Bulgarian Diplomatic Institute

Webinar "Energy and Climate Diplomacy in Times of Crisis"

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"Impact of Covid -19 and Russia's Invasion of Ukraine on the European & Greek Energy Sector"

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FOR SOUTH EAST EUROPE

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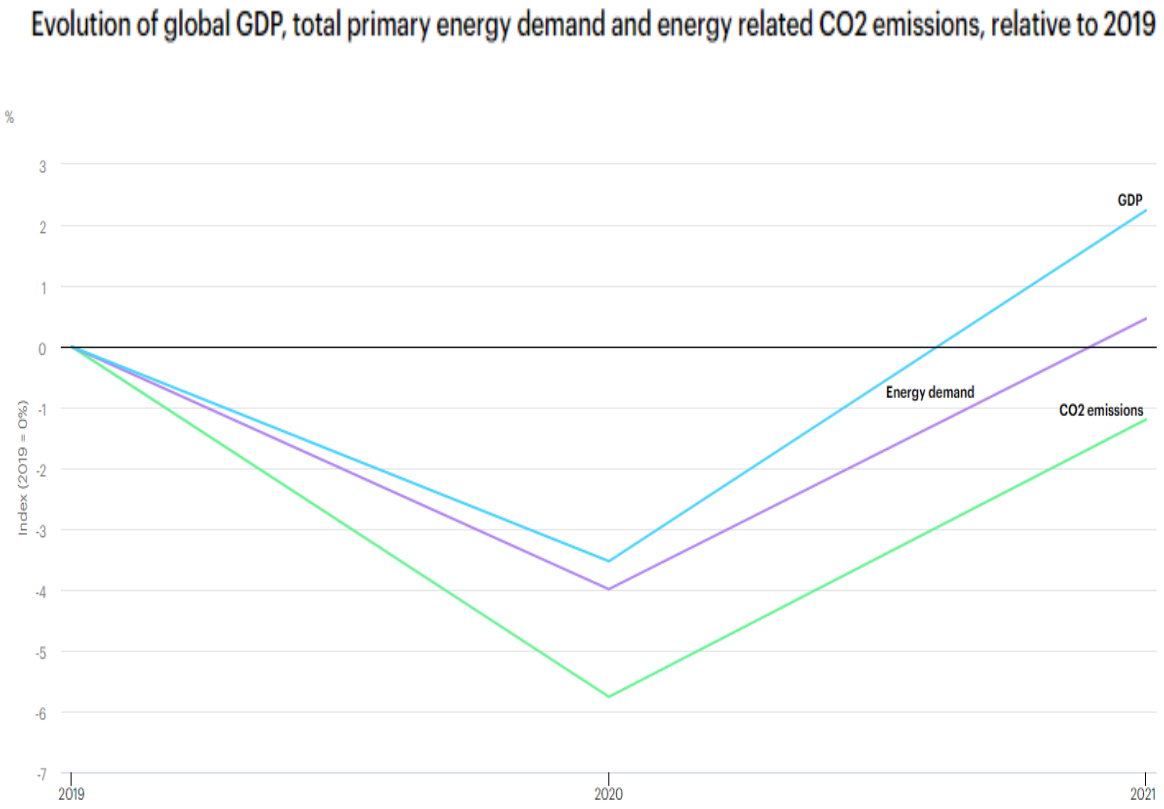
Pandemic Covid-19 - Global

- In 2020 global energy demand fell by 4% compared to 2019.
- In 2021, energy demand is expected to increase by 4.6%, pushing global energy use 0.6% above pre-covid-19 levels.
- In 2021, global GDP will surpass 2019 levels by 2%.
- If transport demand returns to pre-Covid levels across 2021, global energy demand will rise even higher, to almost 2% above 2019 levels.
- In 2020 global CO_2 emissions declined 5.8%. Carbon emissions in 2021 are expected to have bounced back alongside the economic recovery.

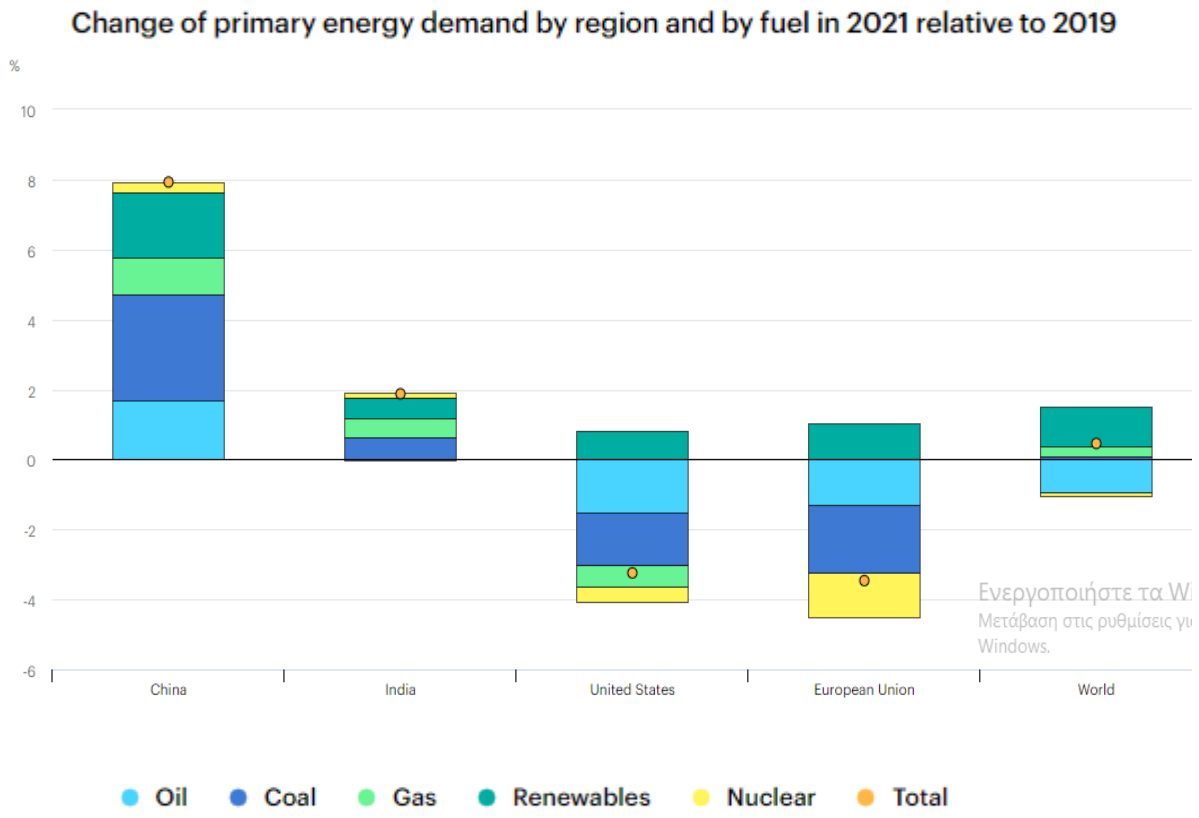


Source: IEA

Pandemic Covid-19 - Global

The drop in demand in 2020 did not affect all fuels evenly.

- Oil demand was down by almost 9% across 2020.
- Coal demand dropped by 220 million tonnes of coal equivalent (Mtce), or 4%.
- Renewables have proven largely immune to the pandemic as new capacity has come online and as they have benefited from priority market access in many markets. Overall, renewables usage grew by 3% in 2020.

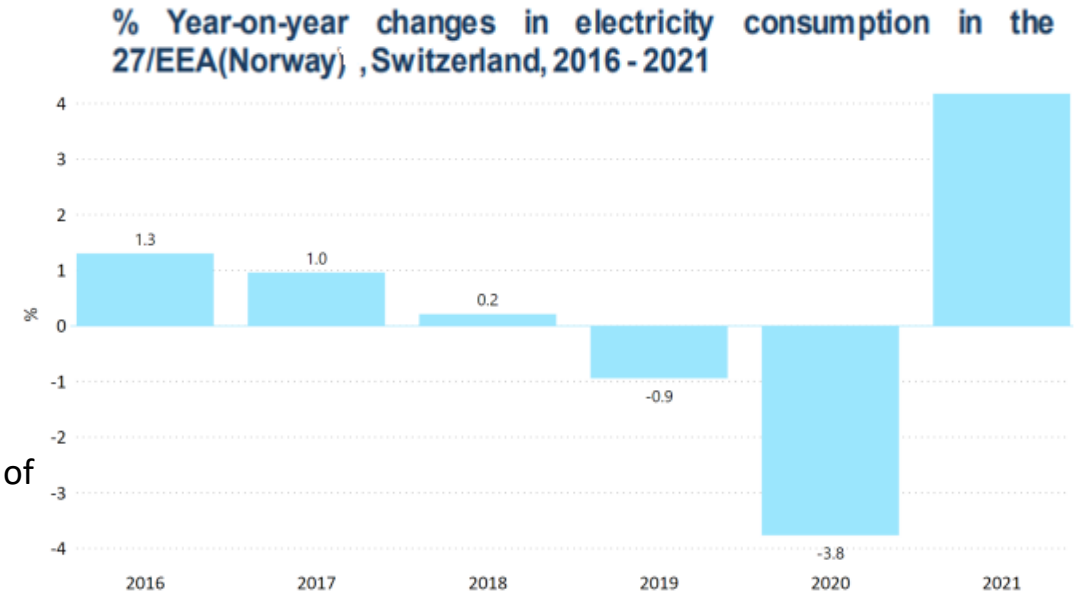


Source: IEA

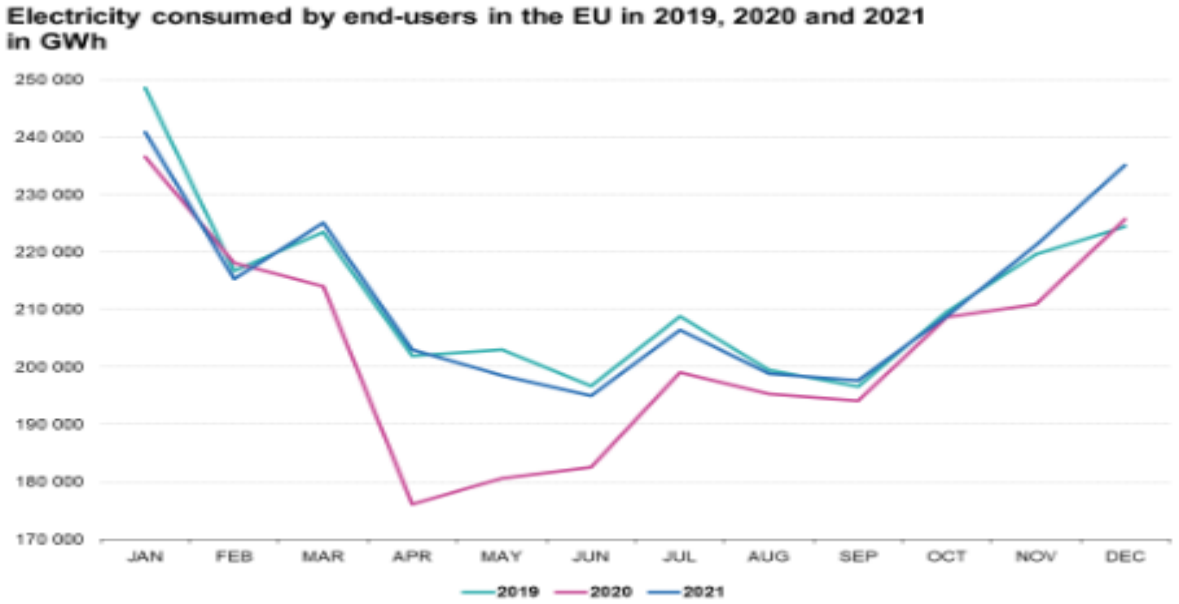
Pandemic Covid-19 - EU

In **2020** consumption dropped substantially (-3.8%) compared to 2019, due to a mild winter and subsequent COVID-19 containment measures.

In **2021** the economic recovery drove a recovery of electricity consumption (+4.2%).



Source: ACER



Source: Eurostat

Pandemic Covid-19 - EU

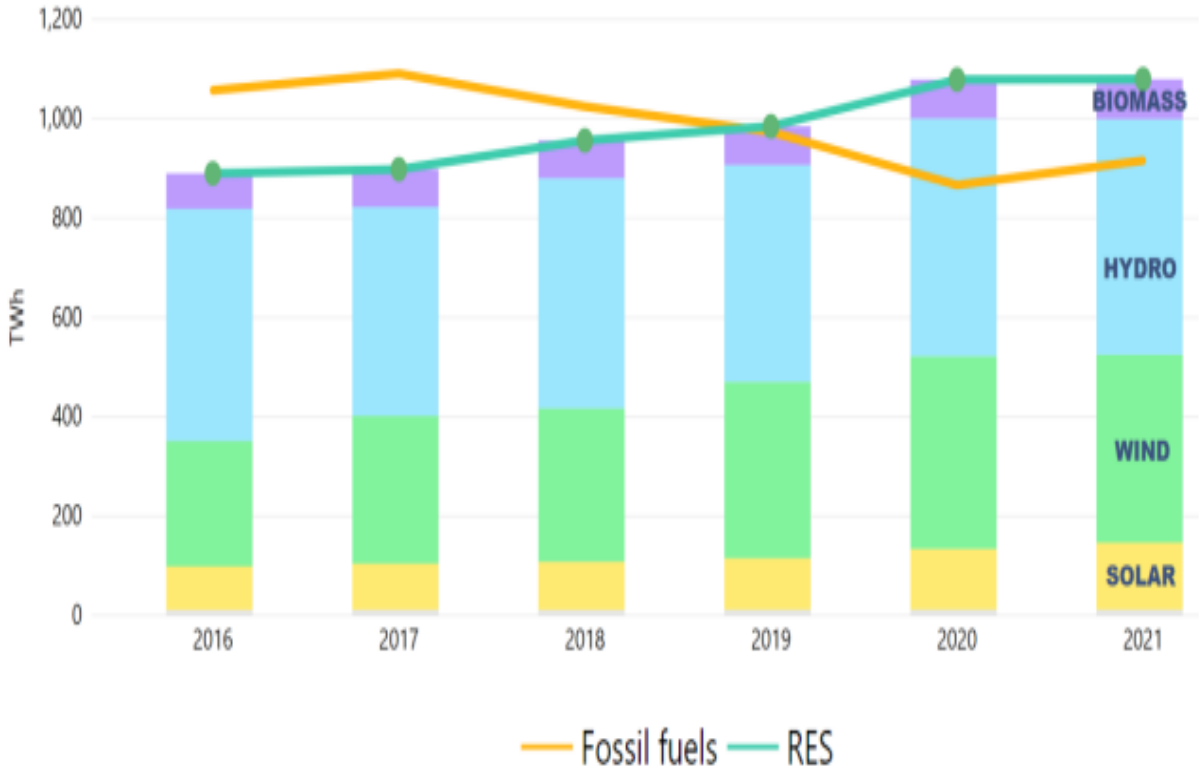
In 2021 renewables led electricity generation, despite a rebound in fossil fuel generation.

More electricity was generated from renewables than from fossil fuels in 2021.

- However, growth in renewable stalled in 2021 (0%), in particular due to lower wind generation.
- As a result, in 2021 renewables were not growing fast enough for the rebound in electricity consumption. This triggered an increase in generation from fossil fuels.

→ ***In 2021, fossil fuels increased by +7%***

Evolution of generation from renewables per type, compared to fossil fuels in the EU-27/EEA(Norway), Switzerland – 2021 (TWh)



Source: ACER

Pandemic Covid-19 - EU

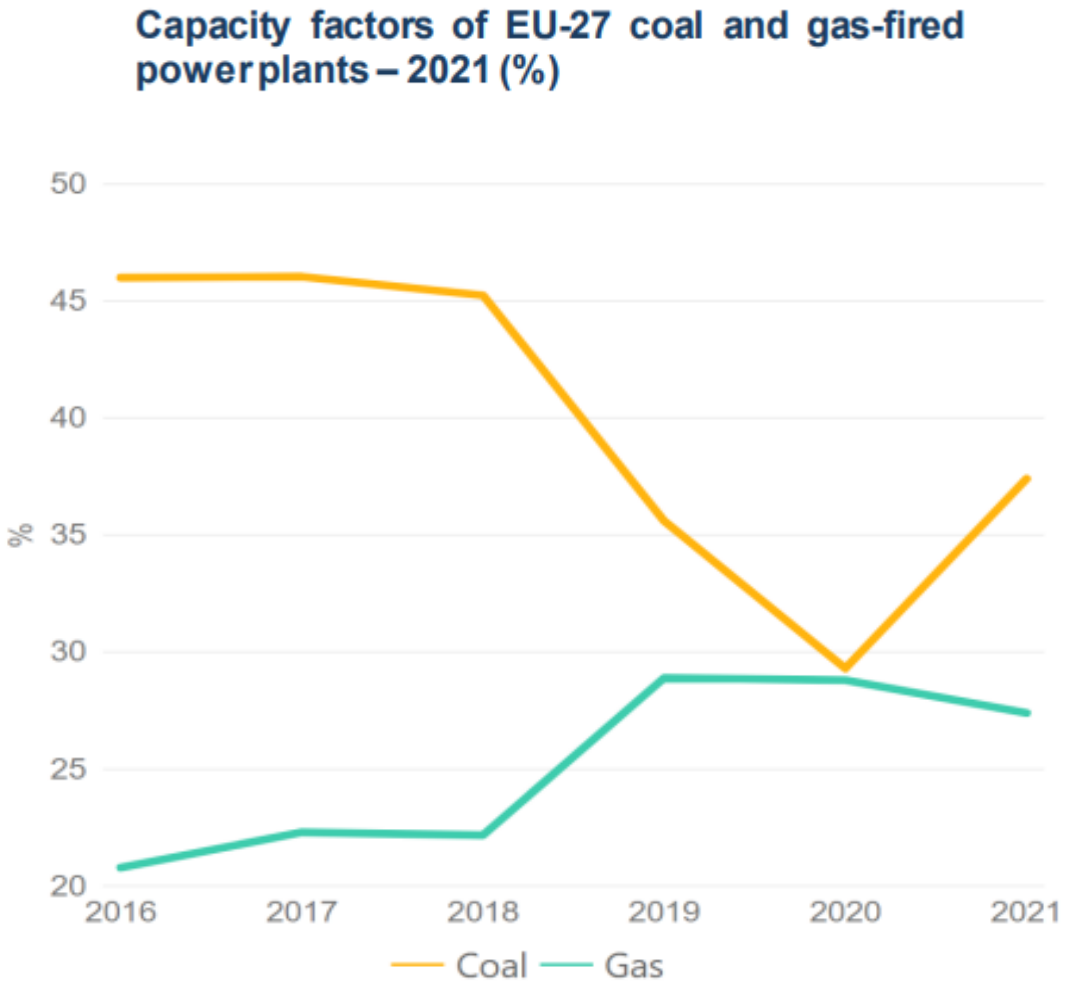
Coal-fired power plants were more active than gas-fired ones

- Utilisation of **coal-fired power plants** has been decreasing since 2018. In 2020 the trend reversed.

→ *The increase in usage of coal-fired power plants in 2021 contradicts the objective of gradually phasing coal out to favour the energy transition.*

- Conversely, the use of **gas-fired power plants,** stable until last year, decreased in 2021 and this led to a decrease of the capacity factor.

→ *The decrease in usage of gas-fired power plants was due to high gas prices, making them less competitive than the coal ones.*



Source: ACER

Pandemic Covid-19 - EU

Emission intensity of electricity generation increased slightly in 2021

- The total emission intensity decreases with demand and as less carbon-intensive generation technologies take over those with a higher carbon footprint. It has been continuously decreasing over the last 3 decades, in line with EU climate objectives.

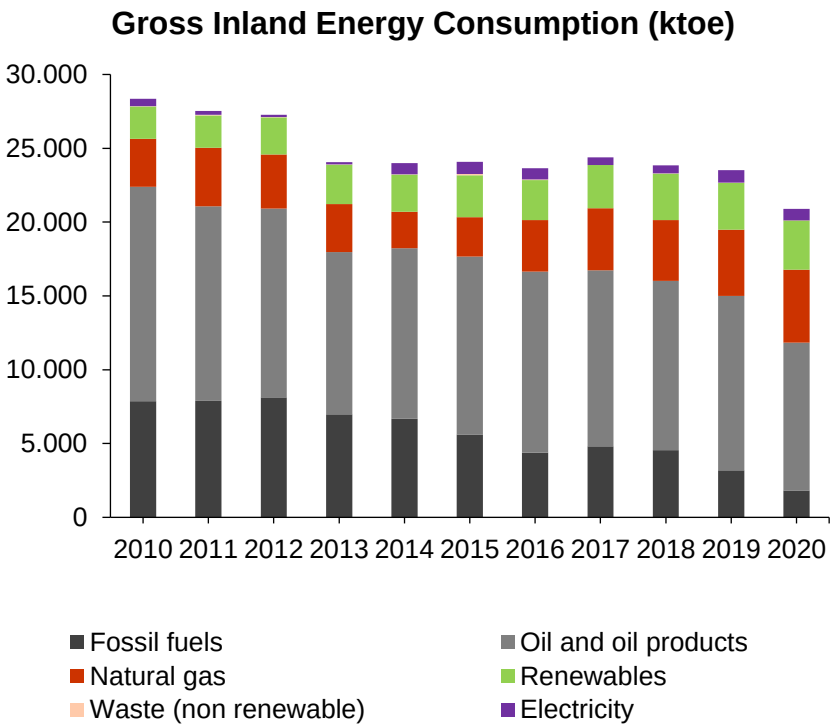
→ Policies on industrial emissions, towards less carbon intensive energy sources and energy efficiency played a key role

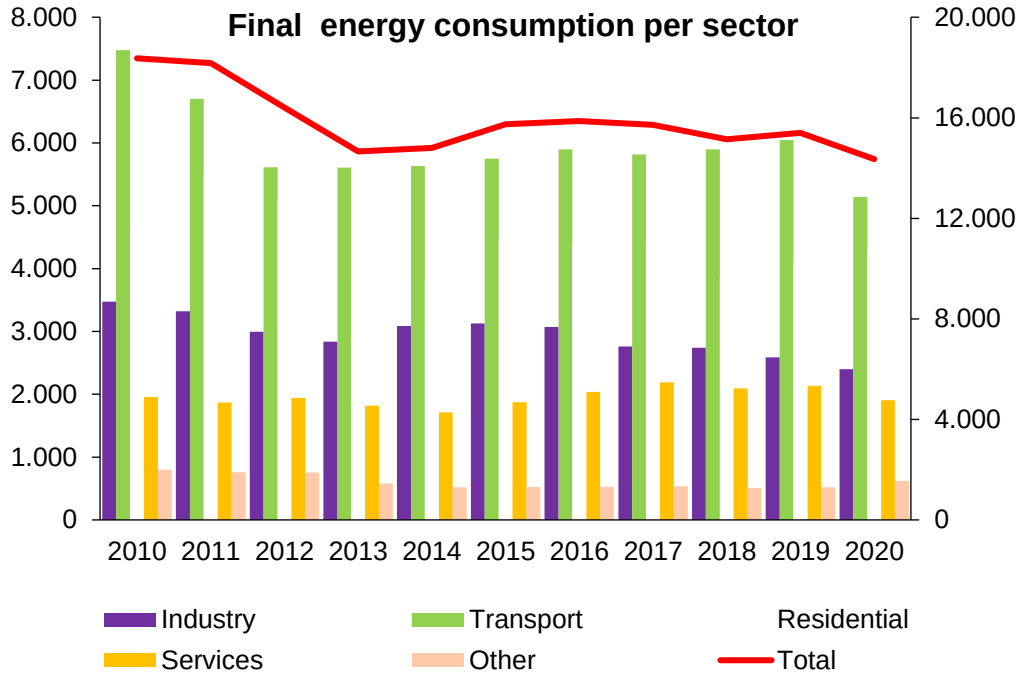
- In 2021, the rebound in fossil fuel generation led to an increase in emission intensity of electricity generation compared to 2020.

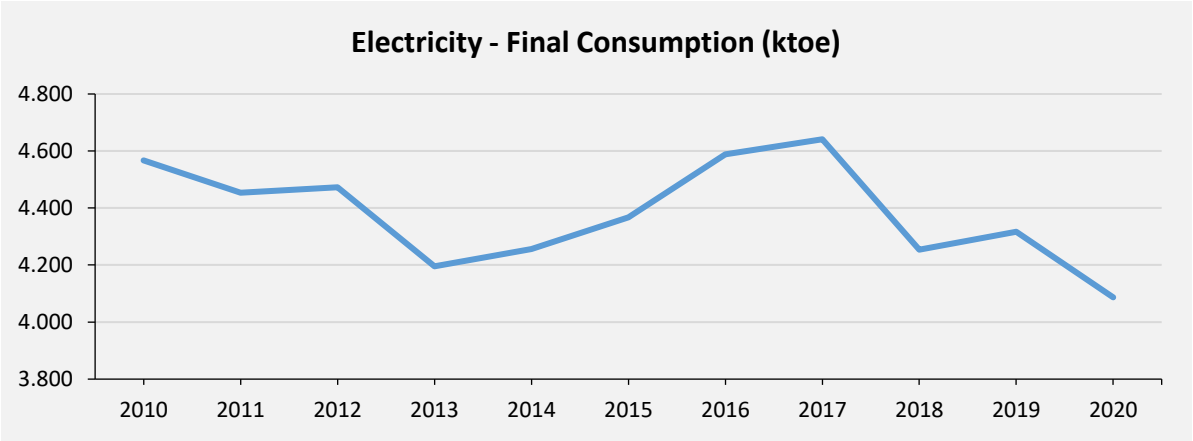
Greenhouse gas emission intensity of electricity generation, EU-27 average – 1990-2021 (g CO2e/kWh)

Source: ACER

Pandemic Covid-19 - Greece







Source: Eurostat

Pandemic Covid-19- Greece

Greek Energy Sector

Oil sector

- The oil market suffered an unprecedented collapse internationally, as oversupply and overfilled tanks led to a dramatic drop in prices, creating much uncertainty, both in the energy sector and in the global economy.
- On Monday, April 20, 2020, the price of crude oil in the US market fell "below zero" for the first time in the history of oil markets. This unprecedented event came about by the coincidence of two factors: (a) the reduction of oil demand due to the coronavirus crisis and (b) the fullness of the tanks and the inability to receive new cargoes from trading and refining companies.
- Low oil prices, due to the coronavirus pandemic, have greatly affected hydrocarbon exploration activities.
- The domestic oil market was significantly affected, especially during the pandemic outbreak (March-May). Gasoline consumption in transport decreased by 60%, while diesel, mainly used in agriculture and domestic transport, showed a milder decline of 35%-40%.

RES sector

- The spread of the coronavirus caused cancellations and delays in some major RES and energy storage projects.
- Ongoing RES investments have encountered several difficulties due to delays in response from licensing authorities, restrictions on the movement and accommodation of their executives and technical staff, delays in equipment delivery schedules, and the rectification of problems in existing projects, among others.

Source: IENE Special Report Impact of the Coronavirus Pandemic on the Greek Energy Market»

Gas sector

- Although there was a decline in domestic gas demand, it was rather marginal and did not reach the levels seen in oil.
- The proper functioning of the National Natural Gas System was not affected due to the pandemic.
- There was a significant drop in gas prices (mainly LNG), due to developments in international markets (e.g. a large drop in the price of crude oil), while there was a large penetration of LNG in the electricity generation of Greece, resulting in 64% of the supply in the first semester of 2020 to take place via LNG.
- Overall gas demand increased thanks to the ongoing decarbonization.

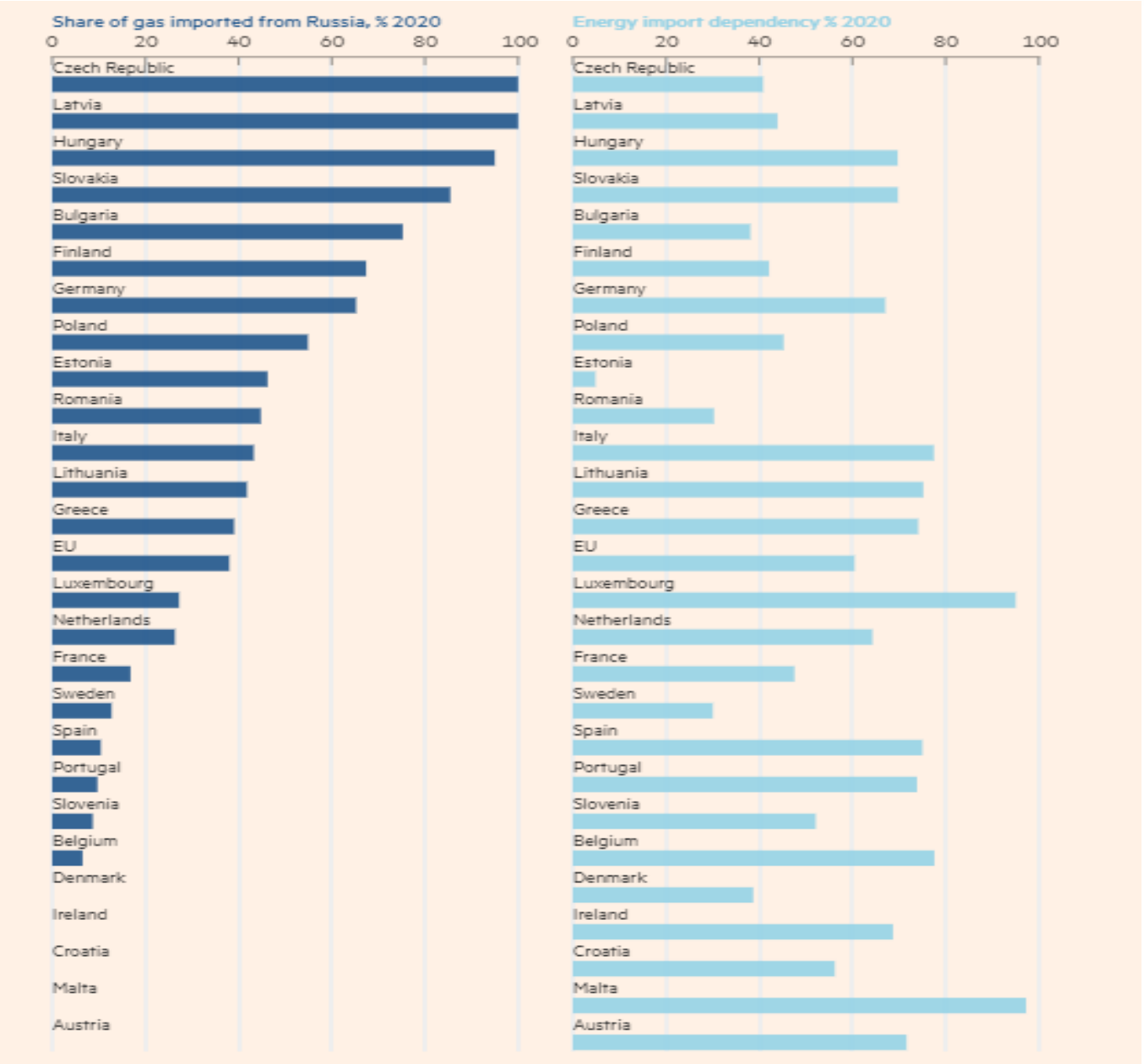
Electricity sector

- The pandemic crisis led to a significant reduction in the total electricity load of Greece, which was probably due to the fact that commercial consumption decreased with a parallel increase in domestic, while industrial activity did not stop at a large extent.
- The reduction in electricity consumption, along with a drop in CO2 prices, has led to very low energy prices.
- A number of consumers have had problems paying their bills, creating a liquidity crisis in the market.
- The majority of electricity suppliers offered their customers discounts on electricity bills.
- A delay occurred in the start of operation of the Target Model in Greece, as the contractor's team in Athens (General Electric) experienced pandemicrelated problems.
- The planning and implementation of most major investments (e.g. electricity interconnection of Crete) were not significantly affected.
- Significant effects were also felt in the energy-intensive industry, which was inevitably affected by the financial results of retail suppliers.

Russia's Invasion of Ukraine

In 2021 (IEA):

- European imports of gas: 380 mcm import per day via pipeline (140 bcm/year)
- 15 bcm LNG
- Russia accounted for about 45% of the EU's gas imports and 40% of its entire gas consumption.



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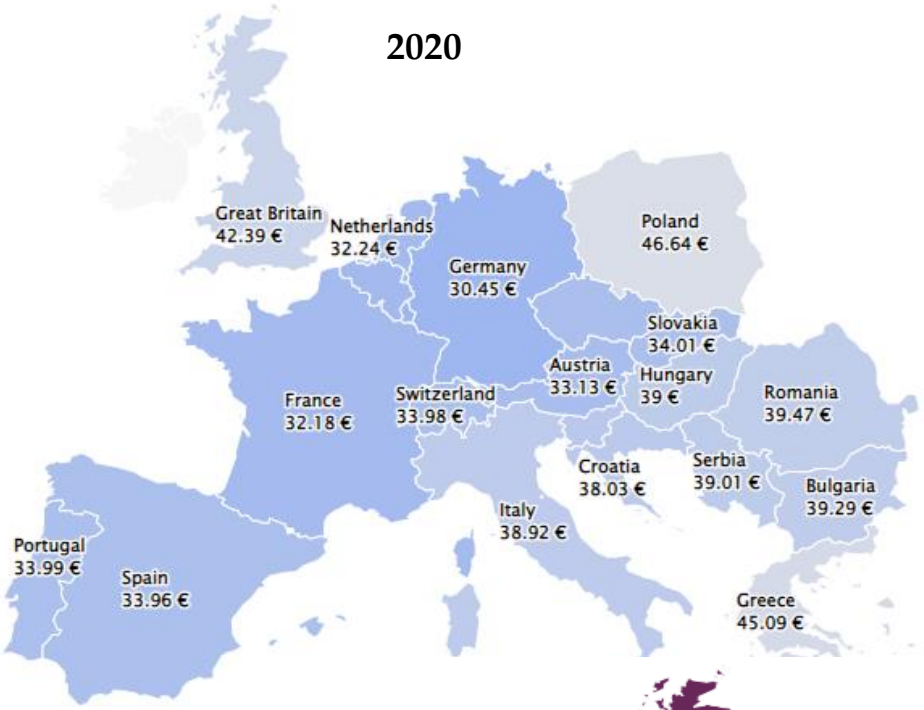
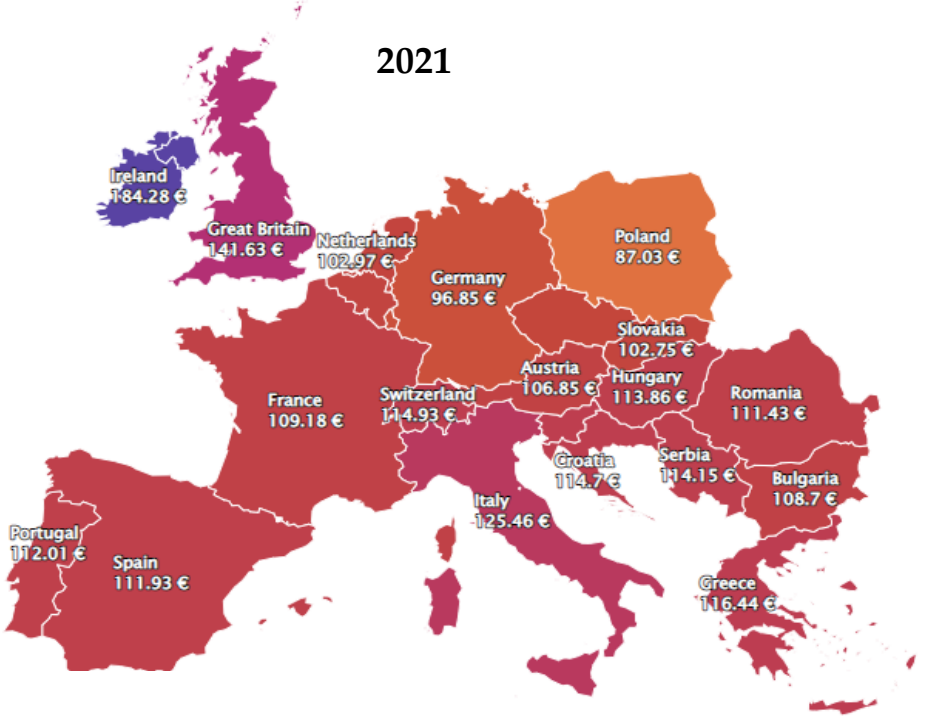
2020



2021



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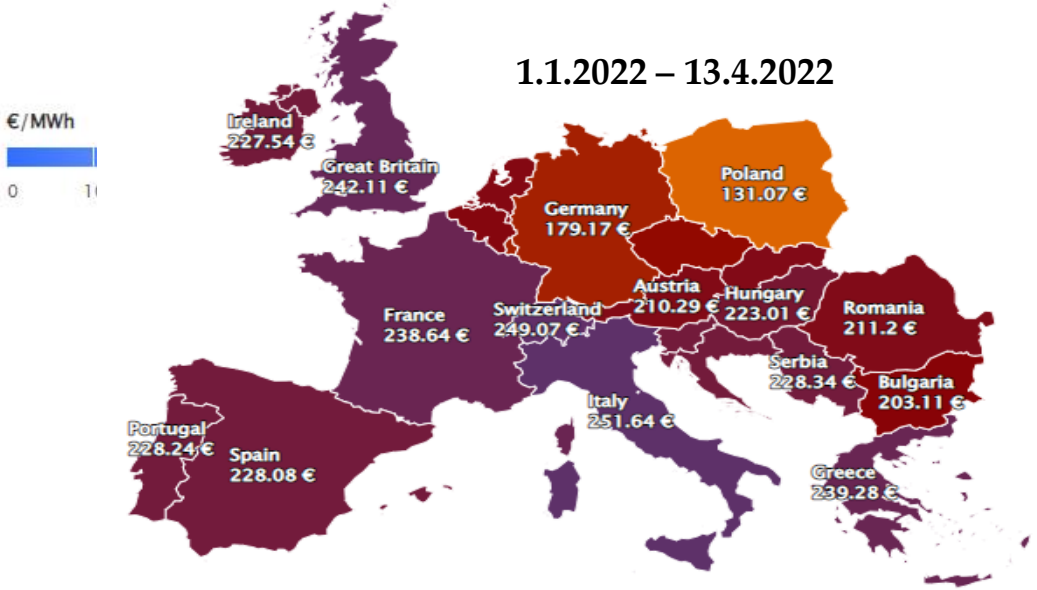
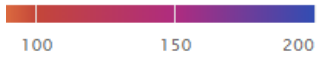
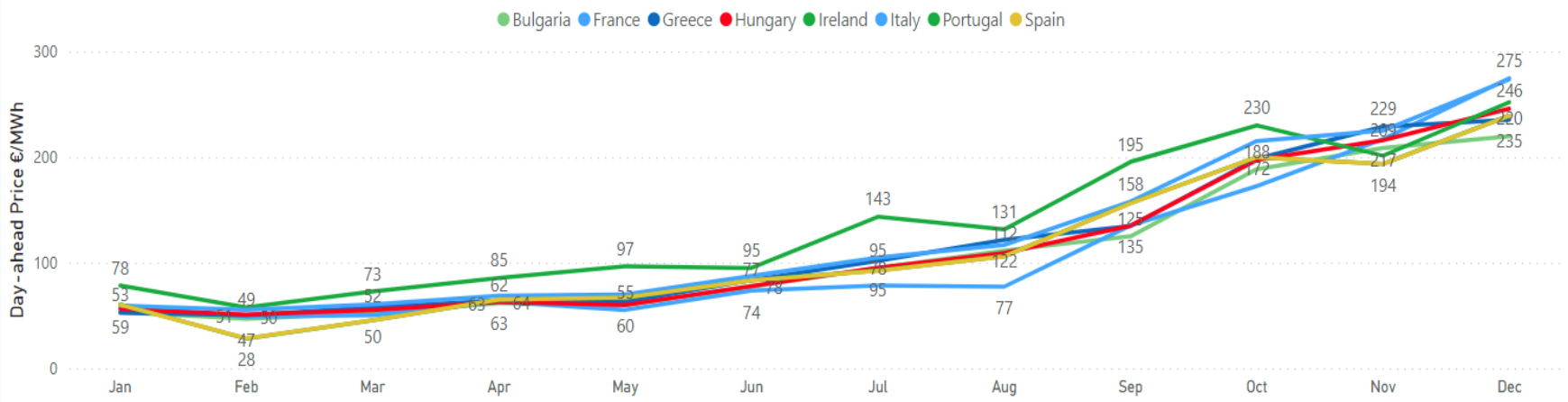




Record high gas prices drove day-ahead electricity price increases in Europe in 2021



Country	Off Peak	Peak	Day Ahead Average Price
Bulgaria	95.88	121.52	**108.70**
France	101.77	116.57	**109.17**
Greece	107.71	125.17	**116.44**
Hungary	101.69	126.03	**113.86**
Ireland	102.32	132.88	**117.61**
Italy	119.37	130.75	**125.06**
Portugal	111.58	112.44	**112.01**
Spain	111.52	112.35	**111.93**
Average	**112.13**	**125.78**	**118.95**

Russia's Invasion of Ukraine – Key points

- Global natural gas consumption grew by 4.5% in 2021. The world's **demand for natural gas** is set to **decline** slightly in 2022 as a result of higher prices and market disruptions caused by Russia's invasion of Ukraine, according to the International Energy Agency's latest quarterly update.
- **Spot gas prices** have **soared** to record highs as Europe's push for more diversified natural gas supply has intensified demand for Liquefied Natural Gas (LNG) cargoes, with some being diverted away from Asia.
- In Europe, **spot LNG prices** were **five times their five-year average**, in spite of a mild winter. The prices were also boosted by Russia's moves, even before its invasion of Ukraine, to drastically reduce short-term gas sales to Europe, which had left European storage levels 17% below their five-year average at the start of the European heating season.
- Natural gas consumption this year is expected to **fall by close to 6%** in **Europe**. In Asia, it is expected to grow by 3% in 2022, a marked slowdown from growth of 7% in 2021. Regions such as the Americas, Africa and the Middle East are expected to be affected less directly by gas market volatility, as they principally rely on domestic gas production.
- The IEA published a **10-Point Plan** on 3 March, outlining a suite of measures to reduce the volume of Russian gas imports into Europe by over a third within a year while remaining consistent with the EU's climate ambitions.
- The European Commission issued on March 8, an outline of plan **REPowerEU** to make Europe independent from Russian fossil fuels well before 2030, starting with gas, in light of Russia's invasion of Ukraine.

Russia's Invasion of Ukraine – Key points

- The policies proposed under the European Green Deal would make the European economy less dependent on energy imports and therefore more resilient. The current crisis only reinforces the need for such measure. The European Green Deal already supports the development of new climate-neutral technologies such as green hydrogen, biochemicals, or decarbonised materials. This would substantially reduce reliance on traditional fossil fuels, such as oil, coal or natural gas, and should therefore be accelerated.

Greece

- Greece, which covers about **40%** of its annual energy needs with Russian gas, and views gas as a transition fuel as it ramps up renewables, has produced small quantities of oil in the past and has attempted to explore its **hydrocarbon potential**. But low crude prices in previous years, a shift to green energy, and a lack of political will have stalled the exploration plans.

- Following the European Union decision for the rapid disengagement from Russian natural gas, the Greek government announced its intention to **accelerate efforts to explore and exploit potential oil and gas reserves.**

- Greece wants to conduct a first round of seismic surveys to identify any gas fields it could tap in one onshore and five offshore areas in western Greece and off the island of Crete by **March 2023**.

- This **shift in Greece's strategy** will not undermine its plan to boost green energy and cut carbon emissions by 55% by 2030, in line with EU's climate change targets.

Russia's Invasion of Ukraine

Thank you for your attention

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