This article provides a picture of trade in energy products between the European Union (EU) and the rest of the world (extra-EU trade), and between the Member States (intra-EU trade). A special focus is given to Russia as the main supplier of petroleum oils and natural gas to the EU. Coal, lignite, peat and coke are the other key energy products considered hereafter.

Annual data from 2012 up to 2018 are included, thus reflecting the most recent developments. Priority was given to trade in value (expressed in millions of euros) and net mass (weight without packaging expressed in tonnes). Supplementary information like trade in terajoules for natural gas can be found in Eurostat databases.

This article is part of an online publication providing recent statistics on international trade in goods, covering information on the EU’s main partners, main products traded, specific characteristics of trade as well as background information.

Overview

With the exception of peat and coke, the European Union is a net importer (imports higher than exports) of energy products. Crude oil largely dominates the EU imports in energy products with a share of 70% in the first semester of 2018, followed by natural gas in gaseous state with a share of 20%. The share of coal fell one percentage point compared to 2017, while at the same time the share of crude oil rose one percentage point.

The monthly average value of energy products decreased from 2012 to 2016 but increased by 30% between 2016 and 2017 and by 15% between 2017 and 2018. These changes are mainly due to the rise in prices on world markets, as the imports in net mass remained relatively stable, increasing only 5% between 2016 and 2017 and even decreased by 2% between 2017 and 2018.
The latest figures show the downward trend of the energy bill from 2012 to 2016 reversing in 2017 and 2018 (Figure 1). The average monthly value of imports in energy products rose by 49 % from 17.4 billion per month in 2016 to 26.1 billion per month in 2018. However the energy bill is still 31 % lower than its peak of 38.0 billion per month in 2012. The development of the volume of energy products showed much less fluctuation,
remaining between 74 and 81 million tonnes throughout 2012 to 2018.

Main suppliers of natural gas and petroleum oils to the EU

Figure 2 shows that crude oil is by far the largest imported energy product (70.2 % of total EU energy imports in the first half of 2018) ahead of natural gas in gaseous state (20.1 %). For crude oil this was 1.3 percentage points more than in 2017. The share of coal decreased with 1.1 percentage points.

Figure 2: Share of each product in extra-EU imports in energy, 2017 and first semester 2018 (share (%) of trade in value)

The detailed tables for imports and exports of energy products are available here.

Figure 3 shows that Russia was the largest supplier of natural gas to the EU, both in 2017 and 2018, and that the only other partners with a significant share in total extra-EU imports were Norway and, at some distance Algeria and Qatar. The global share of all the other countries exporting natural gas to the EU was 6.7 % in 2017 and 5.0 % in 2018 in terms of trade value.
Figure 3: Extra-EU imports of natural gas from main trading partners, 2017 and first semester 2018 (share (%) of trade in value)

Figure 4 shows that Russia was less dominant in petroleum oils than in natural gas but still far ahead of the second largest supplier, Norway. Kazakhstan and Iraq was third while Iraq replaced Nigeria as fourth largest supplier. The share of the top six dropped from 69.2% in 2016 to 67.9% in 2017.

Figure 4: Extra-EU imports of petroleum oil from main trading partners, 2017 and first semester 2018 (share (%) of trade in value)

The detailed tables for main importers of petroleum oils and natural gas are available [here](#).

**Trend in extra-EU imports of energy products**

Figure 5 shows the EU imports of natural gas from Russia and the rest of the world, expressed in value and net mass. In value the extra-EU total fell between 2012 and 2016 but picked up in 2017. When measuring in net mass, the decline started a year earlier and ended two years earlier, following a U-shape with the lowest point in 2014. Thus there is a decline in value while the net mass increased from 2014 to 2015 and from 2015 to 2016. Russian imports over the same period varied more from year to year and increased in 2017 compared to 2016.
Figure 5: Extra-EU28 imports of natural gas, 2012-first semester 2018 (EUR billion and million tonnes)

Figure 6 shows that for petroleum oils the trend of total extra-EU imports in value is largely similar to the trend observed for natural gas. However in net mass there are more ups and downs although never far from 500 million tonnes while in value the changes are more pronounced. Total 2017 imports in net mass surpassed the previous high of 2012. In value the share of Russia which was 33% in 2012, fell to 28% in 2015, went up to 30% in 2017 and was back to 28% in 2018.

Figure 6: Extra-EU28 imports of petroleum oils, 2012-first semester 2018 (EUR billion and million tonnes)

The detailed tables for extra-EU and Russian imports of energy products are available here.
Share of energy products in total EU imports

Figure 7 shows the share in total EU imports of the key energy products considered in this article. This share was close to 25% in 2012. It dropped down to 12% in 2016 but rose again to 16% in 2018. The lion’s share of imports of energy products comes from petroleum oils whose share is three times as much as for natural gas and ten times as much as for solid fuels in 2018.

When considering only the EU imports from Russia, the share of the key energy products was 5.1% in 2018 which was 0.4 percentage points higher than the 4.7% in 2017, but 3.6 percentage points lower than it was in 2012 and 2013 when it reached a peak of 8.3% (Figure 8).

Figure 9 considers energy imports to the EU from Russia as a share of total imports to the EU from Russia.
It shows that since 2015 energy products made up almost 60% of all imports, which was about 10 percentage points less than it had been in 2012. Considering the last seven years, petroleum oils’ share peaked in 2012 at 51% while natural gas highest share of 19% occurred in 2015.

Figure 9: Share of energy products in total EU-28 imports from Russia, 2012-first semester 2018 (share (%) of trade in value)

The detailed tables for extra-EU and Russian shares of energy imports in total imports are available [here](#).

Member States’ trade in petroleum oils and natural gas

Table 1 shows the share of each Member State in extra-EU imports of petroleum oils and natural gas. Note that only interval information is provided in order to avoid revealing confidential figures. The redistribution of imports among the Member States after import into the EU, as measured by intra-EU trade, is not taken into account. Three Member States, Germany, the Netherlands and Poland have shares of more than 5% in total EU imports for both petroleum oils and natural gas. Two of those, Germany and the Netherlands have shares of more than 5% in total imports from Russia for both products, which is also the case for Spain, Italy and the United Kingdom.
### Table 1: Share of extra-EU imports of petroleum oils and natural gas by Member State, first semester 2018 (share (%) of trade in value)

<table>
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</table>

Source: Eurostat database (Comext) and Eurostat estimates

All Member States imported petroleum oils and natural gas in 2018. For four Member States (Bulgaria, Estonia, Slovakia and Finland), more than 75% of their imports in petroleum oils came from Russia (Table 2). Eleven Member States (Bulgaria, Czechia, Estonia, Latvia, Hungary, Austria, Poland, Romania, Slovenia, Slovakia and Finland) imported more than 75% of total national imports of natural gas from Russia. In both cases these are predominantly countries that are in close proximity to Russia. The countries with shares below 25% of imports from Russia in either product are more distant from Russia with the exception of Latvia for petroleum oils.
Table 2: Share of Russia in national extra-EU imports of each Member State, first semester 2018 (share (%) of trade in value)

By combining tables 1 and 2 we are able to check the dependency on Russia for the largest importers of petroleum oils and natural gas in the EU. For natural gas, the largest importers from the extra-EU were Germany and France (>20 % of EU imports) followed by Belgium (10-20 %), the Netherlands, Slovakia and the United Kingdom (between 5 % and 10 %). Of those, the share of Russia in national imports was less than 5 % for Belgium, France and Slovakia, between 10 % and 20 % for the United Kingdom and the Netherlands and more than 20 % for Germany. For petroleum oils the three largest importers were Belgium, Germany and the Netherlands (more than 20 % of EU imports). For Belgium the share of Russia in national imports was below 5 % while for the other two it was between 10 % and 20 %.

Part of the petroleum oils and natural gas imported from Russia and elsewhere is also traded in the EU Internal Market. Table 3 gives some indicative figures for this effect, but no indication is given of the origin of the energy products that are subsequently part of intra-EU trade flows. The shares of imports of petroleum oils and natural gas are between 0-5 % for all but three of the 28 EU Member States. The exceptions for petroleum oils are Belgium, Germany (both more than 20 %) and the Netherlands (10-20 %). For natural gas France and Germany (both more than 20 %), Belgium (10-20 %), the Netherlands, Slovakia and the United Kingdom (all three between 5 % and 10 %) are the exceptions.
Table 3: Share of each Member State in intra-EU imports and exports of petroleum oils and natural gas, first semester 2018 (share (%) of trade in value)

Data sources
Trade in energy products being very sensitive, real trade figures may need to be made confidential. In the context of this article, Eurostat has carried out some estimation in order to provide more accurate information while not disclosing confidential figures. Note that those estimated data cannot be retrieved from Eurostat databases or found in other publications. When going through the figures, it should also be kept in mind that confidentiality treatments may impact the data consistency. In particular, total values may slightly diverge from the sum of their subcomponents.

Reporting countries This article is based on the international trade in goods statistics provided by the EU-28 Member States to Eurostat. Trade of Croatia is included even for the period prior to joining the EU, i.e. before July 2013.

Partner country — Definitions Extra-EU trade — The partner country is the country of last known destination for exports and the country of origin for imports. The country of last known destination is the non-EU country to which it is known, at the time of release into the customs procedure or customs approved treatment, that the goods are to be delivered. The country of origin means the country where the goods originate; the origin of goods wholly obtained or produced in a country is attributed to that country.

Intra-EU trade — The partner Member State is the Member State of destination for exports and the Member State of consignment for imports. The Member State of consignment is the Member State from which goods were dispatched to the reporting Member State, without any halts or legal operations which are not inherent in their transport taking place in any intermediate Member State.

Energy products This article analyses the EU imports of the following energy products, as classified according to the Combined Nomenclature (CN):

- 27090010: Petroleum oils from natural gas condensates;
- 27090090: Petroleum oils and oils obtained from bituminous minerals, crude;
• 27111100: Natural gas, liquefied;
• 27112100: Natural gas in gaseous state;
• 2701: Coal;* 2702: Lignite;
• 2703: Peat; and
• 2704: Coke.

To give a full picture of the EU trade in energy products, it should be noted that Chapter 27 of the Combined Nomenclature (mineral fuels, mineral oils) contains more products than the ones considered in this article.

**Petroleum oils** correspond to the aggregation of the CN8 codes 27090010: Petroleum oils from natural gas condensates and 27090090: Petroleum oils and oils obtained from bituminous minerals, crude.

**Natural gas** corresponds to the aggregation of the CN8 codes 27111100: Natural gas, liquefied and 27112100: Natural gas in gaseous state.

**Data sources** This article is based on data available in Eurostat database (COMEXT) and on Eurostat estimation. Those data are issued from the European concept and definitions as set up by the EU legislation. Figures estimated by Eurostat cannot be found in Comext nor in other Eurostat databases or publications.

Note that data collected on the basis of Regulation (EC) No 1099/2008 relating to energy statistics are not considered in this article. More information on those statistics can be found in the Energy Dedicated Section. With regards to imports and exports of energy products, there are methodological reasons for differences between figures from energy statistics and figures presented in this article originating from international trade in goods statistics (ITGS):

- The sources for ITGS are the Intrastat declarations for intra-EU trade and the customs declarations for extra-EU trade. Additional data sources like data from national grid operators can also be used for natural gas and electricity. The sources for energy statistics are special statistical surveys, administrative data and estimations.

- In ITGS the partner country is the country of consignment for *intra-EU* imports and the country of origin for *extra-EU* imports. In energy statistics the partner country is the country of origin for both intra- and extra-EU imports.

- Imports and exports are available in quantities and values broken down by partner in ITGS while only the quantities without partner breakdown are available in energy statistics.

- In ITGS the value is collected or estimated (estimation based on collected invoice value or, for natural gas and electricity, on additional data sources) while in energy statistics the value is not collected but estimated using quantities and retail prices.

**Units of measure**

- **Trade values** correspond to the statistical value, i.e. to the amount which would be invoiced in case of sale or purchase at the national border of the reporting country. It is called a **FOB** value (free on board) for exports and a **CIF** value (cost, insurance, freight) for imports.

- **Quantities** correspond to the net mass, i.e. to the mass without any packaging. Note that values of 0 or 0.0 mean very small values.

**Data limitations**

- **A bias in the geographical allocation of extra-EU flows** — Extra-EU imports and exports are reported by the Member State where the customs declaration is lodged, usually the place where the goods cross the EU external frontier (here referred to as the exit/entry Member State). This is not necessarily the Member State of actual import or export. The geographical allocation of an extra-EU flow is biased in the case the entry/exit Member State is not the actual importing/exporting Member State. In such a case, the extra-EU trade will be allocated to the entry/exit Member State and the actual importing/exporting Member State will report only intra-EU flows with the exit/entry Member State. This issue particularly impacts the extra-EU imports of Member States having important ports for transshipment of goods like Antwerp in Belgium and Rotterdam in the Netherlands.
• **Missing EU data** — This article is mostly based on collected data (confidential and non-confidential). Wherever necessary, estimates for missing indicators have been compiled on the basis of other available indicators and EU averages for similar trade. Because of confidentiality, total values may differ from the sum of individual components.

• **Trade and consumption** — This article focuses on imports and exports of energy products and does not consider EU domestic energy production. Part of the energy products consumed in the EU is produced in the EU. According to energy statistics, in 2014, 33% of natural gas consumption was supplied from a source within the EU. Similarly about 54% of coal (all coals) and about 13% of oil (crude oil and all petroleum products) consumed in the EU was supplied from a source within the EU.

**Context**

Having a secure supply of energy is crucial for the well-being of European citizens and the economy. The EU works to ensure that energy supplies are uninterrupted and energy prices remain stable.

In response to the political crisis in Ukraine and the overall importance of a stable and abundant supply of energy for the EU’s citizens and economy, the European Commission released an EU energy security strategy on 28 May 2014.

This strategy is based on an in-depth study of Member States’ energy dependence and addresses medium and long-term security of supply challenges.

**Source data for tables and graphs**

- Tables and figures energy first semester 2018

The excel file below contains all figures and tables shown in the article as well as the detailed tables referred to in the text.

**Publications**

- Statistical analysis of EU trade in energy products, with focus on trade with the Russian Federation - Statistics in focus 13/2014
- Energy production and imports
- Energy, transport and environment indicators - 2016 edition
- Extra-EU trade in primary goods

**Data visualisations**

- International trade in a nutshell
- Top 5 partners for trade in goods
- My Country in a bubble

**Main tables**

- International trade in goods \( (t_{ext\_go}) \), see:
  - International trade in goods - long-term indicators \( (t_{ext\_go\_lti}) \)
  - International trade in goods - short-term indicators \( (t_{ext\_go\_sti}) \)
Database

- International trade in goods (ext_go), see:
  - International trade in goods - aggregated data (ext_go_agg)
  - International trade in goods - long-term indicators (ext_go_lti)
  - International trade in goods - short-term indicators (ext_go_sti)
- International trade in goods - detailed data (detail)

Dedicated section

- International trade in goods

Methodology / Metadata

- International trade in goods statistics - background
- International trade in goods (ESMS metadata file — ext_go_agg_esms)
- User guide on European statistics on international trade in goods

Legislation

- Regulation (EC) No 1099/2008 of 22 October 2008 on energy statistics
- Regulation (EC) No 471/2009 of 6 May 2009 on Community statistics relating to external trade with non-member countries

External links

- European Energy Security Strategy