ESG Economist

Big emission gap for 60% of EU countries

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- **A greater increase in clean electricity generation in the EU is necessary to enable electrification and, in particular, to reduce greenhouse gas emissions**
- **Because the gap between the current level of greenhouse emissions and the legally binding 55% emission reduction target of 2030 is still substantial for over 60% of EU countries**
- **Therefore, concerns remain high for the EU about the feasibility of the 2030 target**
- **Especially when the share of renewables is still relatively low in many EU countries and energy import dependence remains high**
- **To reach the 2030 target, EU countries need to accelerate the decarbonisation of the energy sector with renewables, but also invest more in environmentally friendly technologies, making buildings more energy efficient and encouraging cleaner forms of transport**

Burning fossil fuels to produce energy has the largest share in greenhouse gases emissions worldwide. Reducing fossil fuels (such as coal, oil and gas) and replacing them with renewable sources is therefore a top priority. Countries in the EU have been working hard to reduce greenhouse gas emissions in recent years by investing more in clean energy, among other things. However, some EU countries have succeeded more than others. On balance, it appears that the 2030 target is still a long way off for a majority of EU countries, despite all the efforts. Moreover, the transition to a more sustainable energy mix is proceeding slowly in most parts of the EU.

GHG emissions gap EU-27

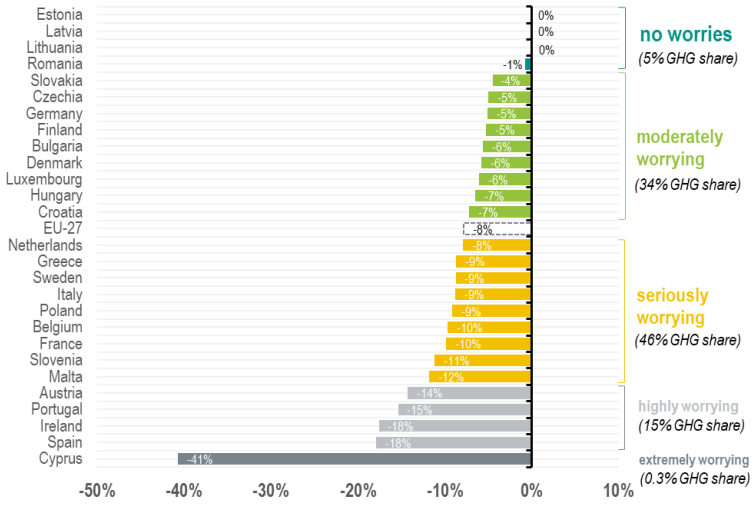
Cutting greenhouse gas emissions is important to slow down global warming. The EU is a global leader when it comes to climate ambitions. The *European Climate Act*, for instance, agreed on a binding target to be climate neutral by 2050 and to reduce net greenhouse gas emissions by at least 55% by 2030 compared to 1990. All countries in the EU-27 must eventually meet these targets, which can be seen as a minimum requirement.

Since 1990, the Baltic States and Romania have reduced their greenhouse gas emissions by far the most in relative terms of all EU-27 countries. Because of these climate efforts, the annual minimum emission reduction effort up to 2030 to reach the 55% target is much lower. These countries will reach the 2030 climate target relatively easily. The Baltic States have significantly reduced their greenhouse gas emissions especially in the energy sector, which is the main source of greenhouse gas emissions in the Baltic States. In addition, strict climate policies, restructuring of the economy and efficiency improvements in energy supply and energy-intensive sectors have made the economy less emission-intensive over time. In Romania, too, the 2030 target seems within reach. However, according to the *International Monetary Fund* (IMF), the Romanian economy is still highly emission- and energy-intensive due to its strong dependence on fossil fuels. This is reflected with high fossil fuel intensity of the transport sector and low energy efficiency in the built environment.

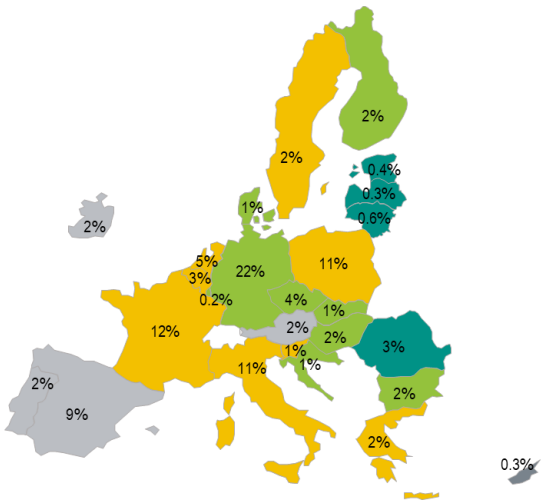
Among the other 23 countries in the EU-27, concerns about the feasibility of the 2030 target are higher. In five countries, worries are even very high to extremely high. These countries are Austria, Portugal, Ireland, Spain and Cyprus. As it seems, these countries also managed to reduce their greenhouse gas emissions the least in relative terms since 1990. There may be a variety of reasons for this and each country has its individual challenges.

Minimum greenhouse gas emissions reduction per country per year in EU-27 and shares

minimum GHG emissions reduction requirement per year to meet 55% 2030-goal



% = share in EU-27 total GHG emissions



Source: EDGAR, ABN AMRO Group Economics

For example, Cyprus - where concerns are highest among EU-27 countries - is very dependent on oil in its energy supply. A gas infrastructure was lacking for a long time, but it is currently under development. Ultimately, using natural gas produces less CO2 and pollutant emissions than using coal or oil. And next to the oil intensive energy sector, both buildings and the transport sector in Cyprus are known to be very inefficient energy consumers. All-in-all, concerns about the feasibility of the 2030 target in Cyprus are much higher than average. However, Cyprus' share in total EU-27 greenhouse gas emissions is only 0.3%, so the impact on total EU-27 emissions is ultimately marginal.

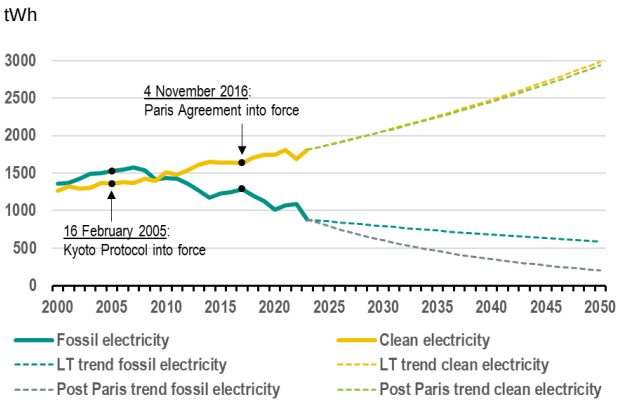
Concerns about the feasibility of the 2030 target are serious in nine EU-27 countries. For these countries, they need to reduce greenhouse gases more than the EU average on an annual basis. It is the category with the largest share in total EU emissions (around 46%). Three of these nine countries have even a very large share of EU-27 greenhouse gas emissions: France, Poland and Italy (collectively 34%). The Netherlands is also in this category, with a minimum annual greenhouse gas emissions reduction of 8% per year to meet the 2030 target. In another nine EU-27 countries, concerns about the feasibility of the 2030 target are largely moderate. The countries in this category have a combined share of around 34%. Germany - with the highest share of EU emissions of 22% - also falls into this category.

More clean energy in the EU

To reduce greenhouse gas emissions, the elimination of fossil fuel combustion for electricity generation is a priority, combined with stepping up the production of energy from renewable sources. The relationship between the two variables are shown in the following charts. The left one shows the trends since 2000, including forward looking projections based on historic growth trends. The figure includes two important moments: the moment when the Kyoto Protocol came into force in 2005 and when the Paris Agreement became operative at the end of 2016. Both agreements contain international agreements to reduce greenhouse gas emissions by a greater amount and also limit the rise in average global temperature to well below 2 degrees Celsius, and if possible 1.5 degrees Celsius. From 2007, a downward trend is visible in fossil fuel combustion for power generation, combined with a stronger upward trend in clean energy. We have extended the trend rate for both energy sources up to 2050 based on long-term growth (which is the average rate over the period 2000-2016) and on growth after the Paris Agreement comes into force (which covers the period 2017-2023). The graph shows that the post-Paris period produced a marked acceleration in the decline of fossil fuel combustion, in comparison to the long-term growth trend. However, this difference is not visible in the growth of clean energy for electricity generation.

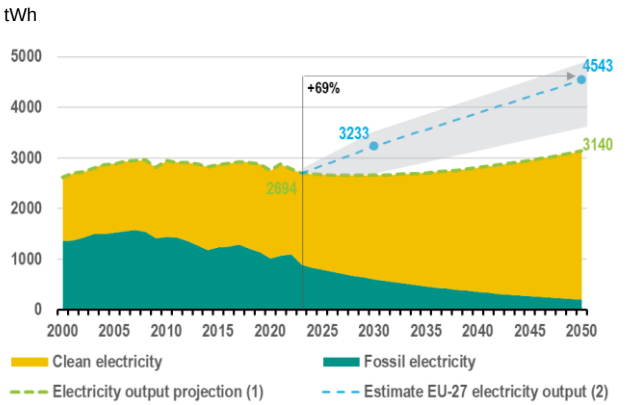
In the figure on the right hand side on the previous page, we have maintained to post-Paris trend growth as a benchmark and added projections on EU electricity generation until 2050. The blue dotted line in the figure shows electricity production in the EU up to 2050. This estimate is based on so-called *Renewable Energy System* 2040 (RES 2040) scenario, which assumes an energy transition to a highly efficient and 100% renewable-based integrated energy system in the EU by 2040.

Trends in EU-27 fossil and clean electricity end use



Source: EDGAR, ABN AMRO Group Economics

EU-27 fossil and clean electricity until 2050



Source: EDGAR, RES-2040 scenario, ABN AMRO Group Economics

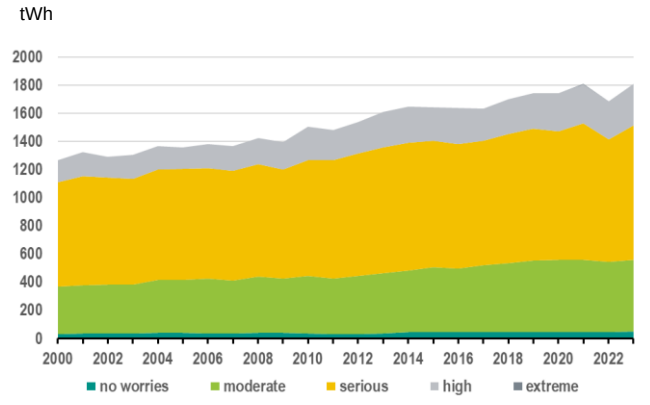
(1): forward trend (2024-2050) based on post-Paris growth path (2017-2023); (2): estimate electricity generation based on RES-2040 scenario (2022) and bandwidth (grey area) based on paper in *Intereconomics, EU policy review* (volume 54, 2019)

As we can see from the graph, there is a big difference between the blue dotted line and the light green dotted line (based on post-Paris trend growth). It indicates that the current rate of growth in clean energy clearly falls short. Electricity demand growth in EU countries collectively is much higher than supply growth based on historical trends. Additional steps therefore need to be taken to avoid falling behind in the energy transition. Clean production must increase more strongly. It is necessary not only to service the increasing use of electric vehicles and to provide more power to sectors such as the built environment and industry, but also to reduce greenhouse gas emissions more rapidly. This is important, because in many EU countries the gap between the current level of greenhouse gas emissions and the 2030 target is still wide.

EU-27 clean electricity trends

The energy available in the EU comes partly from energy produced by EU countries themselves and partly from energy imports. Total clean electricity generation in EU countries has increased by almost 43% over the past 23 years. Over the same period, countries in the 'major concerns' category (light grey area in the left figure below) have seen their clean energy for electricity increase the fastest, by 91% since 2000. This group of countries is followed by the category where concerns are lowest (dark green area). There, clean electricity increased by 62% in 23 years. In the two categories with countries where concerns about the feasibility of the 2030 target are ‘moderate’ to ‘serious’ (resp. light green and orange area), clean electricity has increased by an average of 40% since 2000. More strikingly, however, the rate of growth in clean energy production for electricity generation after the Paris Agreement came into force (2017) countries with moderate to serious concerns about the 2030 target have weakened, while in all the other categories it increases or remains stable.

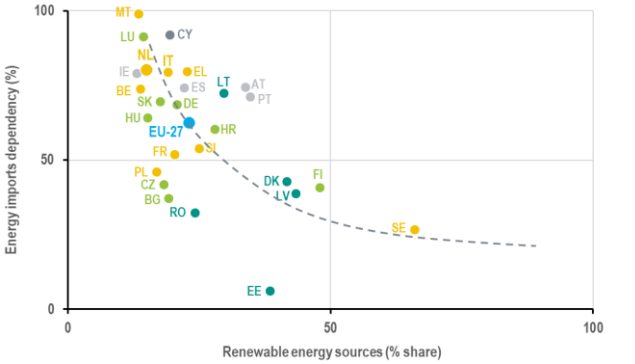
Trend in clean energy by country group EU-27



Source: EUROSTAT, ABN AMRO Group Economics

Renewable energy and dependency EU-27

energy import dependency vs. renewable energy sources share



Source: EUROSTAT, ABN AMRO Group Economics

Overall, it appears that the share of renewables in EU countries is relatively low at 23% on average (see blue dot in the above right-hand side figure). However, variations by EU countries vary widely in this, with Ireland (IE) having the lowest share (13%) and Sweden (SE) the highest (66%). The share of petroleum products in the energy mix is highest in Cyprus

(CY), Malta (MT) and Luxembourg (LU), while natural gas is an important energy source in Italy (IT), the Netherlands (NL) and Hungary (HU). Renewables have the largest share in Sweden and Denmark (DK), while nuclear power is an important source especially in France (FR) and Sweden. By 2023, one-third of electricity will come from fossil fuels and two-thirds from renewables.

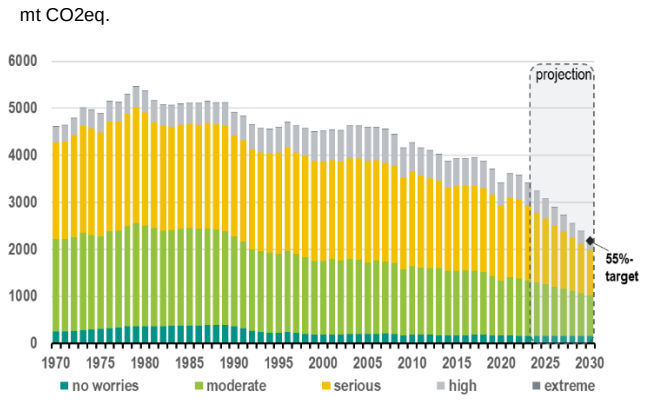
Import dependence on energy varies widely among EU member states. There is a wide variation in this dependence. For example, countries like Malta, Luxembourg and Cyprus were more than 90% dependent on energy imports (especially petroleum products) in 2022 and Estonia (EE) was only 6% dependent on energy imports. Countries like Italy, the Netherlands, Belgium (BE) and Spain (ES) were more than three-quarters dependent on energy imports (often gas). The average import dependence of the EU-27 was almost one-third.

EU-27 emissions pathways 2030

In order to meet the 2030 climate target, a majority of EU countries have to accelerate the expansion of renewable energy sources, phasing out fossil fuels while switching to clean technologies in all sectors, to reduce greenhouse gas emissions. In many countries in the EU the trend in greenhouse gas emissions is downwards. Until the third quarter of 2023, total EU greenhouse gas emissions (including households) decreased by 5% year-on-year. Particularly in energy supply, emissions fell rapidly last year: by 19% year-on-year up to Q3. At the time of writing, EU figures for the fourth quarter were not yet known. In the Netherlands, preliminary data on greenhouse gas emissions for the fourth quarter of 2023 have been published recently by *CBS* and *RIVM/Emissions Registration*. These showed that throughout 2023, greenhouse gas emissions fell by 6%, with the electricity sector in particular (-22% yoy) emitting less CO2. More electricity was generated by wind and solar power and less by coal and natural gas.

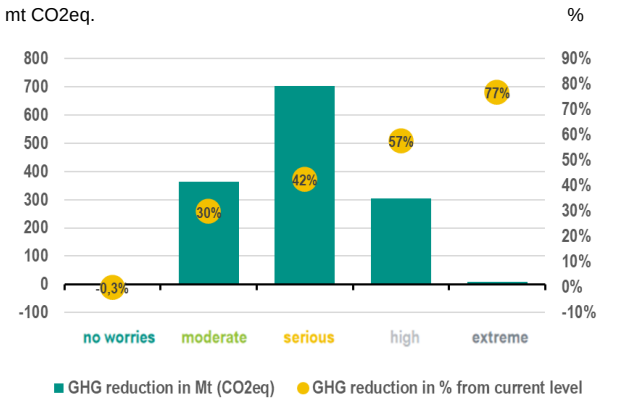
To reach the 2030 target, EU countries must continue to invest more in environmentally friendly technologies, decarbonising the power sector, making buildings more energy efficient and promoting cleaner forms of transport. EU emissions data show that transport and buildings have been particularly lagging behind. More restrictive policies in the coming years will help to reduce greenhouse gas emissions at a faster pace in these sectors. While large emitters within energy and heavy industry are covered by the *Emissions Trading Scheme* (EU ETS), the transport and buildings sectors (as well as agriculture) will soon have joint annual limits on their greenhouse gas emissions imposed from the *Effort Sharing Regulation* (ESA). Such policies help keep the 2030 climate targets within reach.

GHG emissions path by country group towards 2030



Source: EDGAR, ABN AMRO Group Economics

Gap GHG emissions to 2030 (absolute and relative)



Source: EDGAR, ABN AMRO Group Economics

In absolute terms, EU countries where there are 'serious concerns' about the feasibility of the 2030 target should contribute the most to the EU's collective emission reduction target. This is about 700 Mt of CO2 equivalents in the coming years until 2030. From the current level of greenhouse gas emissions, this is 42%. The countries with higher concerns about the feasibility of the 2030 target have also relatively higher rates to reach the 2030 target, but in absolute terms the amount of emission reduction is much lower. For the EU countries with moderate concerns, both the absolute and relative amount are lower than in the countries with serious concerns. Thus, the overall picture is mixed, but many of the EU's major emitters still have quite a bit of work to do to meet the 2030 target. This calls for transparent and ambitious climate policies with clear commitments per EU country to keep Europe on the right track towards climate neutrality.

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