"In 2020, the COVID restrictions heavily reduced the consumption of oil products in the EU, worst hit was jet kerosene which decreased by 56.4 %." 

"Import dependency reached a record high in 2020 when the EU relied on net imports for 96.96 % of the crude oil and petroleum products consumed. " 

"Production of crude oil continued to decline in the EU reaching a record low in 2020. " 

"In 2020, the transport sector in the EU still relied heavily on oil products. "

This article provides an overview of oil statistics covering crude oil as well as petroleum products. Energy statistics are available for all 27 EU Member States and several non-EU countries. Data cover the period 1990 to 2020. Since decades, crude oil and petroleum products have the largest share in gross inland energy consumption in the EU. Despite decreasing production and fluctuating consumption through the years, crude oil and its derived products still play a massive role. In recent times many EU policies are starting to affect this large section of the energy market which in 2020 was also heavily shocked by the sudden impact of the COVID pandemic restrictions.

Production of crude oil

The production of crude oil in 2020 in the European Union (EU) continued decreasing and in 2020 reached its lowest point at 18.7 million tonnes (Mt). This record low in production was the response to the drop in demand caused by the COVID crises and to the temporary fill-up of storage space in some locations. Crude oil production peaked in 2004 at 41.7 Mt. The top oil producers in the EU in 2020 were Italy (5.4 Mt), Denmark (3.5 Mt), and Romania (3.3 Mt). These data are presented in Figure 1.
Indigenous production of crude oil, EU, 1990-2020 (million tonnes)

In Norway, one of the key European non-EU crude oil producers, the production peaked in 2001 (157.6 Mt). In the following years, the Norwegian production fluctuated and in 2019 it reached a record low (70.0 Mt) and then increased again reaching 84.4 (Mt) in 2020. The EU candidate countries Turkey, Serbia, and Albania have some production of crude oil, however on a rather small scale (in total nearly 4.8 Mt in 2020). Finally, some Energy Community contracting parties played a role, in particular Ukraine which produced 1.7 Mt of crude oil in 2020.

Imports of crude oil

In 2020, total imports of crude oil to the EU amounted to 440.3 million tonnes. This is the lowest value in the 31-year time series starting in 1990 and it represents the steepest yearly drop (-13.2 % from 2019) ever recorded. The most imports came from Russia (113.0 million tonnes), Norway (38.2), Kazakhstan (37.3 million tonnes), USA (35.5) and Saudi Arabia (34.6 million tonnes). The origins of the crude oil imported to the EU have changed over the years. Imports from Russia continued declining since their last peak in 2005 (184.7 million tonnes). Imports from Norway have more than halved over the period 2000-2010 and then stabilized. They increased 8.4 % in 2020 and Norway was in second place in the list of providers to the EU. Kazakhstan, which has been steadily gaining ground in recent years, reached 37.3 million tonnes in 2020. Imports of crude from the USA were historically almost irrelevant but have been increasing sharply in the last few years, they finally jumped 33.6 % in 2020, reaching the record high and making this country for the first time the fourth provider to the EU. Imports from Saudi Arabia dropped 11.1 % placing this origin in the fifth place. Imports from Nigeria dropped 14.4 %. Finally, imports from Iraq, which had increased in the recent years, dropped substantially in 2020 (-35.7 %).
EU countries import their crude oil from different origins depending on several factors such as prices, contracts, OPEC decisions, international situations, transportation costs, and more. See the interactive map of imports of crude oil to EU countries by origin.

**Figure 2: Crude oil imports by country of origin, EU, 2000, 2019, 2020 (million tonnes)**

Source: Eurostat (online data code: nrg_ti_oil)
Have a look at the energy trade visualisation (click on the image above)

**Tool 1: Energy trade visualisation**

Imports of crude oil by country and origin, 1990-2020

(million tonnes)

*Source: Eurostat (nrg_ti_oil)*

**Production of petroleum products**

In 2020, the EU refineries produced 504.8 Mtoe of petroleum products. It was the lowest quantity ever produced at the EU level (since the beginning of the time series in 1990) and it marked the sharpest drop ever recorded (-11.9% from 2019). This fall is largely influenced by the COVID related restrictions in movements which cut down the demand for transport fuels in 2020. Production had previously peaked in 1998 with (645.5 Mtoe) and in 2006 (642.2 Mtoe).
In 2020, the biggest producer was Germany (94.3 Mtoe), followed by Italy (61.5 Mtoe), Netherlands (56.7 Mtoe) and Spain (56.6 Mtoe).
In 2020, the EU produced mostly gas/diesel oil (215.6 Mtoe), followed by motor gasoline (90.7 Mtoe), fuel oil (47.2 Mtoe) and naphtha (40.3 Mtoe). The figure below gives further details.
Trade in petroleum products

Imports of crude oil are by far the most important component of trade in oil statistics, yet the EU also trades manufactured petroleum products some of which are mostly imported while others are mostly exported. In 2020, the largest net imports from third countries were gas/diesel oil (23.3 Mtoe), naphtha (18.9 Mtoe), and liquefied petroleum gases (13.8 Mtoe). EU had net exports mostly of motor gasoline (44.1 Mtoe) and fuel oil (6.0 Mtoe). See Table 1 for more details on the trade of petroleum products.
Net imports (+) or net exports (-) of selected petroleum products, EU, in selected years, 1990-2020

(million tonnes of oil equivalent)

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<td>Naphtha</td>
<td>12.97</td>
<td>12.09</td>
<td>11.06</td>
<td>14.20</td>
<td>14.42</td>
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<td>Liquefied petroleum gases</td>
<td>5.42</td>
<td>8.33</td>
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<td>7.14</td>
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<td>Kerosene-type jet fuel</td>
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<td>-2.17</td>
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<td>5.77</td>
<td>9.81</td>
<td>10.03</td>
<td>8.35</td>
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<td>Petroleum coke</td>
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<td>5.15</td>
<td>7.57</td>
<td>9.89</td>
<td>7.38</td>
<td>2.93</td>
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<td>Lubricants</td>
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<td>-2.40</td>
<td>-0.82</td>
<td>-1.74</td>
<td>-2.85</td>
<td>-2.30</td>
<td>-2.09</td>
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<td>All other finished products</td>
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<td>0.11</td>
<td>0.57</td>
<td>2.50</td>
<td>-1.43</td>
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<td>Bitumen</td>
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<td>-1.00</td>
<td>-1.02</td>
<td>-4.04</td>
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<tr>
<td>Fuel oil</td>
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<td>15.08</td>
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<td>Motor gasoline</td>
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<td>-8.88</td>
<td>-14.41</td>
<td>-34.54</td>
<td>-39.08</td>
<td>-48.88</td>
<td>-44.14</td>
</tr>
</tbody>
</table>

Note: Data excluding the biofuel portions
Source: Eurostat (online data code nrg_bal_c)

Table 1: Net imports (+) or net exports (-) of selected petroleum products, EU, in selected years, 1990-2020
(million tonnes of oil equivalent) Source: Eurostat (nrg_bal_c)

Oil imports dependency

Import dependency on oil is calculated as the ratio of net imports (imports minus exports) to gross available energy of crude oil and petroleum products. Positive values indicate an import dependency, while negative values indicate a net exporter country. If positive values are above 100 %, it means that imports surpass the needs of a country and that consequently stocks are being built up. Import dependency can be calculated for an aggregate of products or for just one fuel. The import dependency for the entire family of crude oil and petroleum products reached a record high in 2020 when the EU relied on net imports for 96.96 % of its energy availability. The dependency on foreign oil has been growing from the lower rates observed in previous decades and from a minimum observed in 1999 (91.66 %). The dependency in 2020 was the combined result of decreases in imports (-11.58 %), exports (-10.27 %) and gross available energy (-12.81 %). Primary production also changed (-5.19 %), but it has a far lesser influence on the indicator given its relatively low level.
The import dependency rate for crude oil, an essential commodity for the petrochemical industry and the production of transport fuels, was the highest of all major energy products (fossil and non-fossil) and in 2020 decreased only slightly to 96.21 % from the highest value ever recorded (96.76 %) in 2019. The relative steadiness in dependency in 2020 was the result of a decrease in imports (-13.05 %) by large the most important variable in this indicator, and a similar decrease in gross available energy (-12.47 %). Other variables such as primary production and exports also changed (-5.2 % and -24.0 %, respectively), however, they have a very minor influence given their comparatively low levels.

Final consumption in the EU and in the Member States

In 2020, the final consumption of oil and petroleum products for energy and non-energy purposes in the EU Member States fell 8.9 % to 384.0 (Mtoe) in just one year reaching the lowest level ever recorded in the 31-year time series, decisively showing the effects of the COVID restrictions which started in the first few months of 2020 for most EU Member States. The consumption had already decreased from the peak of 2001 (499 Mtoe) to a low point in 2014 (409 Mtoe) yet, before the shock of the pandemic restrictions, it was increasing again. In 2020, the disruption of the pandemic-related restrictive measures impacted the consumption in the Member States to different degrees affecting the most Luxemburg (-21.4 %), Malta (-15.7 %) and Greece, Spain, Sweden, Slovenia and Italy (all between -14 % and -15 %). Member States have different energy and non-energy consumption patterns of oil and petroleum products, which are influenced by the size and structure of their economies. In 2020, Germany continued to lead with a 22.5 % share of the total final EU consumption, followed by France (15.6 %), Italy (9.8 %) and Spain (9.7 %).
Table 2: Consumption of oil and petroleum products, 2020 (million tonnes of oil equivalent) Source: Eurostat (nrg_bal_c)

Final consumption of petroleum products for energy use

In the EU, the final energy consumption of oil and petroleum products (excluding international shipping and aviation) sharply decreased registering the lowest value (310.3 Mtoe) and the sharpest drop ever recorded (-10.3%) clearly showing the effects of the COVID related limitations. The restrictions impacted specific fuels to different degrees, the transport fuels were clearly the most hit, given the imposed limitations to people’s movements. Consumption of gas/diesel oil increased from the lowest value of the beginning of the time series (193.0 Mtoe) in 1990, to its highest peak in 2006 (254.4 Mtoe). Recently, it was regaining ground from the drop to 228.0 Mtoe in
2014. In 2020, however it fell to 217.8 Mtoe, a level similar only to those of the late 1990s, registering a never seen before yearly drop of 8.9 %. Gasoline consumption had significantly decreased from the 1998 high (115.5 Mtoe) to its previously lowest value in 2017 (66.0 Mtoe) and was slowly increasing in recent years. In 2020, however, it dropped 13.9 % to 58.2 Mtoe, marking a new record low. Gas/diesel oil and gasoline are by far the two most important products throughout the whole 31-year period, yet other products showed relevant changes in 2020. The trend of the final energy consumption of individual petroleum products is shown in Figure 7.

![Final energy consumption of petroleum products, EU, 1990-2020](image)

**Final energy consumption of petroleum products, EU, 1990-2020**

*(million tonnes of oil equivalent)*

*Source: Eurostat (nrg_bal_c)*

Transport fuels used in air and maritime travels showed relevant drops in 2020. The use of kerosene-type jet fuel in aviation had been increasing since 1990 (22.2 Mtoe) and in 2019, it had reached an absolute high: 48.2 Mtoe however, in 2020 the cancellation of most flights lead to unprecedented changes, the consumption decreased a staggering -56.4 % to only 21.0 Mtoe, the lowest value ever recorded. 85.6 % of the fuel was used in international aviation while 14.4 % was consumed for domestic fights, such split is rather stable through the years. Fuel oil used in navigation continued its long-term descent due to regulatory and market changes and, in 2020, also due to the pandemic-related reduction of maritime transport, decreased a further -16.1 % compared to 2019. The largest portion of this fuel was used for international voyages (96.2 %), the rest for domestic shipping (3.8 %).
Consumption in international aviation and navigation, EU, 1990-2020
(million tonnes of oil equivalent)

In 2020, the vast majority of sectors showed a contraction in consumption. In some cases the contraction was substantial, such as in the transport sector (-18.4 % overall for different types of transports), in others cases very mild, such as for the industry sector, which was hardly influenced with a decrease of only 0.6 %. The only sectors which increased the use of oil in 2020 were Households (+5.6 %) and Other sectors (+1.9 %). The share of consumption of petroleum products by sector is shown in Figure 9. Domestic and international transport was by far the largest user with 61.5 % of the total consumption. Road transport was the key consumer with 47.6 %, while water and air transport used 9.1 % and 4.6 %, respectively. Industry was the second sector with a 20.5 % share which includes non-energy consumption (15.4 %) such as bitumen for road surfaces, the use of lubricants for reducing friction as well as the use of oil products in the petrochemical industry for their chemical properties rather than for their energy content. In these cases they are transformed in other products (such as plastics, detergents and tires for example) rather than combusted for energy. Households and the energy sector had shares of 6.6 % and 4.9 %, respectively. Services, both commercial and public, used about 2.1 %, while other sectors, including agriculture, forestry and fishing, used about 4.0 %.
Fuels in road transport

In 2020, road transport was dominated by gas/diesel oil (66.46 %) and motor gasoline (23.91 %). LPG covered a small portion of the consumption in this sector with a 2.06 % share and its usage varied greatly among countries. Other fuels were starting to cover some of the needs in the road transport sector thanks to the recent changes in consumer choices and important EU policy goals. In 2020, the EU reached a share of actual consumption of 6.69 % for renewables and biofuels. Lastly, despite a small increase over the years, electricity still played a minor role in road transport (0.12 %).
Use of fuels in road transport, EU, 2020 (%)

Source data for tables and graphs
- Table_and_figures_oil_and_petroleum_products_2020

Data sources
Data on energy are submitted on the basis of an internationally agreed methodology in joint annual energy questionnaires (Eurostat - OECD /IEA - UNECE). Data are available for all EU Member States and the methodology is harmonised for all reporting countries. Consequently, data comparability across countries is very high. Data may be ratified due to resubmission to increase quality, changes are normally minimal. To view the latest data please visit our website.

Context
Crude oil and petroleum products have the highest share of energy consumption in the EU, yet the situation is slowly evolving. There is a long-term decreasing trend in the demand in the EU which is due to several aspects including structural changes in the economy, more efficient use of oil products, and other technical changes such as the switch from gasoline to diesel. In the recent years several EU policies and initiatives are tackling the security of
energy supplies as well as the environmental and climate aspects of oil production and consumption. These are incentivizing energy efficiency, supporting the transition to biofuels or electricity in transport, and helping the research and development of new fuels, such as hydrogen. Nevertheless, the most staggering developments in 2020 were due to the sudden effects of the COVID-19 pandemic which represented an unexpected major shock added to the ongoing underlying trends.

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• Energy balance sheets - 2017 data (2019 edition)
• Energy, transport and environment statistics (2020 edition)
• Shedding light on energy in the EU - A guided tour of energy statistics

Methodology

• Annual methodology
• Energy balance guide

Legislation

• Regulation (EC) No 1099/2008 on energy statistics
• Summaries of EU legislation: Common system for the production of energy statistics
External links

• European Commission - DG Energy
• International Energy Agency
• FuelsEurope
• Wikipedia: Oil fields of Europe

Visualisations

• Energy indicators made easy
• Monthly energy data made easy
• Sankey diagram - Visualise energy flows