Oil information: Overview

statistics

International Energy Agency
Secure Sustainable Together

2017

The following analysis is an overview from the publication *Oil Information 2017*.

Please note that we strongly advise users to read definitions, detailed methodology and country specific notes which can be found online under *References* at www.iea.org/statistics/topics/oil/

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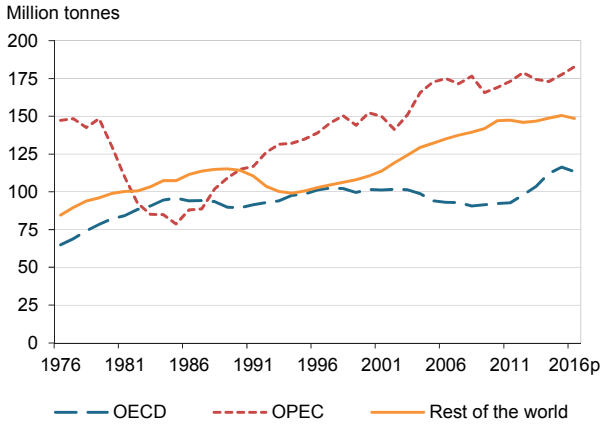
OIL OVERVIEW

Oil production

In 2016[1], world oil production[2] stood at 4 448 Mt (93.7 Mb/d), slightly up on the 2015 level of 4 443 Mt (93.7 Mb/d). This reflects steady growth in OPEC (+2.9%, 52 Mt, 1.0 Mb/d), sufficient to offset decreased production in OECD (–2.4%, –28 Mt, –0.6 Mb/d) and the rest of the world (–1.3%, –19 Mt, –0.5 Mb/d). In 2015, production increased in both OPEC (+2.6%) and non-OPEC, with OECD growing 3.7% and the rest of the world increasing by 1.2%.

Figure 1. World oil production by region

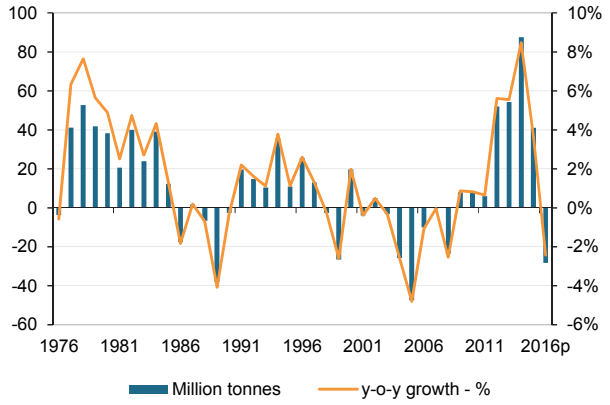


At the country level, the growth in 2016 can be mainly attributed to large increases in production in Iran (+23.4%, 38 Mt, 783 kb/d), Saudi Arabia (+3.2%, 18 Mt, 363 kb/d), Iraq (+10.4%, 18 Mt, 355 kb/d) and Russia (+2.3%, 12 Mt, 221 kb/d).

The top five largest liquids producers in 2016 remained the same as in 2015. The United States was the world's top producer (588 Mt), despite a fall in production of 3.5% compared to 2015, followed by Saudi Arabia (583 Mt) and the Russian Federation (546 Mt). Canada and the People's Republic of China both saw decreases in production but remained the world's fourth and fifth largest oil producers (225 Mt and 205 Mt, respectively).

The 2016 total world production includes crude oil, NGLs, other hydrocarbons and 100 Mt (2.1 Mb/d) of liquid biofuels.

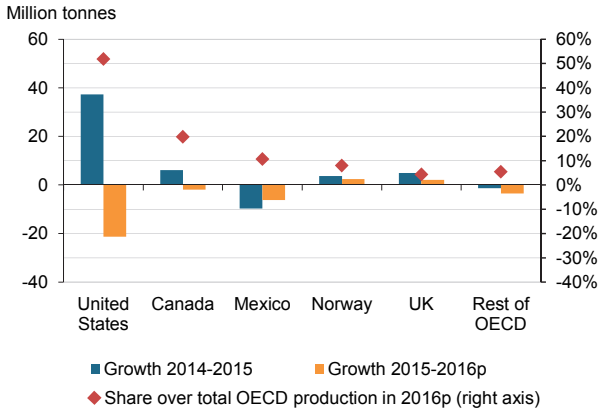
Figure 2. Annual change in OECD oil production



In the OECD, production fell in 2016 for the first time since 2008, led by decreases in North America, with the United States, Mexico and Canada all observing reduced levels of production. Production increased in both the United Kingdom and Norway, but by less than in 2015. In the rest of OECD decreased production was led by a sharp decline in Italy, following the temporary closure of the Val d'Agri Oil Centre.

1. All energy data for 2016 are provisional.
2. Please refer to the technical notes in Section I.2.

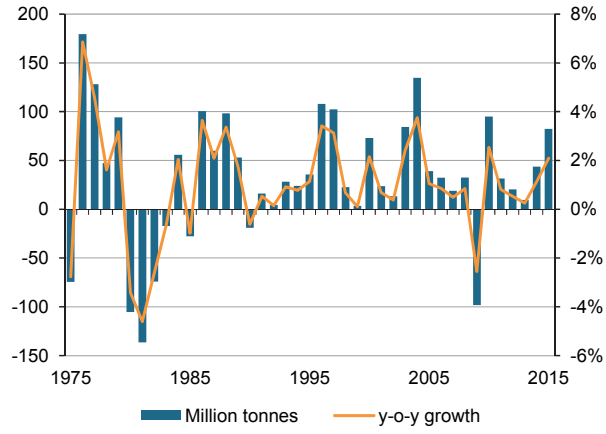
Figure 3. Change in OECD oil production by main producing countries



Refining

In 2015, world refinery output, excluding liquid biofuels components, increased by 2.1% (82 Mt, 1.8 Mb/d), the highest annual growth since the economic recovery during 2010.

Figure 4. World refinery output



The increase in refinery output was largely driven by growth in four of the top ten biggest refining countries; China (+25 Mt), Saudi Arabia[3] (+12 Mt), Korea (+11 Mt) and India (+10 Mt). However, the United Arab Emirates also posted impressive growth (+20 Mt), following the expansion of the Ruwais refinery. Among other major refiners, Japan showed a return to growth in 2015 after a sharp decrease in 2014, while significant decreases were seen in Brazil (–6kt) and Russia (–5Mt).

Figure 5. World refinery output growth between 2014 and 2015: main refining countries

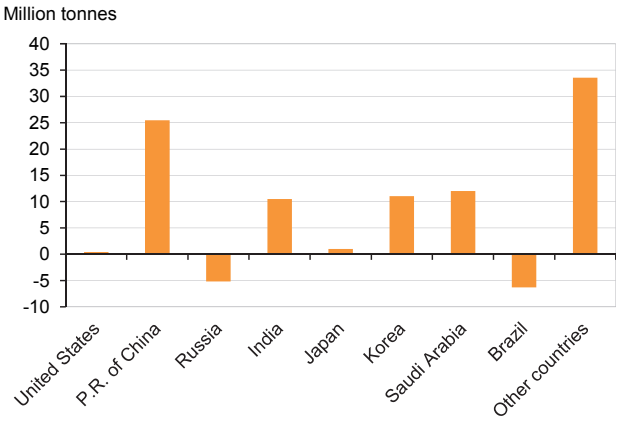
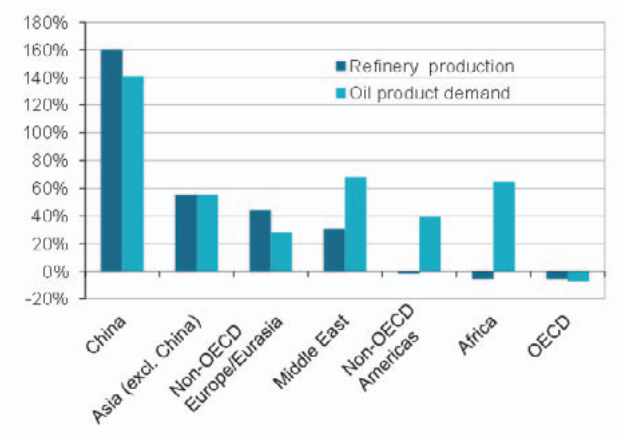


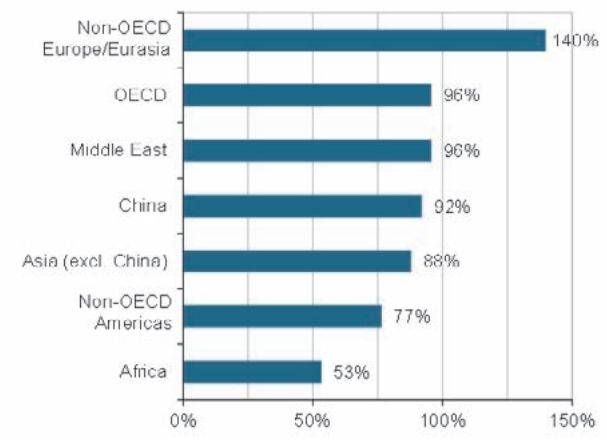
Figure 6. World refinery output growth in comparison to oil product demand between 2000 and 2015



Over the period 2000 to 2015, refinery output in Asia, Middle East and non-OECD Europe and Eurasia has increased, reflecting growth in oil demand over the same period. In Africa and non-OECD Americas, refinery output has not kept pace with demand growth, which is increasingly met by imports of refined products. In particular, in 2015 refinery output in Africa corresponded to little more than half of the demand in the region. In OECD falling refinery output reflects falling demand in the region over the period 2000 to 2015.

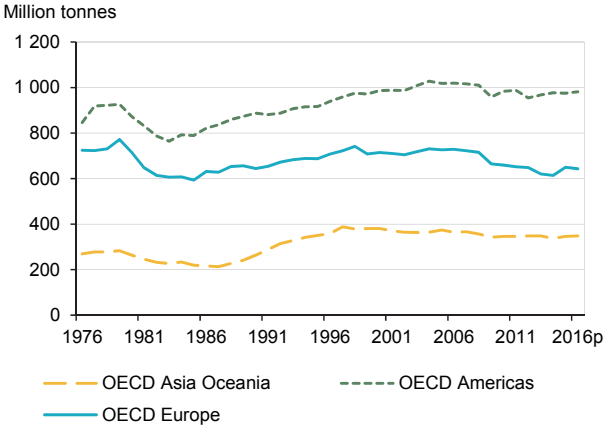
3. In addition to refinery production, Saudi Arabia produces a large amount of refined products in gas separation plants. This production is not included in refinery output.

Figure 7. Ratio of refinery output over oil product demand – 2015



In 2016, OECD refinery output remained steady, growing only 0.1% compared to 2015. The overall trend in OECD reflects small increases in OECD Americas (+0.6%) and OECD Asia Oceania (+0.4%) with a small drop in OECD Europe (–1.0%), as European refiners were confronted with an over-supplied market for most of 2016.

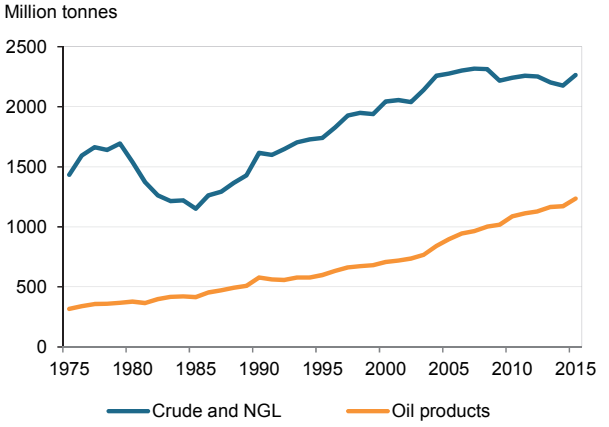
Figure 8. OECD refinery output



Trade

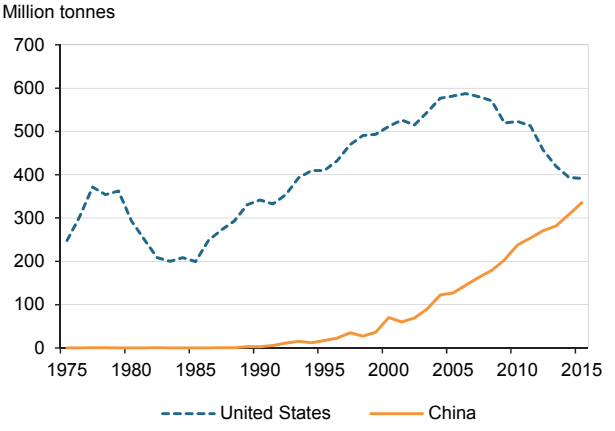
In 2015, trade of oil products and of crude oil and NGL both increased from 2014 (+6% and +4%, respectively), with the growth in trade of products outpacing that of crude oil and NGL for the twelfth consecutive year. Nevertheless, trade in crude oil and NGL remains more significant than trade in products (about 1.8 times larger).

Figure 9. World imports of primary and secondary oil products



In 2015, the decline in crude and NGL imports by the United States (the world's largest crude importer), slowed; falling only 1% from 2014, compared to a drop of 6% the previous year. Meanwhile China, the second largest crude importer, continued to increase its crude and NGL imports (+9%), narrowing the gap between first and second place.

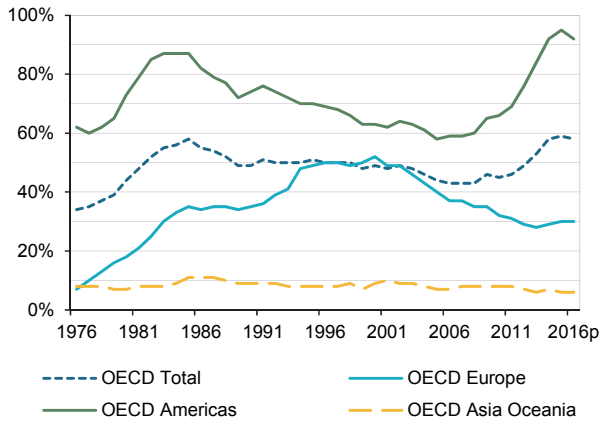
Figure 10. Crude and NGL imports: world's top importers



OECD oil self-sufficiency[4] declined in 2016 for the first time since 2010. This decrease was driven by a drop in self-sufficiency in OECD Americas, owing to declining production in the region. Self-sufficiency in the import dependent regions of OECD Asia Oceania and OECD Europe remained stable compared to 2015.

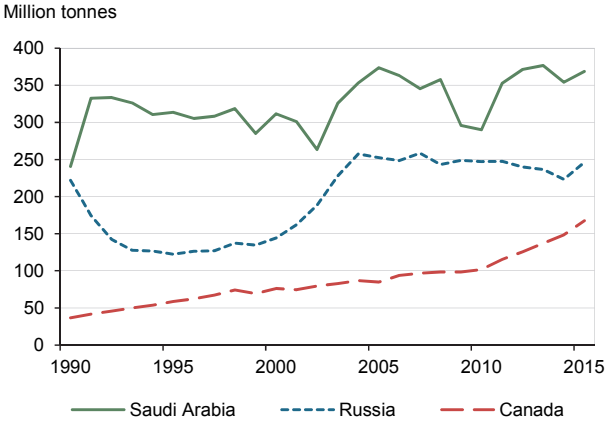
4. Measured as production/TPES. Excludes marine and aviation bunkers demand.

Figure 11. OECD oil self-sufficiency (oil production as a percentage of total oil primary energy supply)



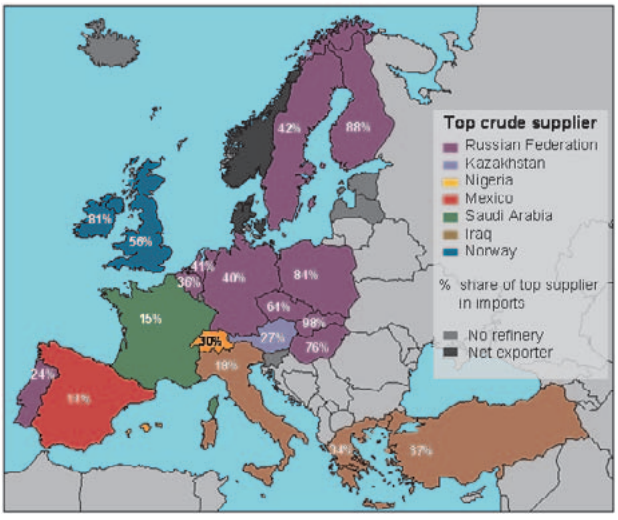
OPEC's share of world crude and NGL exports remained stable at 56% in 2015, following two years of decline, as increased exports in the region were met with similar increases by other key exporters, such as Canada and the United States.

Figure 12. Crude and NGL exports: world's top exporters



Russia remained the top crude oil supplier to OECD Europe, while Saudi Arabia was the main exporter to OECD Asia, providing 38% of Japan's crude imports and 30% of Korea's. Around 12% of OECD's crude imports come from OPEC.

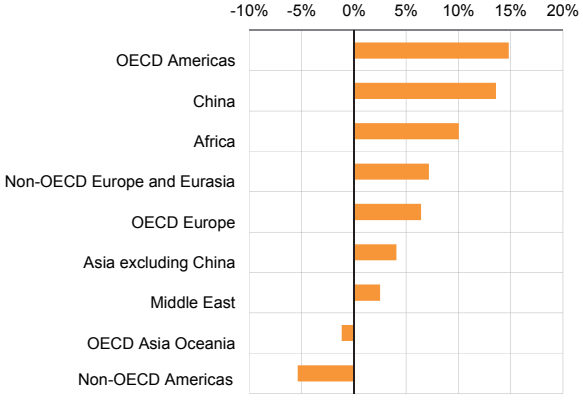
Figure 13. Top crude suppliers to OECD Europe by country in 2016[1]



1. This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

In 2015 imports of oil products increased in most regions of the world. OECD Americas and China showed the largest increases (+14.8% and +13.6%, respectively), reflecting growing demand in these regions. Africa also observed strong growth in imports (+10.0) due to increasing demand and falling refinery output. Non-OECD Americas reported the largest decrease in imports of oil products (–5.4%), reflecting decreased demand in the region. OECD Asia Oceania was the only other region to import lower quantities than in 2014 (–1.2%).

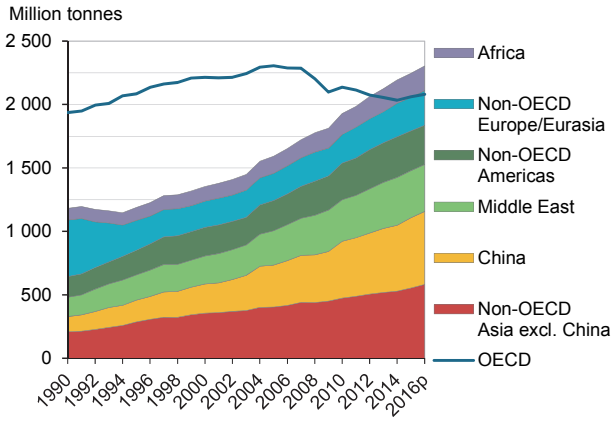
Figure 14. World imports of products: regional growth 2014-2015



Demand

Data from the world energy balance show that oil remained the most used fuel in the world energy mix in 2015 and its share increased marginally from 31.5% in 2014 to 31.8% in 2015. In 2015, world oil demand increased by 1.9% from 2014 (79 Mt, 1.9 Mb/d). Estimates by the IEA Secretariat point to a similar increase world oil demand growth in 2016 (+1.8%).

Figure 15. Oil product demand by geographical regions

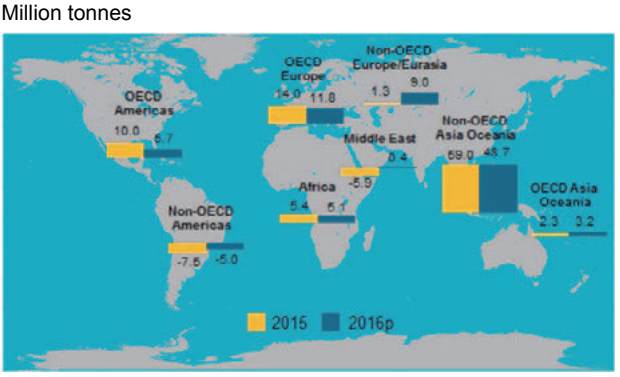


In 2015, in line with previous years, oil demand growth was driven by non-OECD countries (+2.4%, 52 Mt, 1.3 Mb/d). In the OECD oil demand grew more slowly (+1.3%, 26 Mt, 0.6 Mb/d), with demand growing 1.4% in the United States (11.8 Mt, 0.3 Mb/d), the world's largest consumer, and falling in Japan (–1.9%, –3.7 Mt, – 0.1 Mb/d).

Non-OECD countries continue to represent the largest share of world oil demand (52% in 2015, stable from 2014). Most of the additional oil demand came from non-OECD Asia (59 Mt, 1.3 Mb/d). China, the world's second largest oil consumer, increased its consumption by 32 Mt (0.78 Mb/d), while demand in India rose by 20 Mt (0.41 Mb/d). Africa also saw increasing demand in 2015 (+2.9%, 5 Mt, 0.12 Mb/d), with strong growth in some of the region's larger consumers like Nigeria (+9.7%) and South Africa (+5.7%), as well from smaller consumers such as Kenya (+15.6%).

Non-OECD Europe/Eurasia saw only a modest rise in demand (+0.5%, 1.3 Mt, 35 kb/d), mainly due to a fall in Russian oil consumption (–0.5%). In the Middle East oil demand fell (–1.6%, –6 Mt, –83 kb/d) as increased demand in Saudi Arabia (+6.9%) was more than offset by decreases in Iran (–11.6%), Iraq (–7.7%) and Yemen (–55.2%). Similarly, non-OECD Americas also saw oil demand fall (–2.3%, 7 Mt, 141 kb/d), largely due to significant drops in Brazilian and Venezuelan consumption (–2.3% and –14.3%).

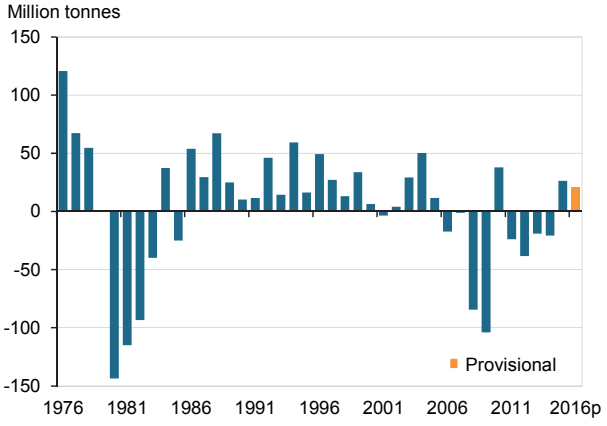
Figure 16. Change in world oil product demand by geographical regions[1]



1. This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

In 2016, OECD oil demand grew for the second year in a row following four years of decline (+1.0%, preliminary data). However, this was once again outstripped by non-OECD consumption (+2.6%, IEA Secretariat estimate).

Figure 17. Change in OECD oil product demand



World demand increased in 2015 for all products except residual fuel oil (–3.7%, –15 Mt, –263 kb/d), as in 2014. Once again the decrease in the consumption of this fuel was driven by a large drop in OECD (–11 Mt),

mainly explained by a decrease in its use for navigation and in power and heat.

The largest contribution to the increase in oil product demand came from motorgasoline (+3.4%, 35 Mt, 804 kb/d), largely driven by demand in non-OECD countries (+6.3%, 27 Mt, 627 kb/d). World growth in LPG/naphtha (+3.2%, 18 Mt, 498 kb/d) was also heavily concentrated in non-OECD countries (+5.5%, 16 Mt, 438 kb/d). On the other hand, significant growth in world demand for aviation fuels (+5.1%, 13 Mt, 292 kb/d) occurred in both in the OECD (+4.4%, 7 Mt, 149 kb/d) and Non-OECD (+6.0%, 7 Mt, 142 kb/d). World consumption of middle distillates increased only slightly (+0.7%, 10 Mt, 210 kb/d), reflecting an increase in OECD countries (+2.1%, 14 Mt, 278 kb/d), partially offset by a decrease in the non-OECD region (–0.4%, –3 Mt, 69 kb/d).

Figure 18. World demand by product groups

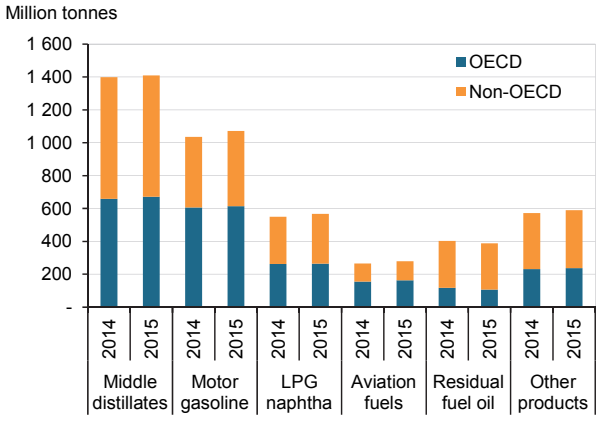
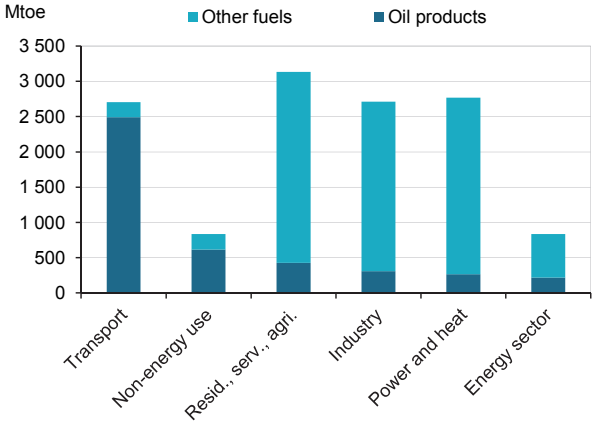


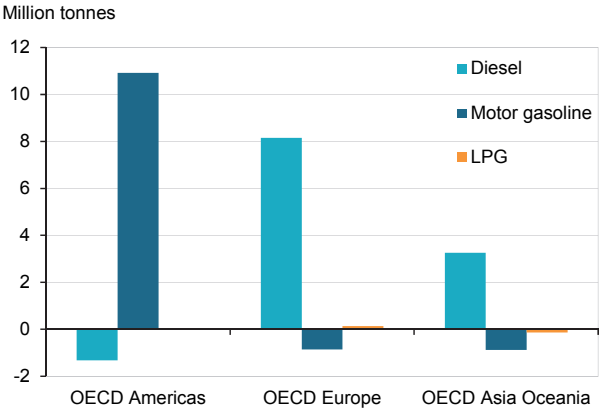
Figure 19. World demand by sector of oil products and other fuels in 2015[1]



1. In this chart, all liquid biofuels are included in Other fuels.

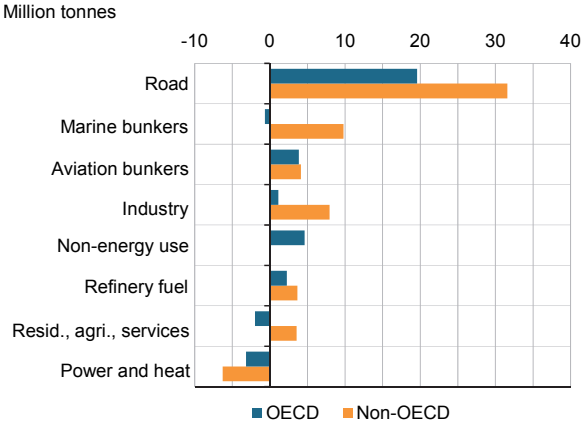
The world energy balance shows that road transport is by far the main oil consuming sector (1 907 Mtoe), with other fuels still playing a very marginal role (76 Mtoe of biofuels, 41 Mtoe of natural gas and 11 Mtoe of electricity).

Figure 20. Change in OECD road consumption between 2014 and 2015



Road transport demand continued growing in 2015 both in the OECD and in the rest of the world. Road transport in the OECD grew 1.8% (+19.1 Mt), reflecting growth in all three OECD regions: +1.5% (9.4 Mt) in OECD Americas; +2.5%, (7.4 Mt) in OECD Europe; and +1.9% (2.3 Mt) in OECD Asia Oceania. In the United States, a sharp fall in retail prices stimulated demand of motorgasoline, while decreased industrial demand impacted the consumption of diesel. In OECD Europe and OECD Asia Oceania consumption of diesel continued to increase, while motorgasoline demand declined.

Figure 21. Change in world demand in selected sectors between 2014 and 2015



In 2015, demand from industry, as well as non-energy consumption of oil, increased in the OECD region, following the declining trends observed in these sectors between 2010 and 2014.

The sharpest demand drop in OECD came from the power sector (–4.7%, –3.2 Mt). Demand in residential and services also decreased (–1.1%, –2.0 Mt), as did consumption in marine bunkers (–1.0%, –657 kt).

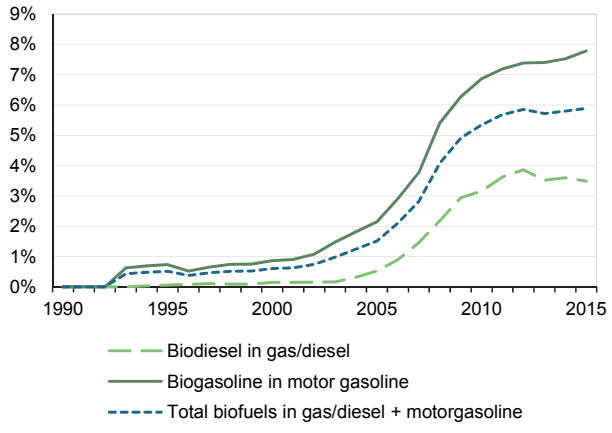
In non-OECD countries, oil demand increased in all sectors except power and heat (–3.0%, –6.3 Mt). Most of the demand growth in 2015 was in transport sectors and industry. Despite strong growth in recent years, non-energy consumption of oil in the non-OECD region grew only modestly in 2015.

Liquid biofuels

Global growth in liquid biofuels production continued in 2015, underpinned by a positive year for ethanol production in the United States and Brazil, aided by good harvest yields for corn and sugar cane biofuel feedstocks respectively.

In the OECD, the overall share of liquid biofuels in road consumption remained relatively stable at 5.9%. This reflects a small increase in the share of biofuels blended with gasoline (from 7.5% in 2014 to 7.8% in 2015) and a slight fall in the share of biofuels blended with diesel (from 3.6% in 2014 to 3.5% in 2015). Biodiesel use in gas-diesel oil remains small at 15 Mt in 2015.

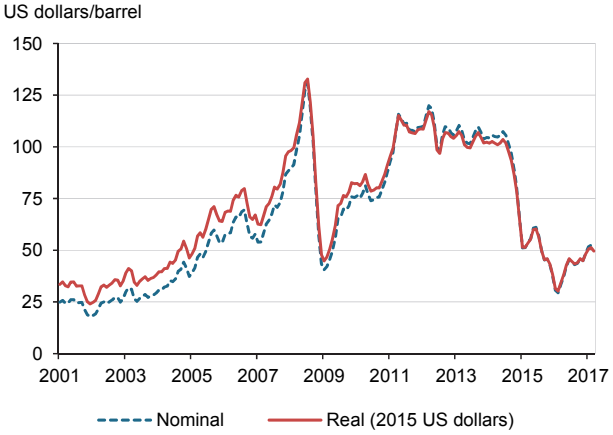
Figure 22. Share of liquid biofuels in OECD road consumption



Prices

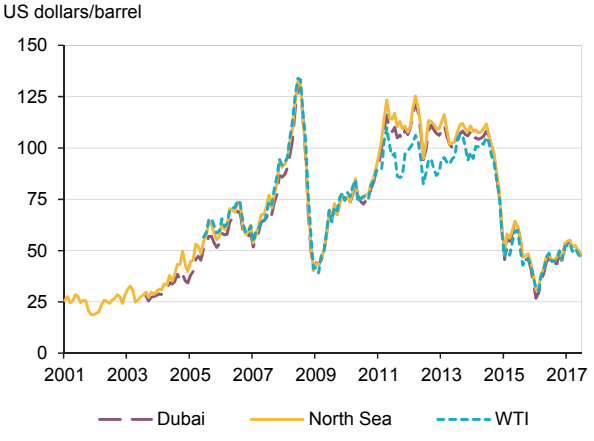
Average import costs in IEA member countries continued to increase into the first quarter of 2017 from the low point seen in February 2016. Despite a fall in March 2017, import costs for the first quarter of 2017 remained well above the levels seen for the full year 2016. Year on year, average import costs in IEA member countries showed an overall increase of 65%. The largest increases occurred in Korea (+73%), followed by Japan (+71%) and the United States (+68%).

Figure 23. Nominal and real crude oil import costs (IEA average)



Crude oil spot prices fell during the second quarter of 2017 having increased steadily from the low point seen in early 2016. Spot prices for international benchmarks in June 2017 were close to the levels seen a year earlier.

Figure 24. Crude oil spot market prices



Oil product spot prices decreased somewhat during the second quarter of 2017, following increases for the full year 2016 and first quarter 2017. Nevertheless, second quarter 2017 spot prices generally remained well above the levels seen in second quarter 2016.

In the first quarter of 2017, almost all price indices showed strong increases compared to the same period of 2016, for example:

- The total OECD commercial price index for automotive diesel increased by 15%. Prices rose most in New Zealand (+23%) and Canada (+21%), while the Netherlands and Turkey (–1%) recorded the only price decreases;
- The total OECD unleaded gasoline real price index rose by 17%. The largest increases were in the United States (+20%) and Canada (+16%). No country recorded a price decrease, year on year.