



# GREENHOUSE GAS EMISSIONS TRENDS IN THE EU

## EXAMINING THE DEVELOPMENT OF ACHIEVING GHG EMISSION TARGETS FOR 2020

In 2007, the European Union gave specific targets for each of its members with a goal to reduce air pollution levels by 2020. One of the primary objectives from the 2020 climate and energy package was to reduce the average greenhouse gas emissions in all EU countries by 20%.

Greenhouse gases, GHG for short, are gases found in the Earth's atmosphere that capture the heat from the sun and increase the temperature of the planet. This is known as the 'greenhouse effect'. The main greenhouse gases in the Earth's atmosphere are carbon dioxide, methane, nitrous oxide, as well as the fluorinated gasses. Normally, greenhouse gasses occur in nature, however, multiple human endeavours like burning fossil fuels enhance the levels of emissions on our planet which contribute to global warming. GreenMatch has created an interactive map displaying GHG emissions per capita for each EU country. Additionally, the most and the least air polluted countries were categorised into two interactive graphs in relation to their targets for 2020. Predictions for greenhouse emission targets after 2020 were given, based on the specific country's Gross Domestic Product (GDP) development. Looking at the analysis, the top-performing countries in relation to their emission reduction targets for 2020 are the following: United Kingdom, Italy, and Spain. These three EU member states were also asked to decrease their greenhouse gas emissions based on their 2005 levels. Nevertheless, these they were able to decrease their GHG emissions significantly.

### Greenhouse Gas Emissions per Capita in the EU

Figure 1 showcases the tonnes per capita of GHG emissions in each of the EU countries. The lighter green colour illustrates lower levels of GHG emissions.

The least polluting countries per capita are:

- Sweden - 5.5 tonnes per capita
- Malta - 5.5 tonnes per capita
- Romania - 5.9 tonnes per capita

Looking at the interactive map above, Sweden and Malta are polluting the least. The main reason for that is that the Swedish government helps households to be educated about energy saving by informing the public about domestically available renewable energy sources, such as solar panels, heat pumps and boilers.

In contrast, the worst-performing countries that are polluting the most are:

- Ireland - 13.3 tonnes per capita
- Estonia - 16 tonnes per capita
- Luxembourg - 20 tonnes per capita

Bearing in mind that the map illustrates emissions per capita, Luxembourg's greenhouse gas emissions, in particular, are extremely high considering their low population.

The main reason why Luxembourg's emission rate is that high could be the quantity of cars in the country, which the European Commission has highlighted.

### Are EU Targets Fulfilling their Goals?

As mentioned previously, the EU stated that the main target is to reduce the average GHG emission levels in all EU countries by 20%. However, this target is interpreted differently for each EU country. The maximum levels of GHG emissions that a country is allowed to reach are based on the wealth of each country - i.e. a country's GDP.

For instance, countries with lower GDP can have higher levels of GHG emissions, because their country's wealth depends on processes that increase the overall pollution. However, such countries are still responsible for limiting their greenhouse gas emissions as much as possible.

The base year for measuring the average GHG emission target of all EU countries is 1990. On the other hand, for the individual EU countries' targets, greenhouse gas emission levels from 2005 were used.

### Best Performing EU Countries

Figure 2 displays the index values of emissions of the top-performing countries in relation to their target limits set by the European Union.

Out of the 14 top-performing EU countries, ten of them were granted a higher target limit for 2020, due to their GDP. Most of the countries illustrated in the chart above are within the boundaries that were set for 2020.

Countries like Greece, Spain, Italy, and the UK are performing particularly well. These countries were required to decrease their emissions based on 2005 emission levels. The main reason for that is higher GDP. Nevertheless, these four countries managed to stay within the predetermined threshold.

- The UK's result in 2017 was 62.4 and its target limit is 75.3, meaning that the country is 17.2% below the requested limit for 2020.
- Spain's result in 2017 was 121.8 and its target limit is 138.9, meaning that the country is 12.3% below the requested limit for 2020.
- Italy's result in 2017 was 84.1 and its target limit is 98.2, meaning that the country is 14.4% below the requested limit for 2020.
- Greece's result in 2017 was 93.6 and its target limit is 126.2, meaning that the country is 25.9% below the requested limit for 2020.

On the contrary, Malta has emitted much higher levels of greenhouse gases in 2005. Moreover, taking into consideration the country's GDP figures, it was granted a 5% increase for GHG emission target limit.

### Greenhouse Gas Emissions

Total national emissions per capita (2017)

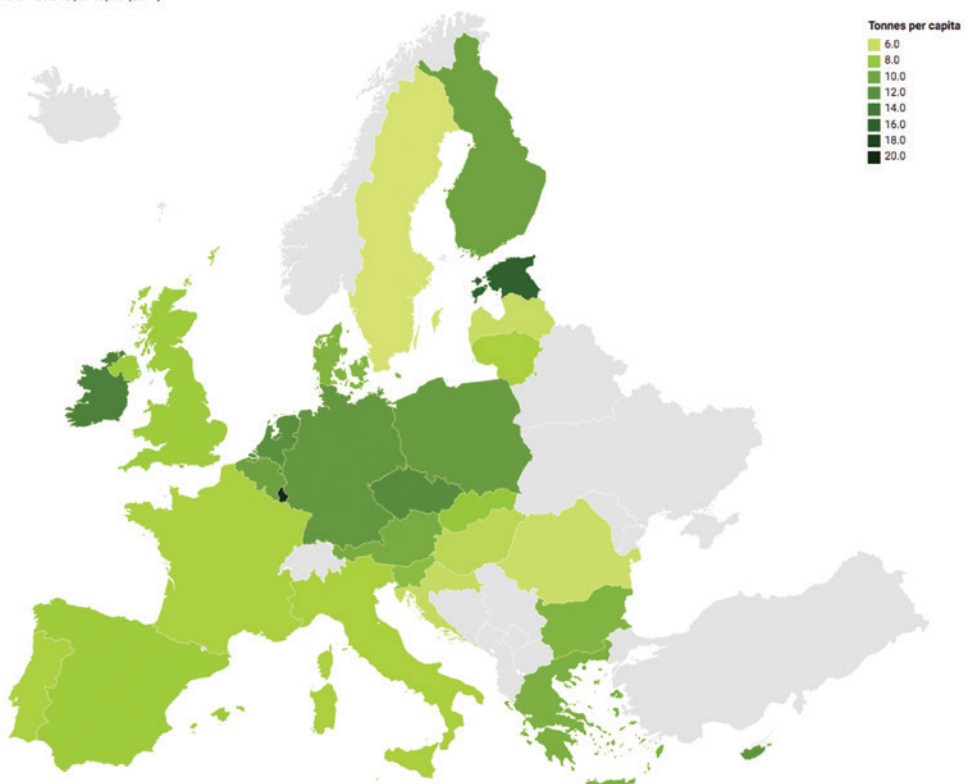


Figure 1

**Worst Performing EU Countries**

Figure 3 displays the index values of emissions of the low-performing countries in relation to their target limits set by the European Union.

Out of the 14 worst-performing EU countries, three were given a higher target limit for 2020, due to their GDP figures. Most of the countries showcased on the chart above have either already exceeded their target limit for 2020 or are on the edge of doing so.

A large proportion of the worst-performing countries had reasonable GHG emission levels in 2017, except Cyprus, which had the greatest level of greenhouse emissions in 2017 - 155.7.

EU countries like Estonia, Latvia, and Poland were the only countries from the worst-performing ones that were granted an increase in their GHG emission target limit for 2020. Nevertheless, their GHG emission levels already almost reach the maximum permitted levels for 2020.

- Estonia's result in 2017 was 52 and its target limit is 52.9, meaning that the country is only 1.8% below the requested limit for 2020.
- Latvia's result in 2017 was 44.3 and its target limit is 51.1, meaning that the country is 13.4% below the requested limit for 2020.
- Poland's result in 2017 was 87.7 and its target limit is 97, meaning that the country is only 9.6% below the requested limit for 2020.

However, EU member states like the Netherlands, Ireland, Austria, Germany, Cyprus, and Luxembourg were demanded to decrease their GHG emission levels in comparison to the 2005 rate. Yet, these countries have already exceeded their 2020 target limits in 2017. In case these six EU countries do not drastically reduce their GHG emission levels in the next upcoming years, they run a risk of not meeting their targets set by the EU.

**GHG Emission Predictions for EU Countries Based on GDP**

Bearing in mind that emission reduction targets for each individual EU country were set based on GDP figures, GreenMatch compiled a snapshot of key economic figures.

Countries with lower GDP per capita are permitted to have higher levels of GHG emissions, while EU countries with higher GDP per capita are requested to reduce their GHG emission levels.

The table below showcases the forecast of the average GDP growth from 2017 until 2020, as well as the real GDP per capita for each country from 2018 and the national greenhouse gas emission targets for 2020.

In accordance with each country's GDP growth rate, it is possible to determine which member states could have a more strenuous target limit (e.g. emission reduction by 20%) after the next group of energy and climate goals are determined under the "Effort-sharing decision".

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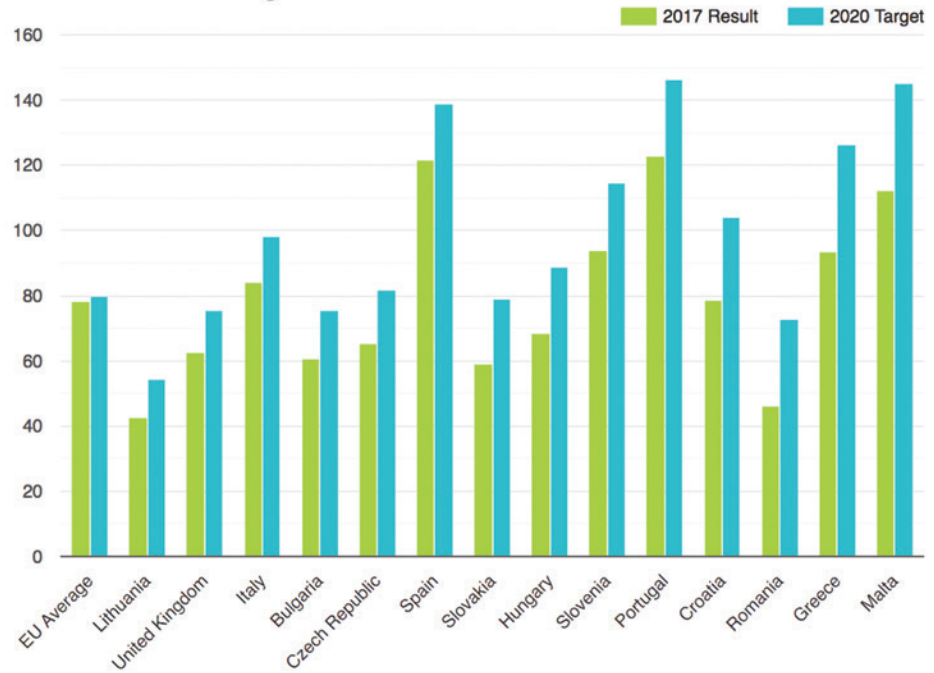


Figure 2

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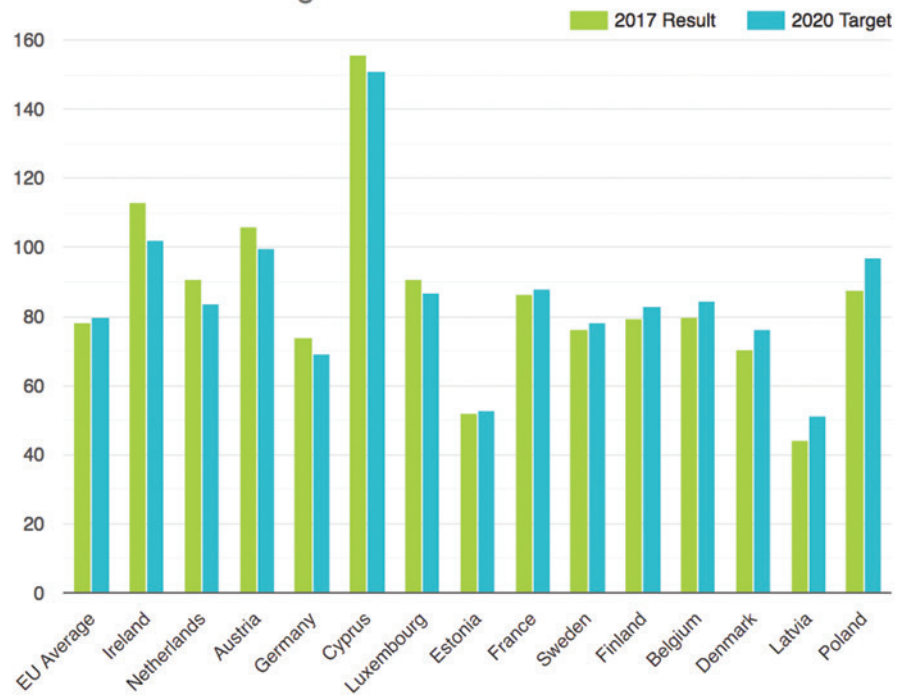


Figure 3

Country	Average GDP Growth (2017-2020)	Real GDP per Capita (2018)	National % Target (2020)
Austria	2.1	37810	-16%
Belgium	1.4	35300	-15%
Bulgaria	3.4	6500	20%
Croatia	2.8	11920	11%
Cyprus	3.5	23770	-5%
Czech Republic	3.1	17640	9%
Denmark	1.8	47550	-20%
EU (28 Countries)	2.9	28210	-20%
Estonia	3.5	15090	11%
Finland	1.9	36820	-16%
France	1.7	32830	-14%
Germany	1.4	35860	-14%
Greece	1.9	17800	-4%
Hungary	4.1	12560	10%
Ireland	5.3	57960	-20%
Italy	0.9	26760	-13%
Latvia	3.8	12190	17%
Lithuania	3.3	13310	15%
Luxembourg	2.3	83470	-20%
Malta	5.9	21630	5%
Netherlands	2.2	41540	-16%
Poland	4.5	12430	14%
Portugal	2.1	18110	1%
Romania	4.7	8700	19%
Slovakia	3.6	15560	13%
Slovenia	3.9	20170	4%
Spain	2.5	24880	-10%
Sweden	1.9	43850	-17%
United Kingdom	1.5	32440	-16%

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