The Czech Republic is one of the states least dependent on energy imports (25.2% in 2012). Romania and Estonia are slightly better off. Denmark is the only EU state that is not dependent on imports, and in fact it is a net exporter. By contrast, **Malta, Luxembourg and Cyprus** can practically rely only on energy imports.

Change in primary energy consumption in the EU in 2012 (reference year 2005 = 100)



Source: Eurostat

The dependency of the EU on energy sources imports in 2012 (in %)



Source: Eurostat

Conclusion

The areas of climate and energy in the EU have been undergoing changes in recent years. Fulfilment of goals set for **2020 or newly for 2030**, which the European Council will discuss at its next regular spring meeting, should steer the EU towards less energy dependency, which should have a positive effect on the European economy as a whole.

The quickly developing area of renewable energy resources is well apparent in member states, and their share in final consumption has been gradually increasing. Other changes have been occurring involving reductions in greenhouse gas emissions, where many member states have made major progress.