

Poland has spent more than a trillion zloty (EUR 220 billion) on fossil fuel imports since 2000

In recent months, rising energy prices have caused panic among policymakers. Gas and coal prices on world markets are at record highs, and crude oil is also becoming more expensive. In addition, Poland has become one of the EU countries most dependent on fossil fuel imports. In the last 20 years, Poland has paid more than one trillion zlotys to import energy raw materials and the annual expenditure on these resources is growing rapidly. Russia is by far the dominant supplier of raw materials to Poland. Attention to this trend is important because of both the current difficult geopolitical situation and the lack of deeper reflection on energy security and the future use of fossil fuels. The latter is a key element in the context of decisions related to the EU's Fit for 55 package, which aims to halt climate change and move away from fossil fuels.

In this short study we look at the dynamics, costs, and directions of raw material imports to Poland and other EU countries. We put the years 2000-2020 under our microscope (analysis methodology¹).

Main conclusions

In the last 20 years:

- Poland has recorded one of the largest increases in fossil fuel imports among the EU-27 countries;
- Poland's coal imports have increased by 756%, oil by 41%, and gas by 118%;
- The purchase of oil, coal, and gas from outside the country's borders have cost Poland more than PLN 1 trillion;
- The average annual cost of importing energy raw materials has increased from PLN 29 billion to PLN 53 billion;
- Russia has been the main supplier of fossil fuels to Poland—its share in imports was 87% for crude oil, 72% for natural gas, and 62% for hard coal (20-year average);
- Even in the outlier years of the pandemic (2020, 2021), the value of energy raw material purchases increased significantly despite volume declines.

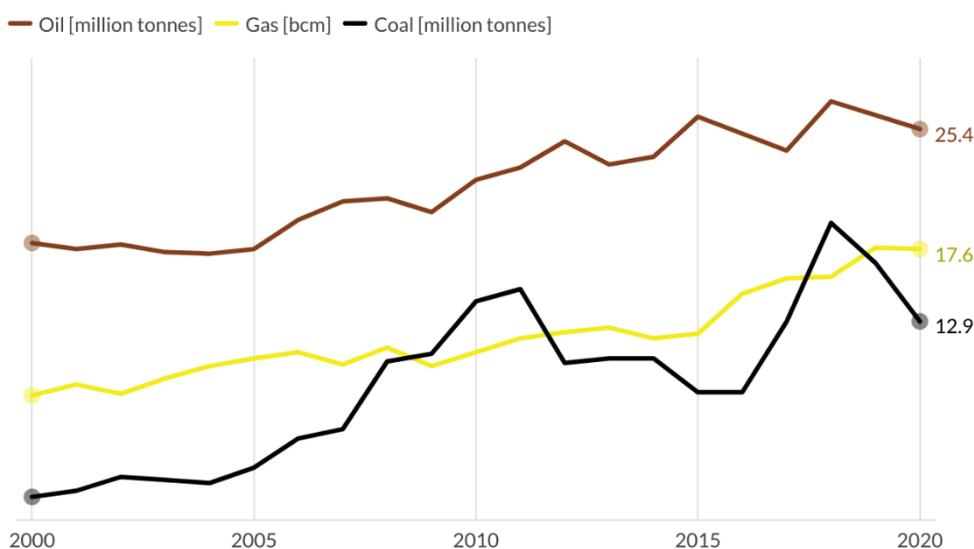
¹ **Methodology of the analysis:** Our aim was to examine the long-term trends in fossil fuel imports and to compare them with other EU countries. We primarily used Eurostat data. We had to make an exception for the analysis of gas import costs. In 2006, contract values were made secret and the data are not made available in public statistics. In 2020, as a result of the Stockholm Arbitration Court ruling, the price formula in the Yamal contract changed. Whereas the gas price used to be indexed to the price of crude oil and petroleum products, gas exchange prices are now also taken into account. We estimate the costs of blue fuel imports on the basis of available data from PGNiG, although it is not possible to precisely determine the origin of the gas. In estimating purchase costs, we took into account exchange rates, consumption, and inflation. Due to the lack of fossil fuel import data for the full year 2021, the analysis incorporates partial available data. In this analysis, we do not consider fuel exports such as coal. This took place years ago, but is of negligible importance for the full picture of Poland's energy security situation in recent years.

How much fuel does Poland import?

Imports of each main energy raw material type have increased significantly over the past 20 years. Coal imports have increased the most—by as much as 750%—from a relatively small volume of 1.5 million tonnes in 2000 to 12.9 million tonnes in 2020 (a year in which, due to the COVID-19 pandemic, demand for energy was lower than in previous years). Today, Poland imports up to twice as much gas as it did in 2000, and oil imports have increased by 41% in the last 20 years.

Fossil fuel imports 2000-2020

Oil and coal imports are expressed in **million tonnes**.
Imports of natural gas are expressed in **bcm**



Source: Based on data of: EUROSTAT, MKiŚ.

(link to interactive chart: <https://www.datawrapper.de/ /OPOki/>)

How much does Poland pay for imported energy resources?

Polish residents have paid more than PLN 1.16 trillion² for fuel imports in the last 20 years, including

- for oil—PLN 802.9 billion,
- for coal—PLN 72.2 billion,
- for natural gas—PLN³ 285.7 billion.

² Amount adjusted for inflation relative to 2000.

³ Data on the cost of oil and coal imports are available in public statistics. In the case of natural gas, statistical data have been kept secret since 2006 and are not published in the databases of GUS or EUROSTAT. The terms of the long-term contracts (Yamal contract or LNG supply contracts) are also not publicly available. Despite the lack of transparency, we tried to use the most reliable data available, so we have used data since 2006 from PGNiG.

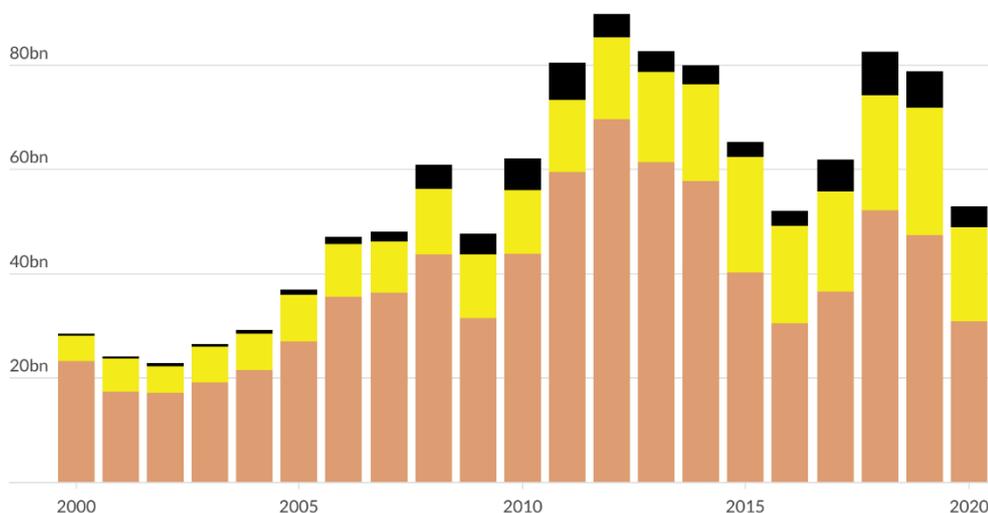
Total import costs (adjusted for inflation) increased by 85% in the analysed period. In 2000, Poland spent PLN 28.6 billion on the import of fossil fuels, and 20 years later, the amount was PLN 53 billion. The slowest growth was in the spending on crude oil imports (an increase of 32% between 2000 and 2020, although before the pandemic, it was 104%), and the fastest growth was in hard coal imports. Rapidly growing imports of this raw material to Poland have caused the value of imports to increase massively. In 2000, Poland spent PLN 384 million on coal imports, but by 2020, it spent PLN 4.1 billion (Chart 2). It should be emphasised that we are not analysing Poland's coal exports, which, while significant at the beginning of the 21st century, have gradually decreased.

Fossil fuel import costs 2000-2020

Costs are expressed in **PLN billion** indexed to inflation.



Oil [billion PLN] Gas [billion PLN] Coal [billion PLN]



Source: Based on data of: EUROSTAT, PGNiG.

(link to interactive chart: https://www.datawrapper.de/_/n9BmD/)

Where does Poland import fossil fuels from?

The main supplier of all energy resources to Poland is Russia. In recent years, this country has received PLN 698 billion from contracts with Poland for oil supplies and PLN 36 billion from contracts for coal. In total, this amounts to more than PLN 733 billion, not including gas. A precise determination of the value of gas purchases from Russia is not possible due to the secrecy surrounding information concerning prices, volume, and import origins.

1. Crude oil

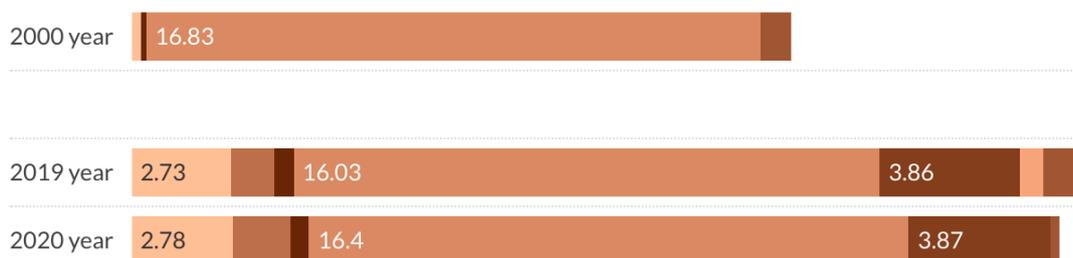
In 2000, the vast majority (16.8m tonnes) of crude oil was imported from Russia. This country accounted for 93% of Poland's imports, with small quantities coming from other directions. In the 20 year period, imports from the eastern neighbour have remained almost unchanged, but the total volume of imported oil from all sources has grown to 25.4 million tonnes. In 2020, 65% of Poland's oil imports came from Russia, with the remainder coming from Saudi Arabia (15%), Kazakhstan (11%), Nigeria (6%), Norway (2%) and other directions (1%).

Directions of crude oil imports to Poland

Import values expressed in **million tonnes**.



■ Kazakhstan
 ■ Norway
 ■ Russia
 ■ Saudi Arabia
 ■ Other
 ■ Nigeria
 ■ USA



Source: Based on data of: EUROSTAT

(link to interactive chart: https://www.datawrapper.de/_qPG5K/)

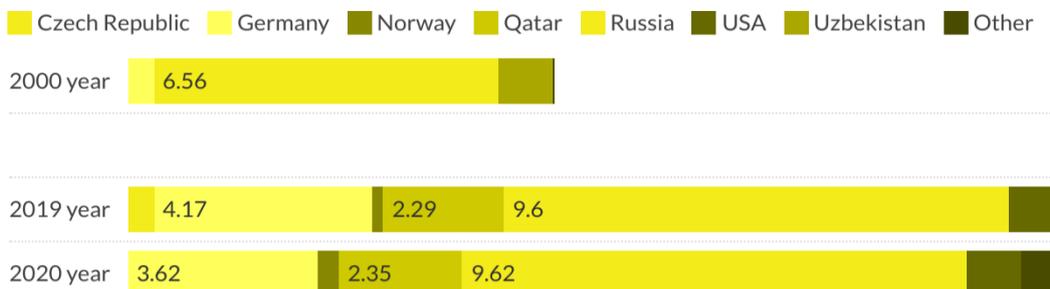
2. Natural gas

Gas imports rose from 8 billion m³ (bcm) in 2000 to 17.6 bcm by the end of 2020. At the beginning of the century, Poland imported gas mainly from Russia (81%), but also from Uzbekistan (13%) and Germany (6%). In the past two decades, Poland has made progress in diversifying the supply of this raw material.

The volume of imported gas from Russia increased by 46% (from 6.6 bcm to 9.6 bcm). However, thanks to the LNG terminal in Świnoujście and reverse flows from the western direction, Russia's share in total imports has fallen and is now 55%. Other origins of gas imports to Poland in 2019 are Germany (21%), Qatar (13%), the US (6%), and Norway (2%).

Directions of natural gas imports to Poland

Import values expressed in **bcm**.



Source: Based on data of: EUROSTAT, MKiŚ

(link to interactive chart: https://www.datawrapper.de/_t9cu1/)

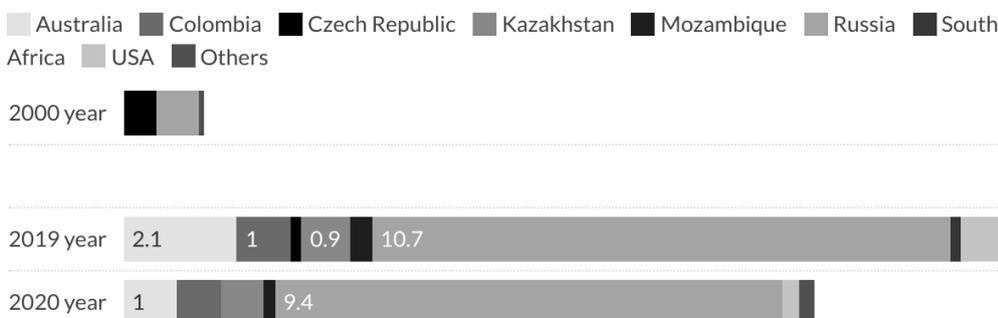
3. Hard coal

Coal imports fluctuate, but there is a clear upward trend due to high domestic demand and declining domestic output and the availability of good quality coal. In recent years, compared to 2000, coal imports have increased by up to 1200%. Twenty years ago, Poland imported coal mainly from two directions: Russia (51%) and the Czech Republic (42%). It is worth noting, however, that in those years, Poland also exported significant amounts of coal.

After two decades, though, even with Poland buying coal from other parts of the world, Russia's position has strengthened and its share of total coal imports in Poland is now 75%—an increase of almost 12 times (from 0.8 million tonnes in 2000 to 9.4 million tonnes in 2020, which is a non-standard year because of the pandemic). Other destinations from which Poland sourced coal include Australia (8%), Colombia (7%), Kazakhstan (7%), the US (2%), Mozambique (2%), with smaller quantities from destinations such as the Czech Republic, the Netherlands, and South Africa.

Directions of coal imports to Poland

Import values expressed in **million tonnes**.



Source: Based on data of: EUROSTAT

(link to interactive chart: https://www.datawrapper.de/_pktbl/)

Situation in 2021

In order to address the current situation, we compared the data made available by GUS and PGNiG for several months in 2021 and compared them to a similar period from last year⁴. The study is not entirely representative as it covers only a few months and it is obvious that this was an exceptional time due to large fluctuations in demand caused by the coronavirus pandemic.

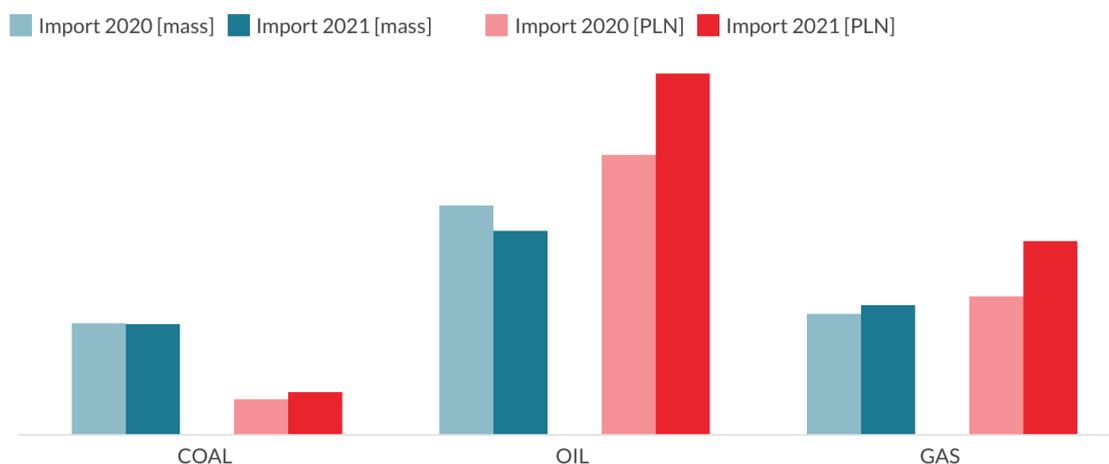
The amount of imported coal and crude oil decreased slightly (by 0.1 and 2.3 million tonnes, respectively). This translates into a 1% drop in coal imports and an 11% drop in crude oil imports. However, the value of raw material imports for the power industry increased from PLN 3.3 billion to PLN 3.9 billion in the same period (an 18% increase), and that of crude oil from PLN 25.9 billion to PLN 33.4 billion (a 29% increase).

The volume of imported gas increased by 7% (from 11.2 bcm to 12 bcm). At the same time, the cost of imported gas increased significantly from PLN 12.8 billion in the first three quarters of 2020 to PLN 18 billion (a 40% increase).

Comparison of fossil fuel imports between the selected period in 2021 and 2020*.



The blue colour indicates imports expressed in units of mass/volume**.
Red colour indicates import value in **billion PLN**.



Source: Based on data of: GUS, PGNiG

*For oil and coal, the comparison is for the January-October period in 2021 and 2020.

For gas, the comparison is for the January-September period in 2021 and 2020.

**For coal and oil, the unit is million tonnes.

For gas, the unit is bcm.

(link to interactive chart: <https://www.datawrapper.de/ /62CA8/>)

⁴ In the case of coal and oil, we compared the January-October figures for the current year and 2020 using available GUS databases. In the case of gas, we contrasted the January-September period in both years using PGNiG's financial statements.

How does Poland compare to other EU countries?

Between 2000 and 2019, total fossil fuel imports in the EU27, expressed in terms of weight/volume of imported raw materials, increased by 7%. First of all, gas imports increased by 50.8%, from 292 bcm to 440 bcm. The amount of imported oil decreased from 549.5 million tonnes to 507.2 million tonnes, and coal from 155.6 million tonnes to 125.4 million tonnes. This translated into a drop in imports of 7.7% for oil and 19.4% for coal, respectively.

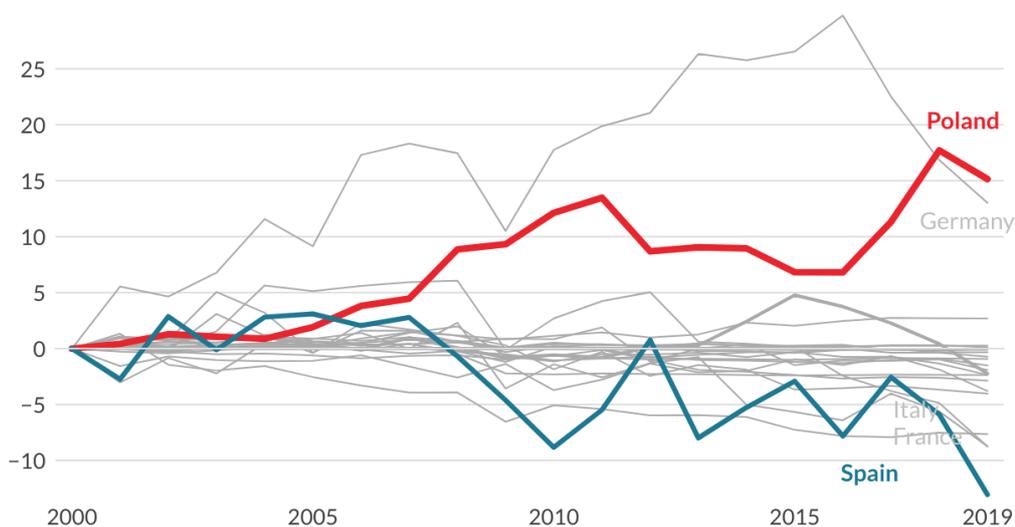
The largest reduction among the fossil fuels analysed was in coal imports. As many as 21 countries reduced their coal imports between 2000 and 2019, with Spain leading the way with a 60% reduction. This was closely followed by France and Italy, which reduced their imports by 46% (both countries had similar import levels in 2000).

On the other side were two countries: Poland and Germany. They accounted for 90% of the increase in coal imports among all six countries that recorded an increase (Poland, Germany, Hungary, Lithuania, the Czech Republic, and Croatia). In the analysed period, Poland increased its import of coal by 15.2 million tonnes, while in Germany it was 13 million tonnes. For Poland, this change meant more than 1000% increase, while in Germany, the figure was 45%.

Change in coal imports in the EU-27 between 2000 and 2019



Difference in coal imports in relation to the year 2000 expressed in **million tonnes**.



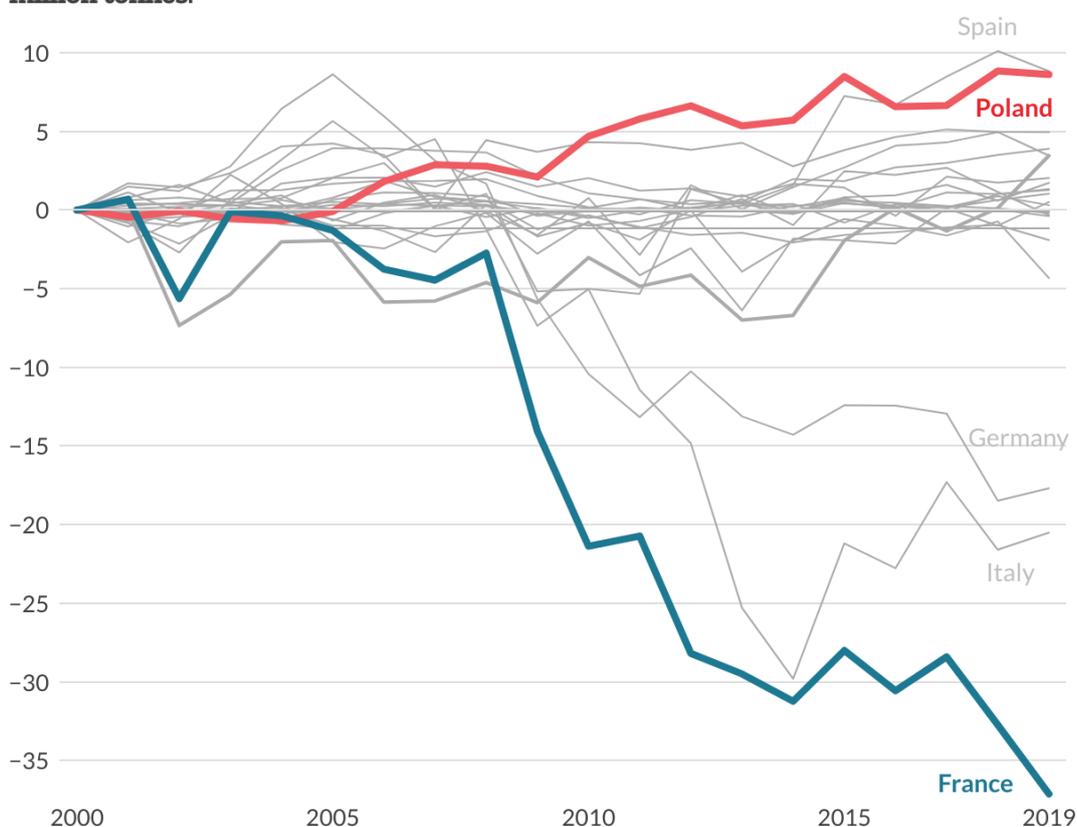
Source: Based on data of: EUROSTAT

(link to interactive chart: https://www.datawrapper.de/_/r34rG/)

Oil imports also decreased in the EU during the period under review. The reduction was recorded by 14 Member States. The clear leader in this ranking is France, which reduced its imports by 43% compared to 2000. Italy and Germany also made significant progress, reducing imports by 24% and 17%, respectively. Poland, meanwhile, increased its imports by 48%, the most of any EU country.

Change in EU-27 crude oil imports in the period 2000-2019

Difference in crude oil imports in relation to the year 2000 expressed in **million tonnes**.



Source: Based on data of: EUROSTAT

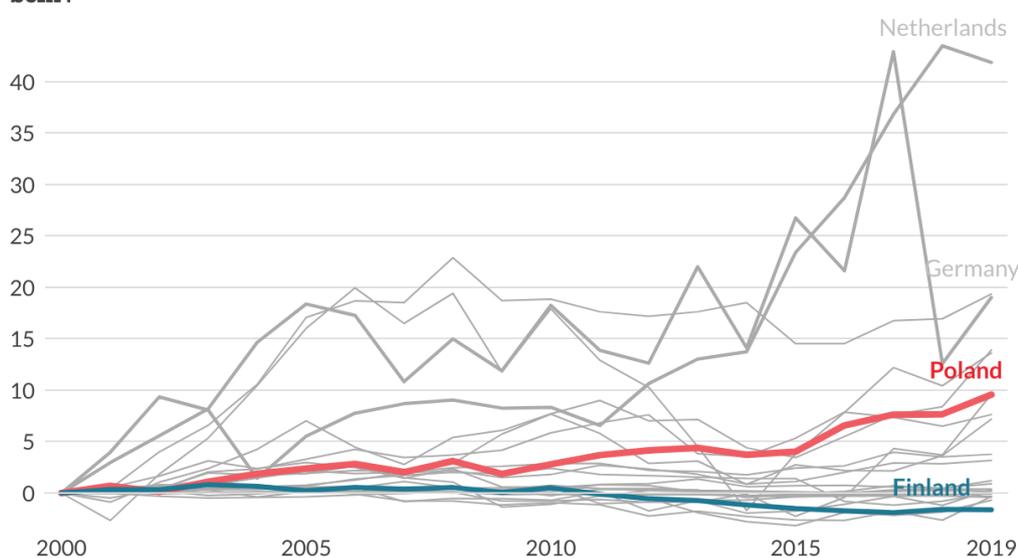
(link to interactive chart: https://www.datawrapper.de/_/kuhpf/)

Gas was the only fossil fuel whose imports increased in aggregate for all EU-27 countries in the period analysed. This increase affected as many as 19 countries. The largest change occurred in the Netherlands, which increased its imports by as much as 240%. Germany and Italy raised theirs by about 25%, France by 34%, and Spain by 108%. In Hungary and Poland, gas imports increased by about 9.6 bcm—118% for Poland and 106% for Hungary.

Change in EU-27 gas imports in the period 2000-2019



Difference in gas imports in relation to the year 2000 expressed in **bcm**.



Source: Based on data of: EUROSTAT

(link to interactive chart: <https://www.datawrapper.de/ /zKu3k/>)

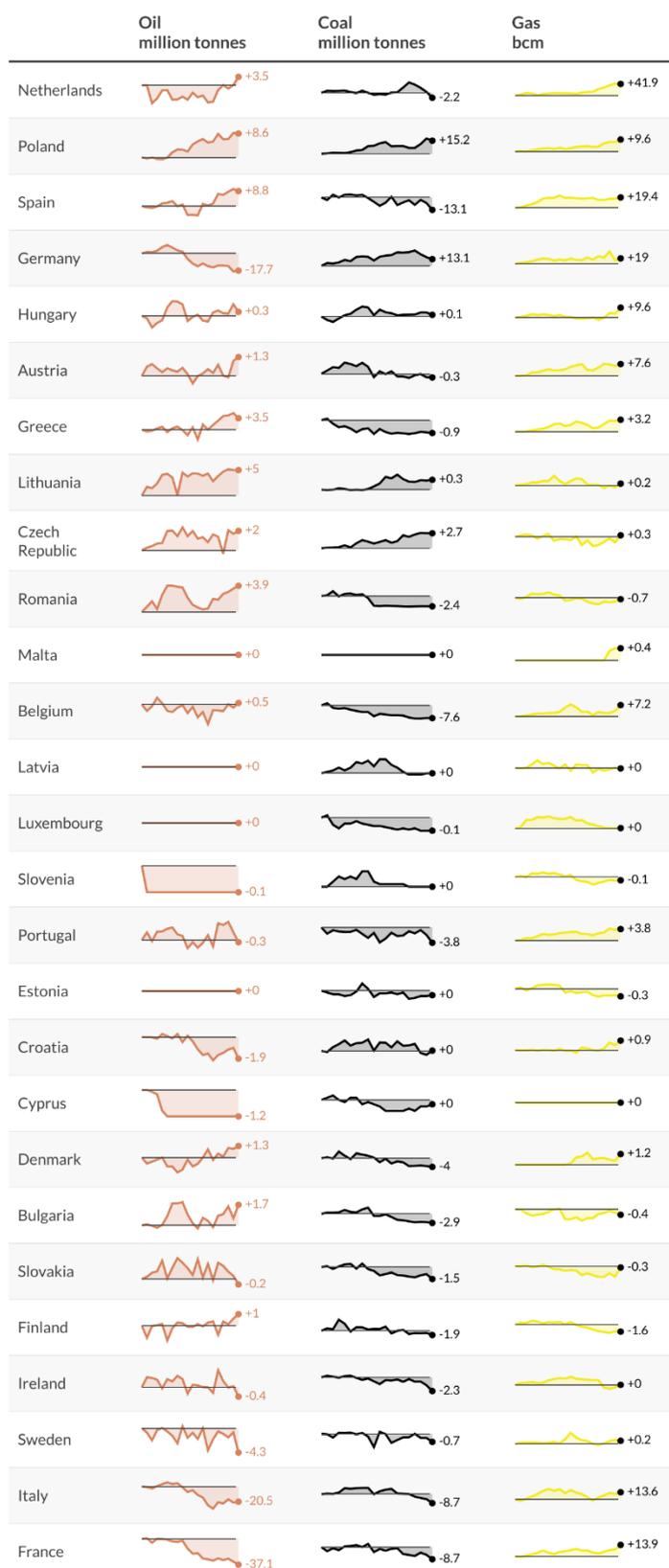
Changes over the period analysed for all member countries are shown in the table below.

(link to interactive table: <https://www.datawrapper.de/ /mdNsH/>)

Change in imports of fossil fuels in the EU-27

The graphs show the differences in fossil fuel imports between 2000 and 2019 in relation to the year 2000 expressed in units of mass of raw materials





Conclusions

In the last hundred years, fossil fuels have contributed to the world's economic development and helped superpowers to grow, but they have also contributed to environmental degradation and climate change. Growing energy demand, dwindling coal reserves, the problems of increasing gas consumption and the climate crisis make the energy transition towards zero-carbon sources a necessity. The balance of fuel imports and the associated financial transfers must be monitored carefully. It is necessary to increase market transparency and make available the statistics on gas imports from various directions.

There is no doubt that many countries in the world, and above all Russia, are interested in Poland not changing and continuing to use coal, oil, and gas. Of the more than one trillion zlotys paid for fossil fuels in the last 20 years, PLN 733 billion (not including the cost of buying gas) have gone to Poland's eastern neighbour.

We assume that in 2021 the sum of spending on fossil fuel imports will be at a record high. Poland has limited influence on the global price of gas, coal, and oil, but it can plan for a gradual reduction in the role of fossil fuels in favour of, for example, renewables that work with local, free energy sources. Not all the solutions currently proposed are optimal for Poland, and it is still worth discussing them. However, the recent political calls to veto the EU package are a complete dead end.

Authors: Piotr Kleinschmidt, Joanna Maćkowiak-Pandera PhD

Cooperation: Aleksandra Gawlikowska-Fyk PhD, Marcin Dusiło

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