



***13<sup>th</sup> Hydra Shipping Conference***  
***Hydra, September 17, 2022***

## **The Current Energy Crisis and the Challenges Ahead**

An intervention by **Costis Stambolis**  
Chairman and Executive Director,  
Institute of Energy for SE Europe (IENE)

# The Economist

How the pandemic ends  
Latin America's growth opportunity  
Will there be a wage-price spiral?  
More threats to free speech

OCTOBER 16TH-22ND 2021

## The energy shock



# The Economist

The Democrats pass peak progressive  
After Abe  
Post-quantum solace  
Let Catholic priests wed

JULY 16TH-22ND 2022

## EUROPE'S COMING WINTER PERIL



# Introduction

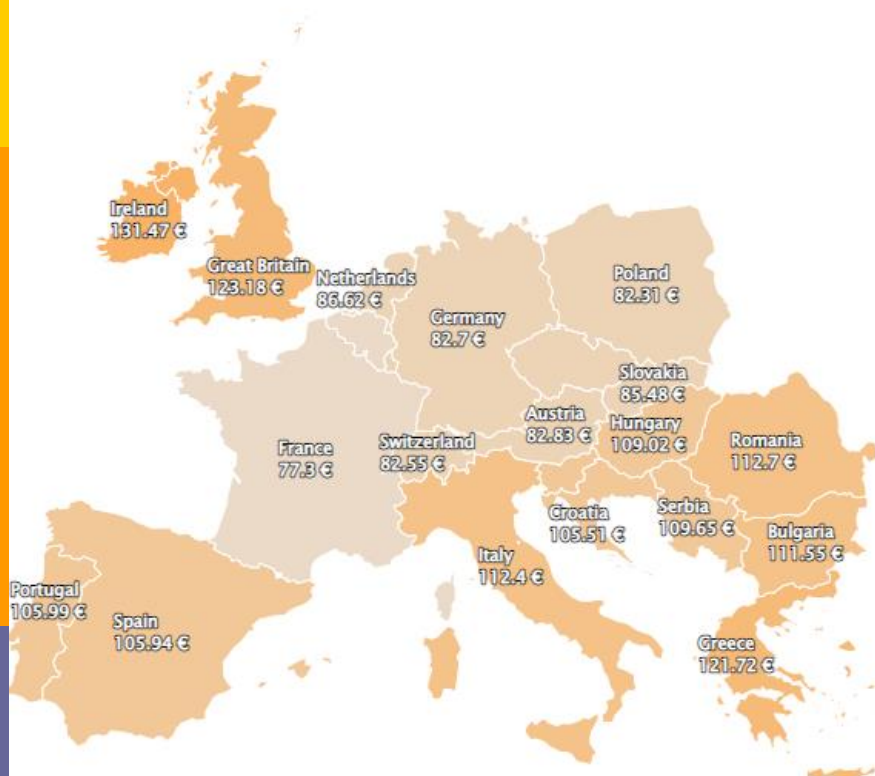
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- ❑ An unprecedented energy crisis has been unfolding over the last 14-18 months with steep rises in oil, gas, coal and electricity.
- ❑ A far worse crisis than the ones in 1973 and 1979 since it has affected the whole spectrum of energy sources.
- ❑ The fundamental reasons behind the crisis appear to be a real supply shortage as the global economy has expanded exceedingly fast in the post Covid-19 period.
- ❑ Europe is worse hit by the current energy crisis than other parts of the world as the continent has to import from Russia and elsewhere more than 60% of the energy it consumes.
- ❑ The energy crisis in Europe has been further exacerbated by an ill conceived EU embargo against Russian oil, gas and coal imports.
- ❑ By blocking imports from EU's biggest energy supplier, the continent's energy markets have been destabilised with steep electricity and gas price rises and uncontrolled fluctuations.
- ❑ Substituting Russian gas with imported LNG can only substitute part of the missing gas volumes since the market produces finite gas quantities and no new major LNG suppliers are coming on stream before 2024.
- ❑ Likewise in oil, there appears to be a supply shortage as a result of years of underinvestment. Hence, the global market cannot increase much production, while OPEC+, which includes Russia and controls 50% of global oil supply, is not willing to open up the taps for fear of actual shortages in the near future.
- ❑ As a result of actual supply constraints and steady global demand, oil and gas prices are most likely to stay high over the next 12-18 months.
- ❑ A predicted global economic recession may curb demand but this is expected to be marginal, while oil and gas supply shortages are expected to influence a lot more price dynamics.
- ❑ As demand for oil and gas (especially LNG) is not expected to wane any time soon, the outlook for increased shipping activity is expected to remain strong with freight rates maintaining for sometime their current elevated level.

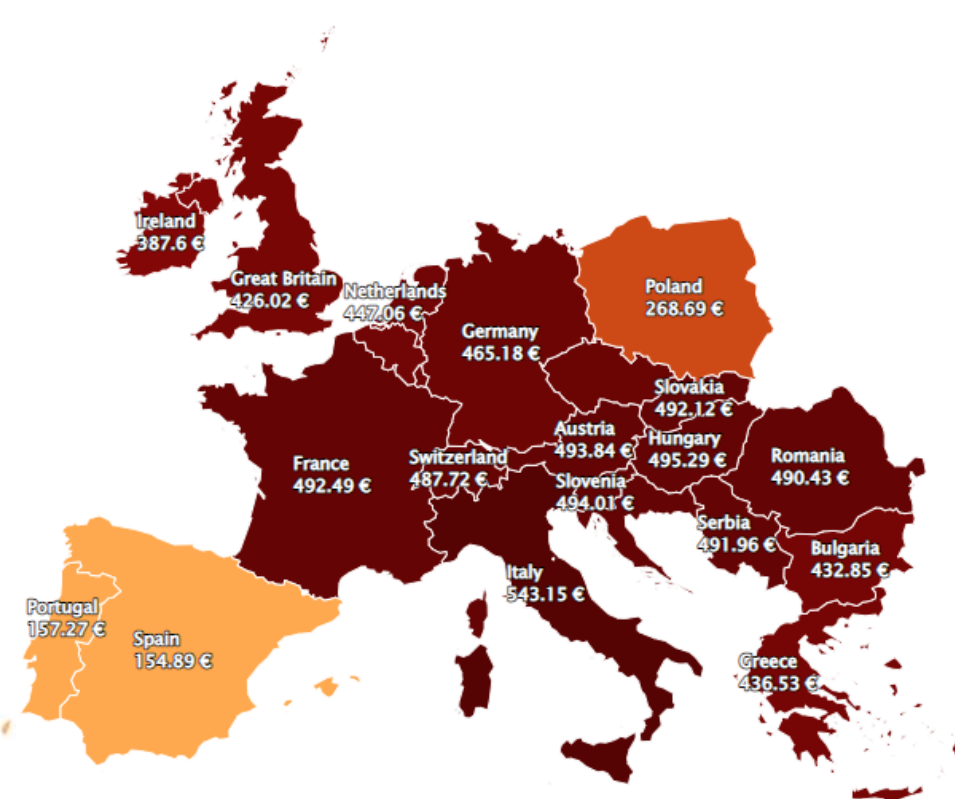
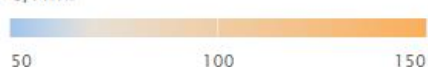
# Average Day-ahead Electricity Prices in Europe

Monthly day-ahead prices for 2021-08

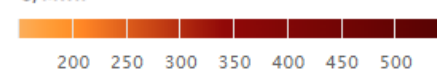
Monthly day-ahead prices for 2022-08



€/MWh



€/MWh



# Global and European Gas Prices

## Global gas prices splinter

US, UK and Europe benchmark natural gas prices, \$ per mn British thermal units

— US Henry Hub — UK NBP — Europe TTF

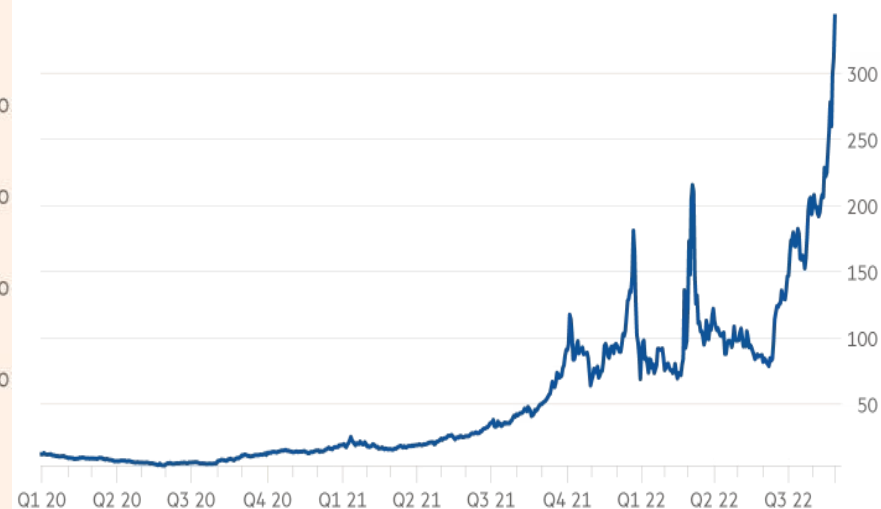


Source: Reuters Eikon

© FT

## European gas price soars to new highs

TTF (euros per megawatt hour)



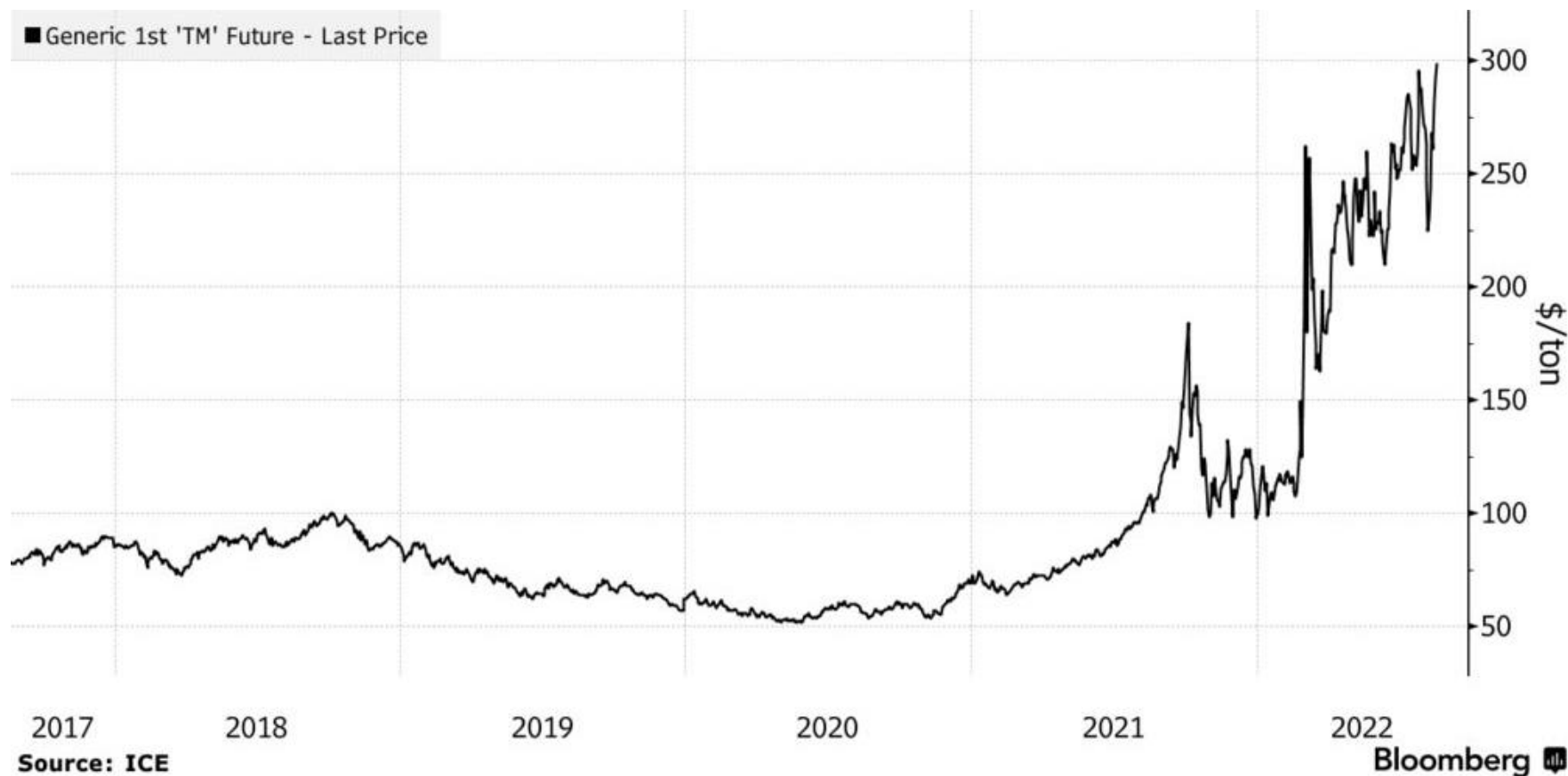
Source: Refinitiv

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## ICE Brent Crude Oil Front Month (1 Year)



# European Coal is in the Midst of an Historic Rally as Demand Surges

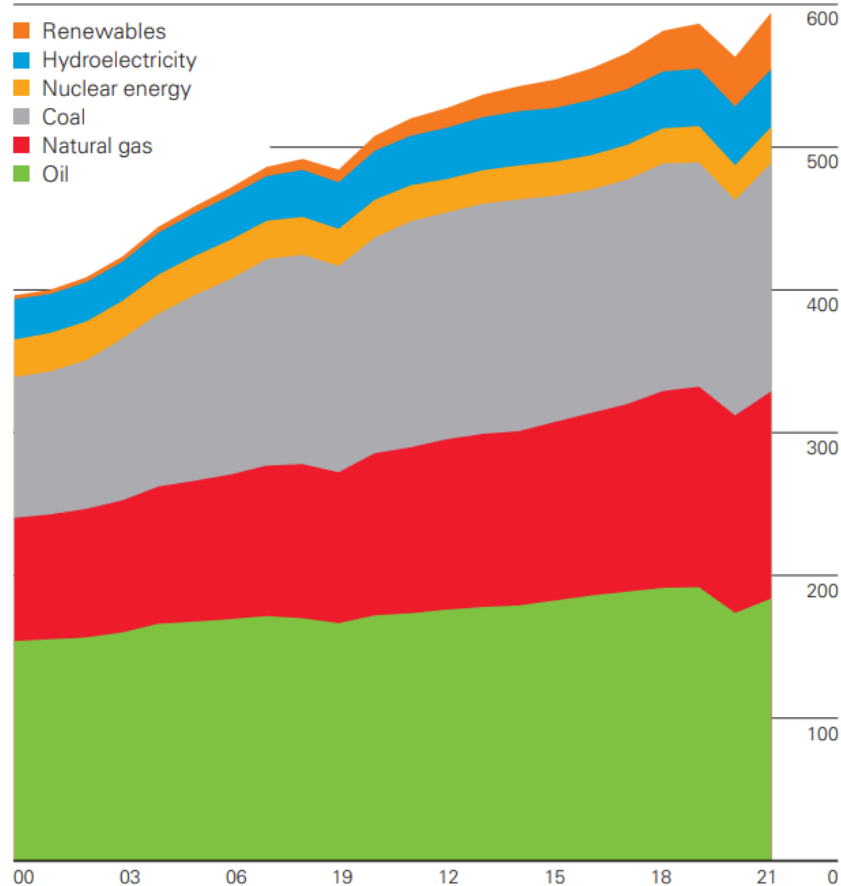




# Global Energy Consumption and Shares of Global Primary Energy

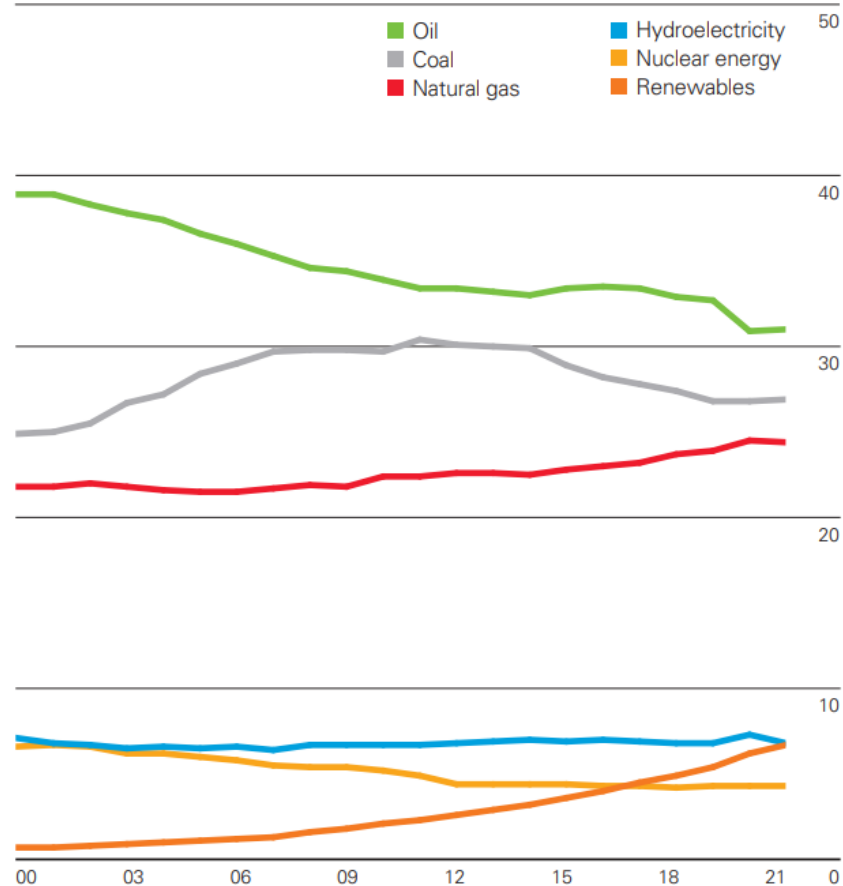
## World consumption

Exajoules



## Shares of global primary energy

Percentage

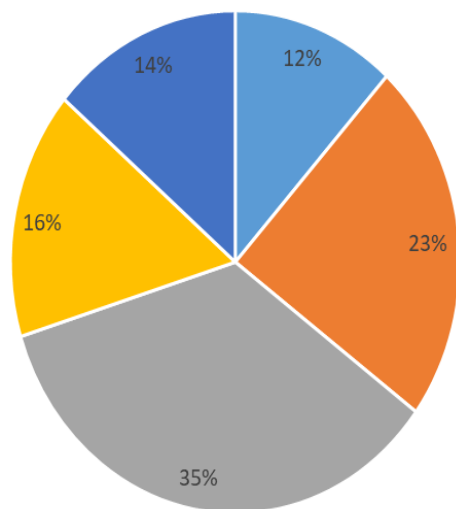


Source: BP Statistical Review of World Energy 2022



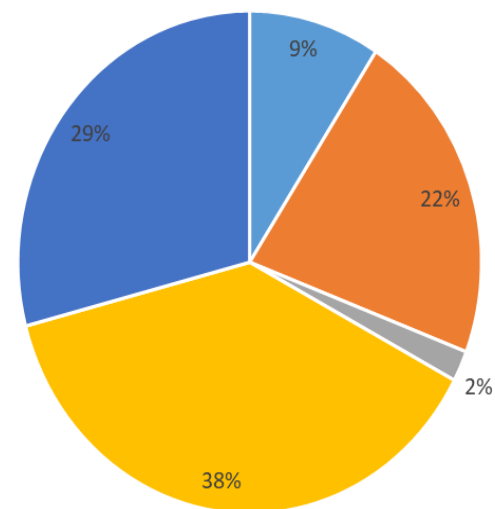
# Energy and Electricity Mix in EU-27, 2019

## Energy Mix in EU-27



■ Solid fossil fuels ■ Natural gas ■ Oil and petroleum products ■ Renewables and biofuels ■ Nuclear

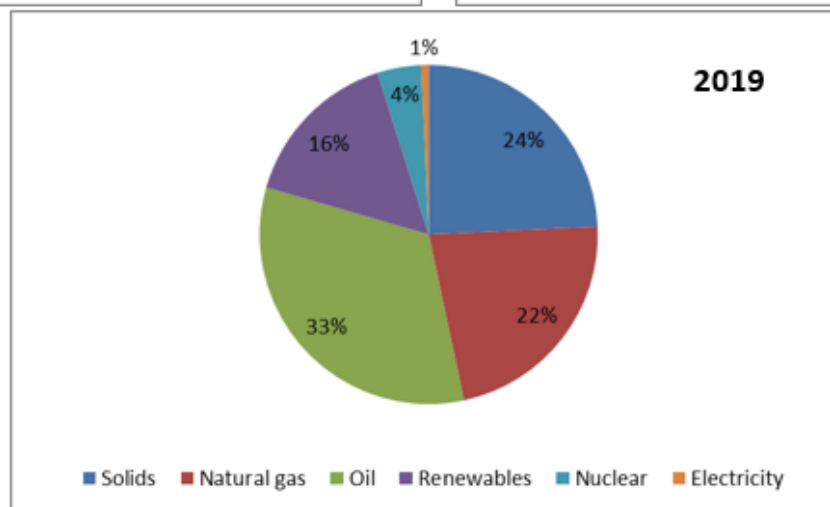
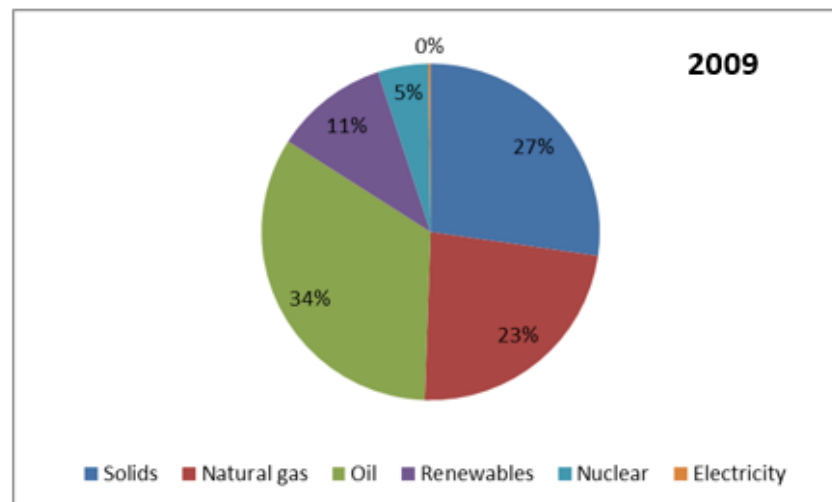
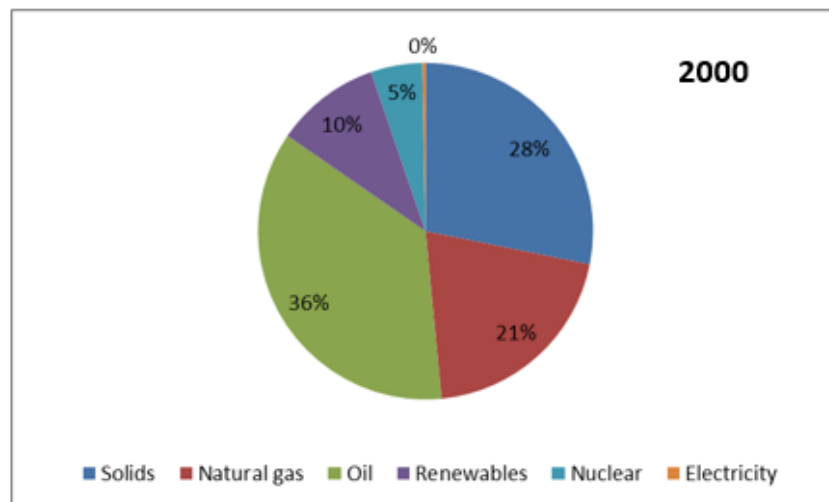
## Electricity Mix in EU-27



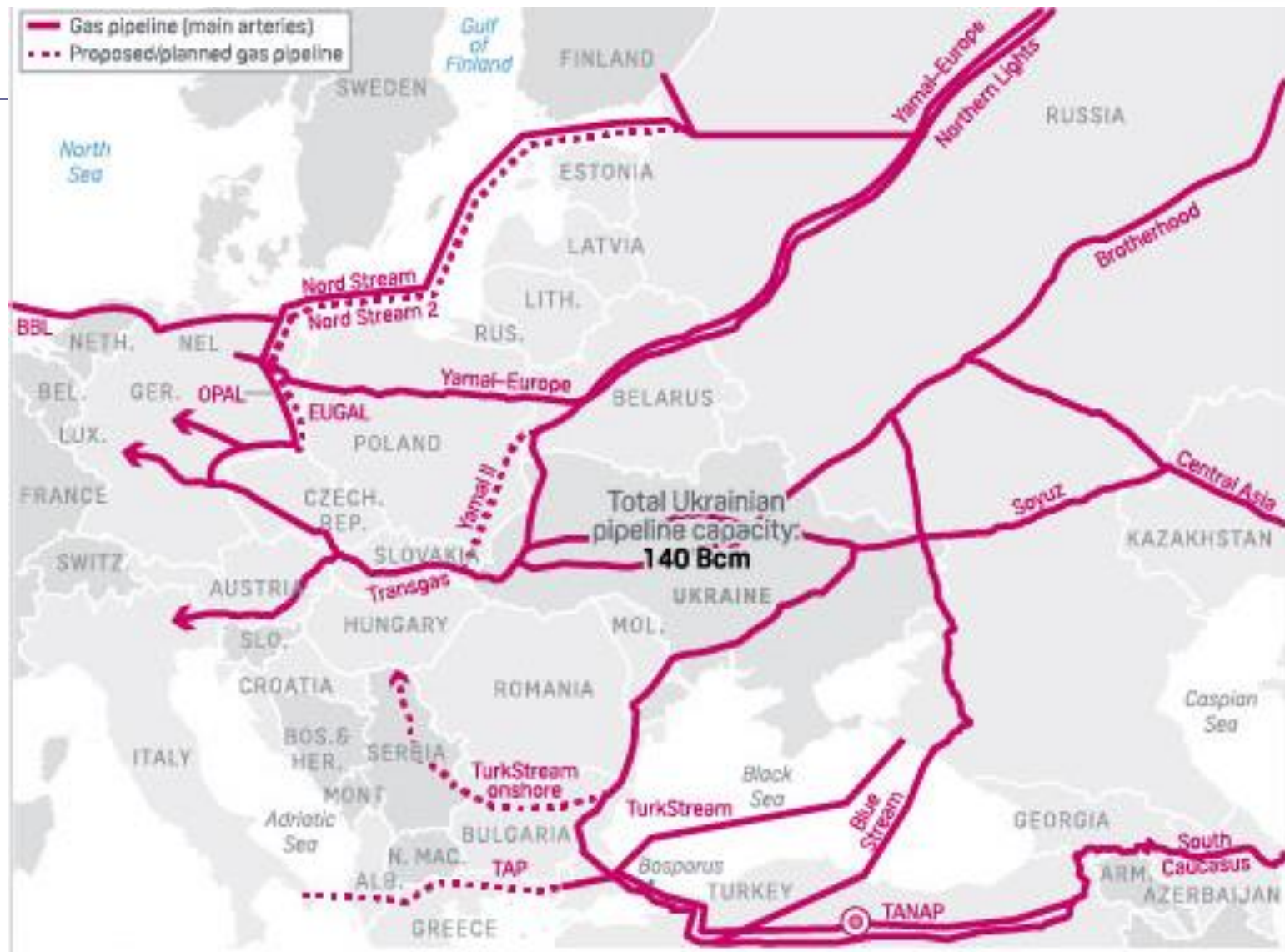
■ Lignite ■ Natural gas ■ Oil and petroleum products ■ Renewables and biofuels ■ Nuclear heat

Source: Eurostat

# SE Europe's Energy Mix, Including Turkey, 2000, 2009 and 2019



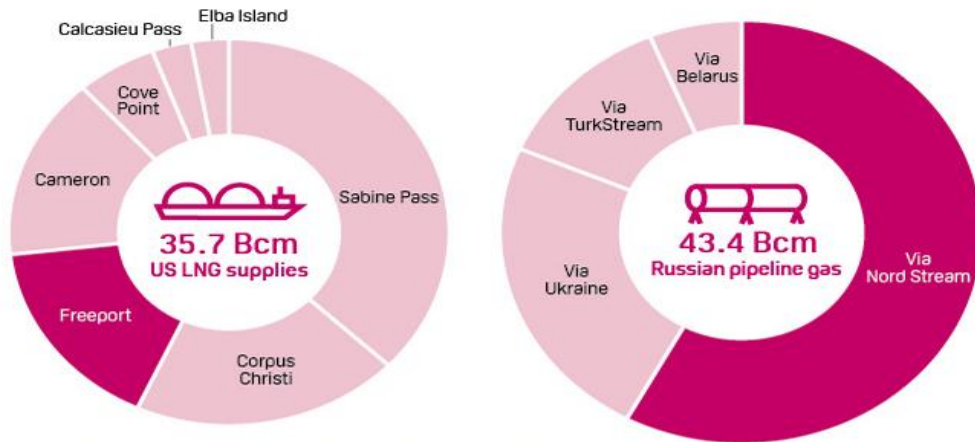
# Europe's Gas Pipeline Ties to Russia



Source: S&P Global Platts

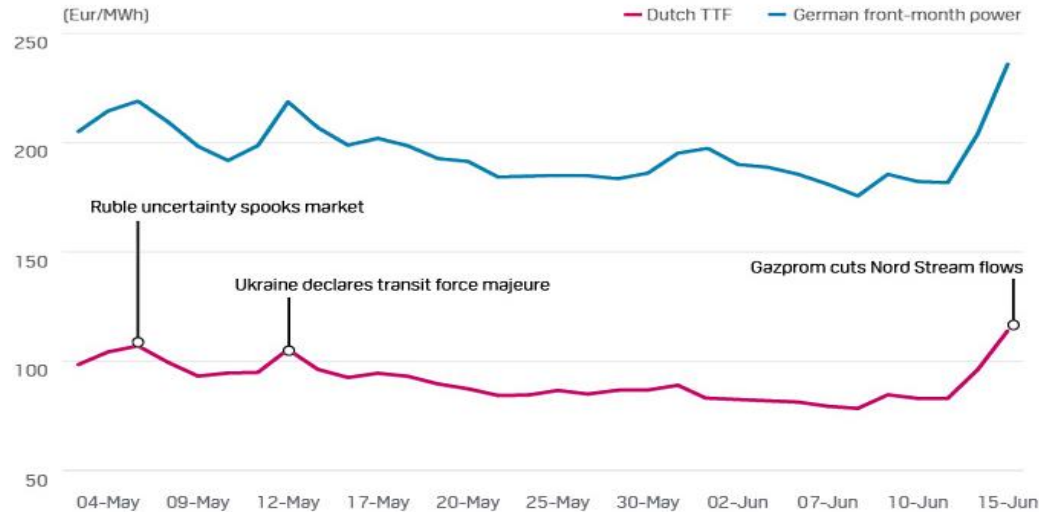
# Europe on Brick of Gas Crisis as Russia Squeezes Market

**Freeport LNG key to US LNG supply to Europe\*, Nord Stream provides bulk of Russian pipeline gas\*\***  
 (Bcm, 2022 year-to-date)



\*US LNG supplies to EU + UK, \*\*Russian supplies entering at EU borders

**TTF month-ahead gas price jumps on Nord Stream cuts, power follows suit**

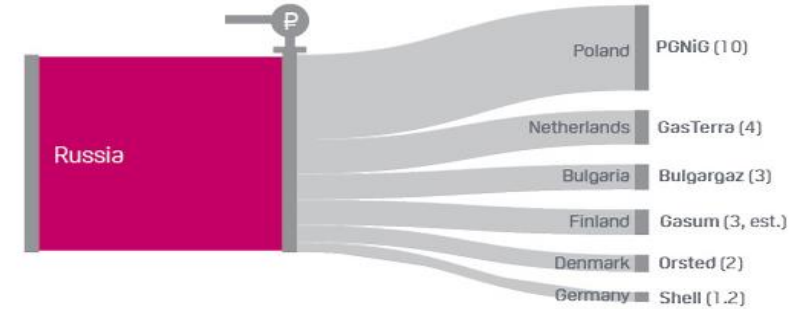


**S&P Global**  
 Commodity Insights

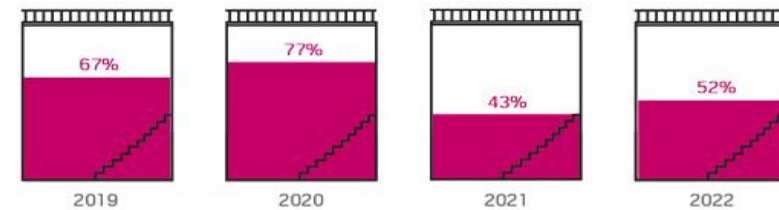
Source: S&P Global Commodity Insights, GIE, EEX

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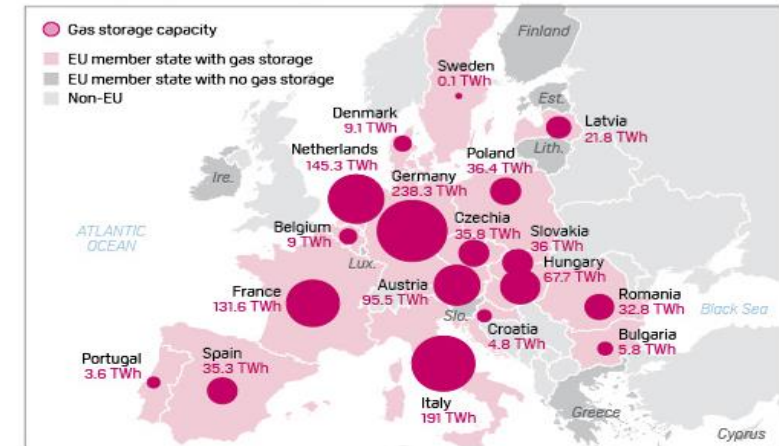
**Gazprom cuts off supplies to six buyers on ruble payment dispute**  
 (Bcm/year)



**European gas storage still only 52% full as of mid-June**



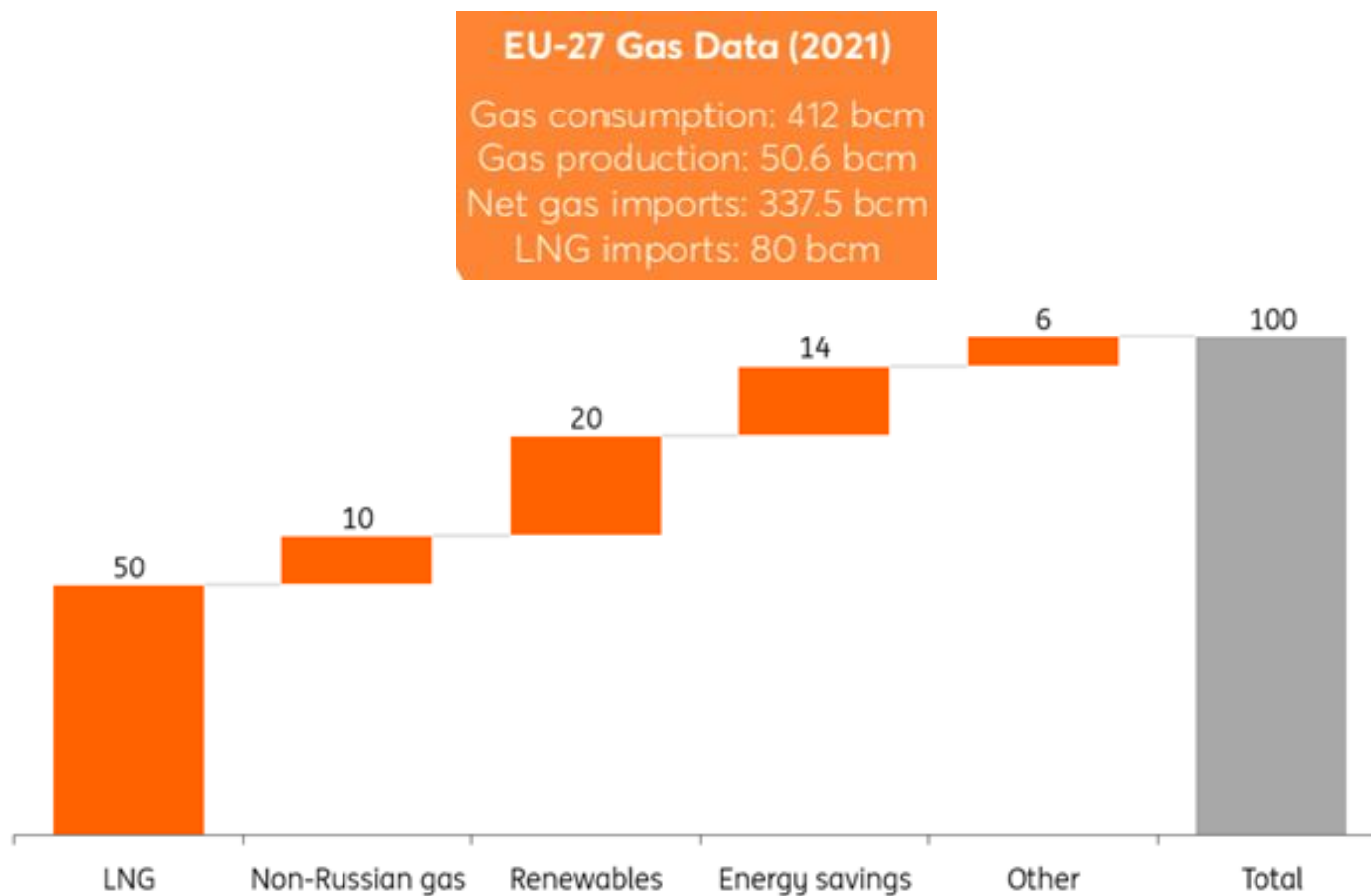
**Gas storage capacities among EU member states**



Developed by Stuart Elliott, designed by Reynaldo Dizon

Source: Eurostat

## REPowerEU's Targets Aiming to Reduce Gas Consumption by 100 bcm by 2022



## EU Imports of Natural Gas by Source

### EU-27 Gas Data (2021)

Gas consumption: 412 bcm  
 Gas production: 50.6 bcm  
 Net gas imports: 337.5 bcm  
 LNG imports: 80 bcm

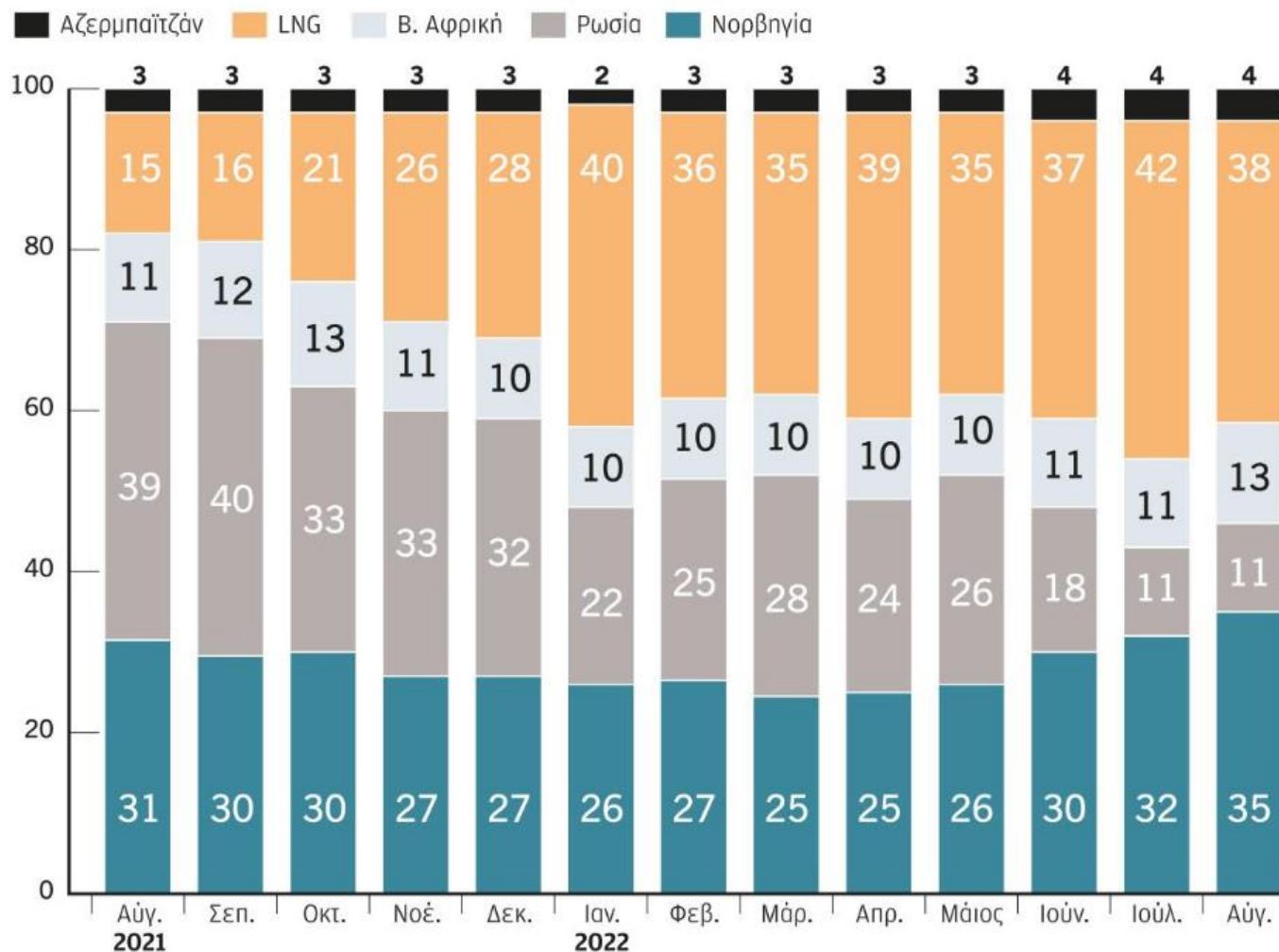
In 2021, the EU imported 58 bcm of Russian gas via Nord Stream, 37 bcm via the Ukrainian route, 33 bcm via the Belarus transit and 9 bcm via the Turk Stream.

**Total = 137 bcm**



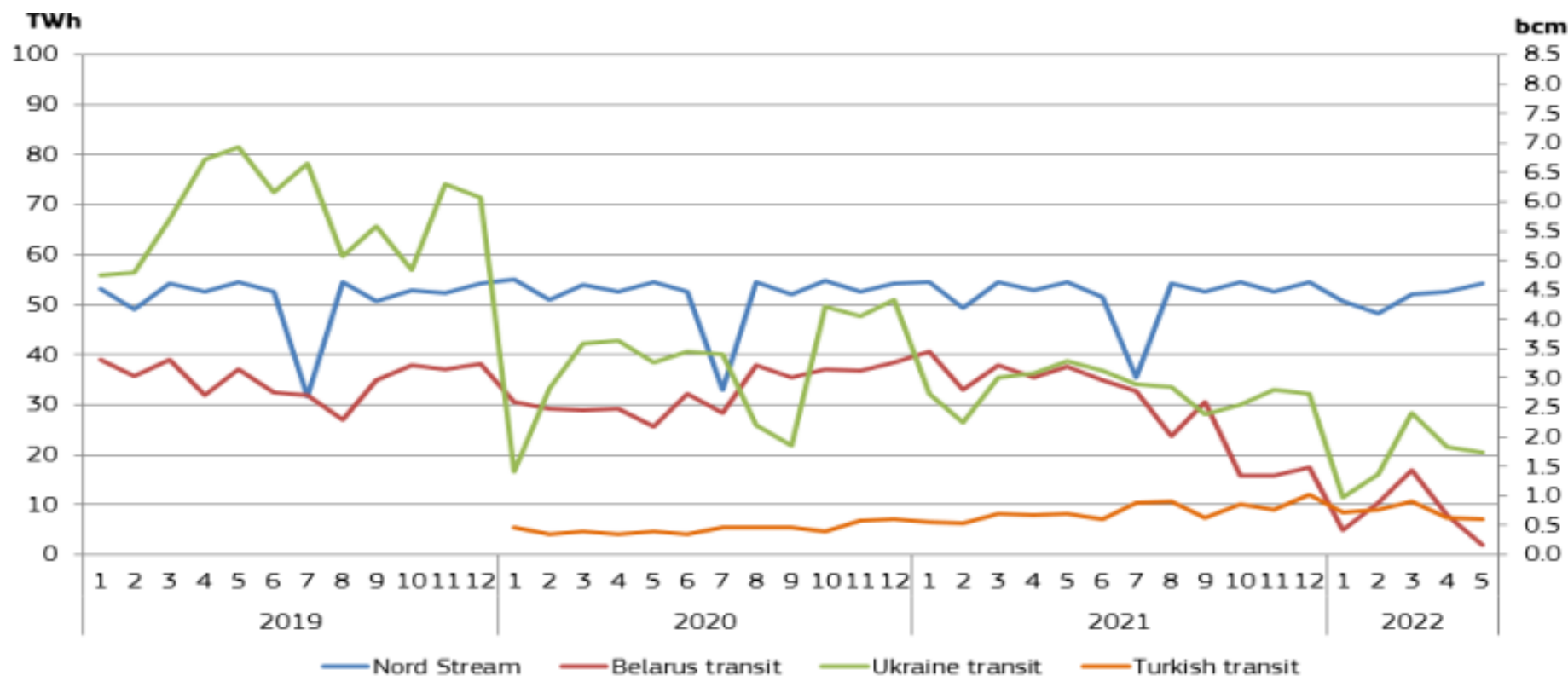
Source: European Commission

## Share of European Gas Imports (%)



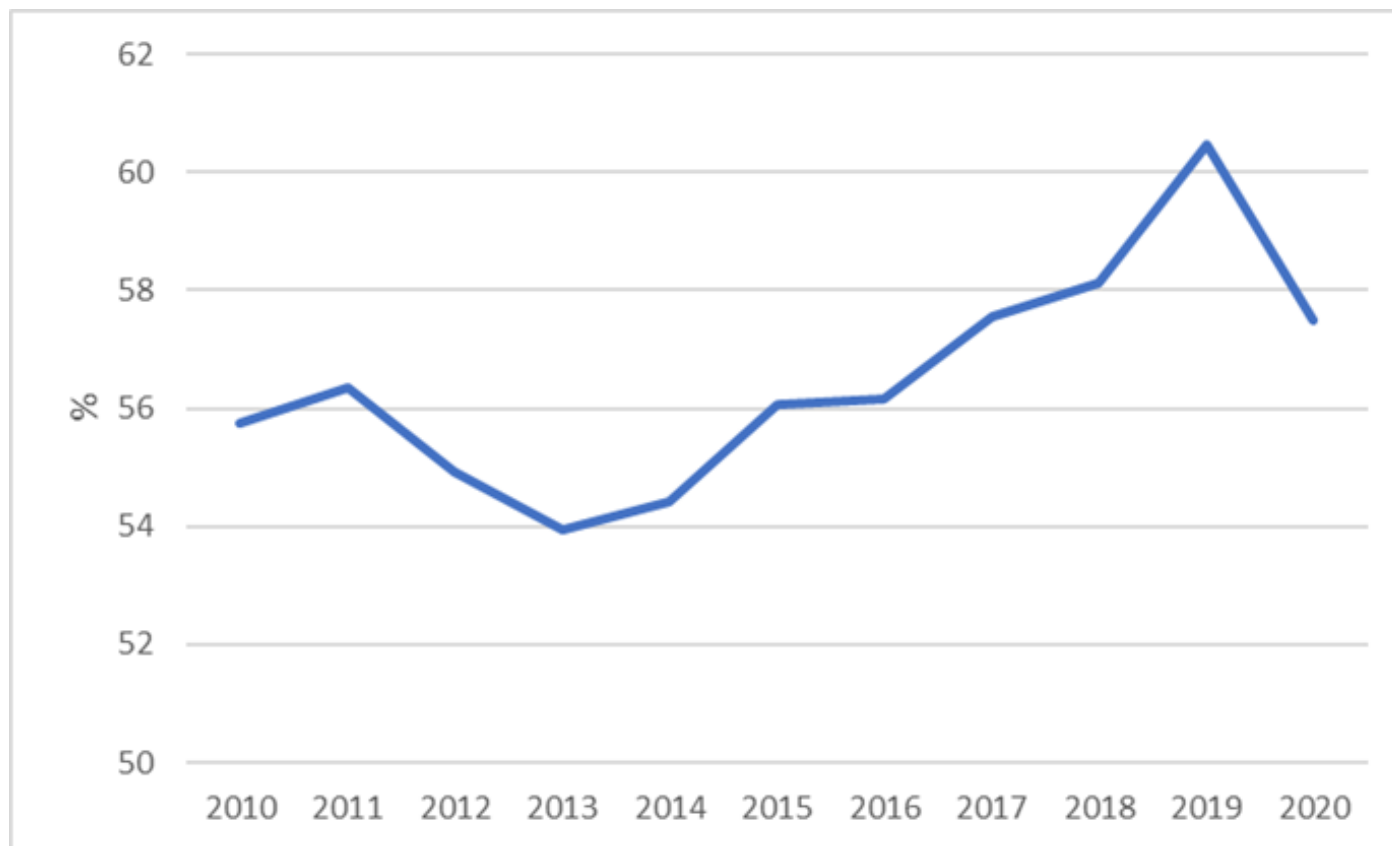


# Monthly EU Imports of Natural Gas From Russia By Supply Route



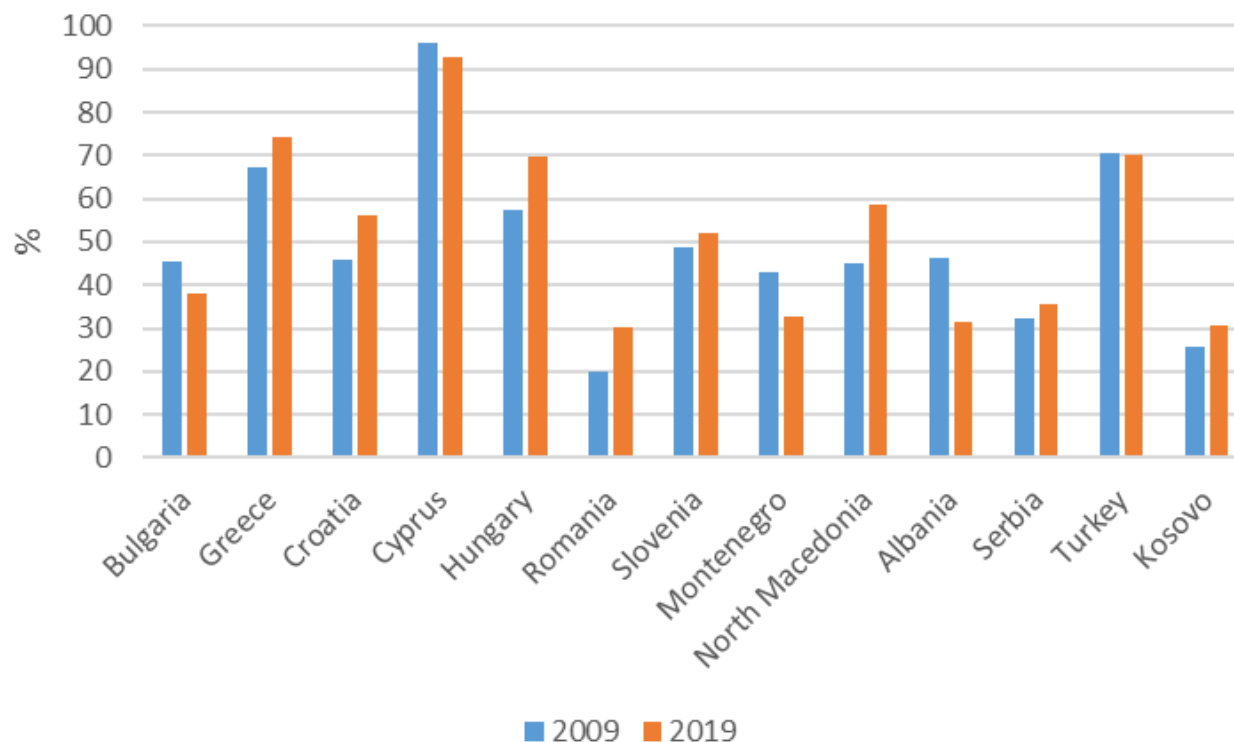
Source: European Commission

## Evolution of the EU Energy Dependence (%) over 2010-2020



Sources: Eurostat, IENE

## Energy Dependence in SE Europe (2009 and 2019)



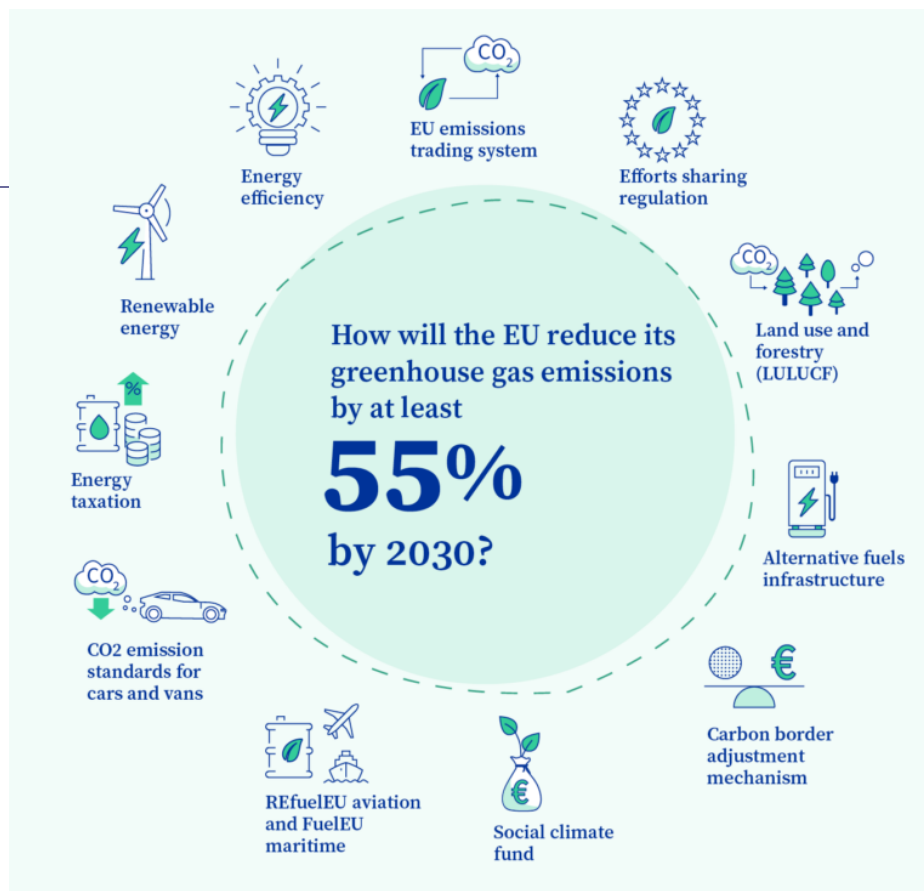
Source: IENE study "SE Europe Energy Outlook 2021/2022", Athens, 2022

The inclusion criteria for net-zero commitments may vary from country to country. For example, the inclusion of international aviation emissions; or the acceptance of carbon offsets.

A world map illustrating the status of the 2030 Agenda for Sustainable Development across various countries. The map is color-coded to show the level of implementation:

- Achieved (Dark Blue):** Includes countries like South Africa, Madagascar, and several nations in Africa and Asia.
- In law (Dark Green):** Includes Canada, several European countries, and Japan.
- In policy document (Light Green):** Includes Brazil, China, India, and several countries in Europe and Asia.
- Pledge (Tan):** Includes the United States, Russia, Australia, and several countries in Africa and Asia.
- No data (Light Grey):** Includes Mexico, Argentina, and several countries in Africa and Asia.

Source: Net Zero Tracker. Energy and Climate Intelligence Unit, Data-Driven EnviroLab, NewClimate Institute, Oxford Net Zero. Last updated: 2nd November 2021.  
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

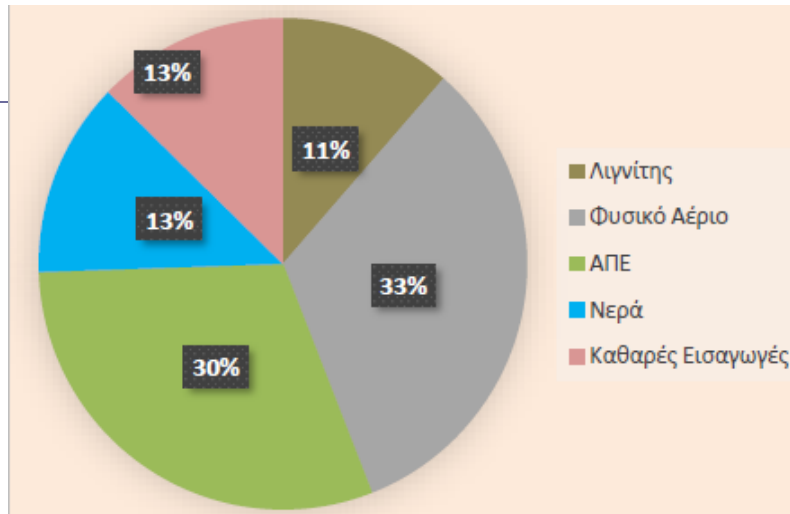


**Carbon neutral  
by 2050**

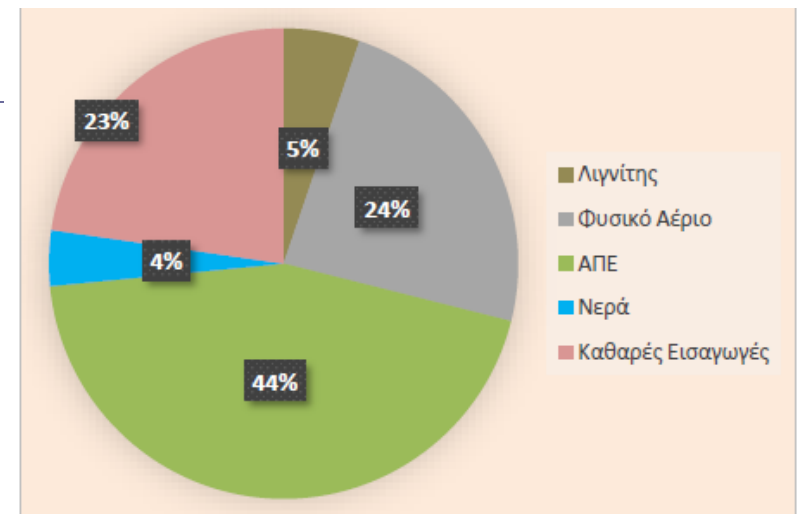


# Fuel Mix in Greece

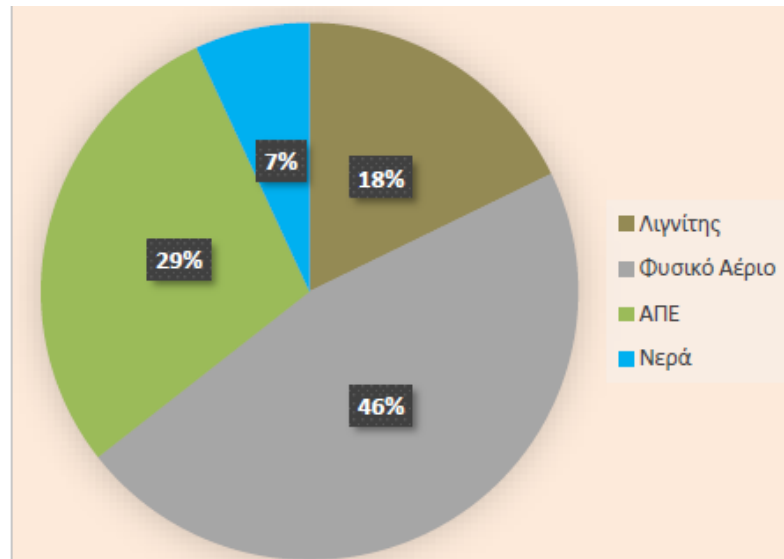
January 2022



April 2022

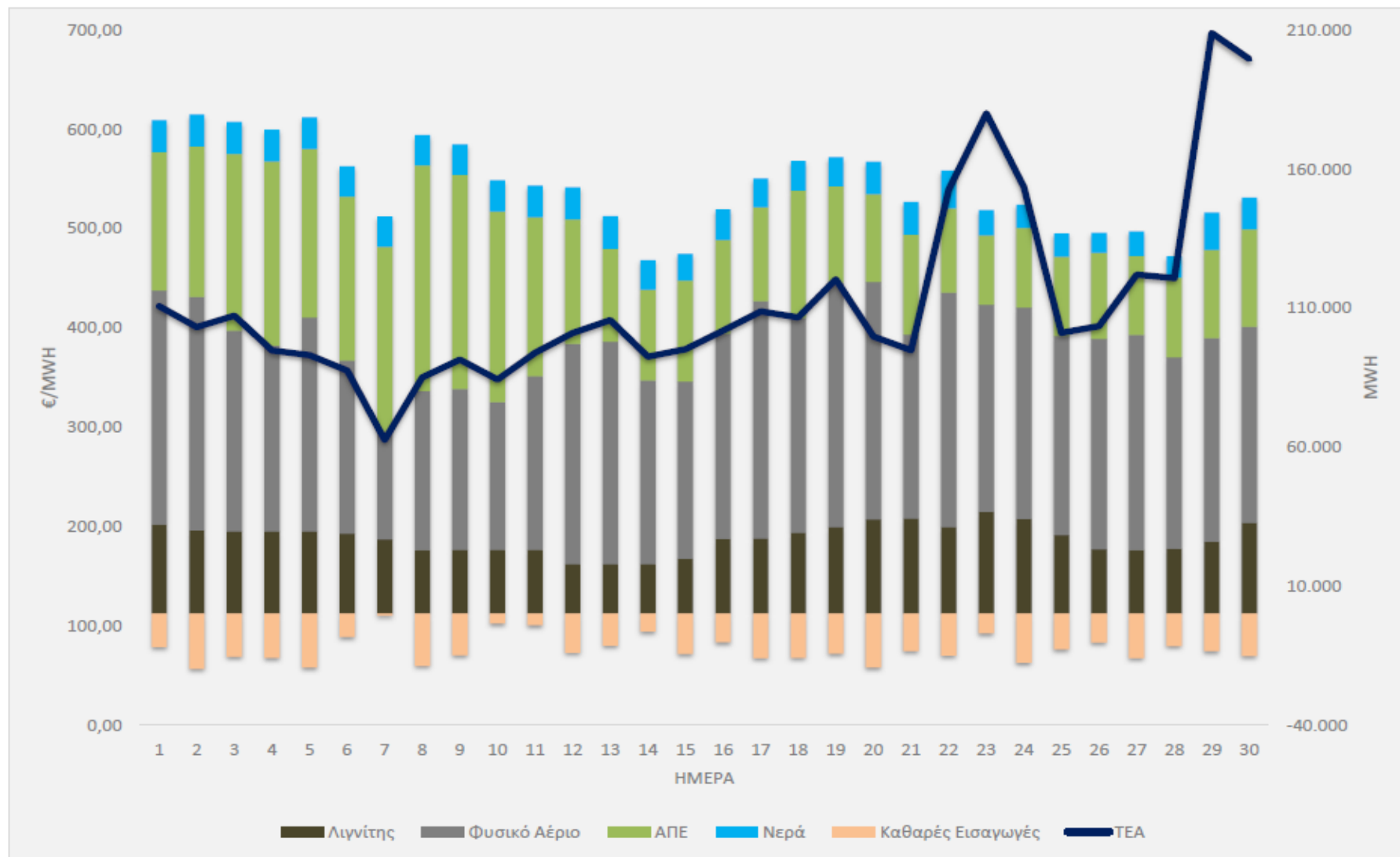


August 2022



Source: IENE

# Fuel Mix per Day in August in Greece



Source: IENE

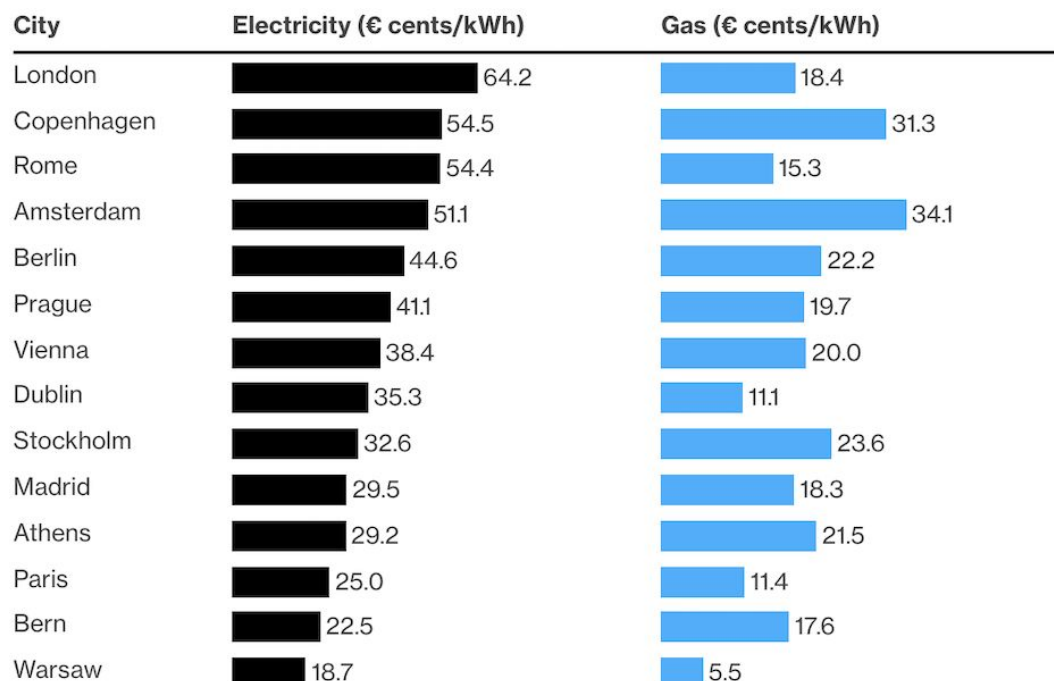


# Energy Crisis and European Subsidies

- The war in Ukraine and EU's embargo against Russia, its major energy supplier, has not simply worked out, with European gas prices rising to dangerously high levels, affecting electricity and sidetracking the economy on account of huge subsidies, which governments are forced to provide, unless they want to see their economies completely upended.

## Bills By City

Londoners face the highest power costs, while Amsterdam's gas is priciest



Source: Household Energy Price Index by Energie-Control Austria, MEKH and VaasaETT, © 2022  
VaasaETT Ltd.

Note: Analysis of end-user costs of domestic contracts offered in August 2022

## A Partial Critique of Europe's Current Energy Policy

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- ❑ With gas being an indispensable fuel of the energy mix and an accepted part of the energy transition, it makes sense for Europe to develop ASAP its indigenous hydrocarbon resources as well as coal, nuclear and RES.
- ❑ By developing its indigenous gas resources, Europe will not only lessen its energy dependence but will also reap important economic benefits. There is a complete lack of clearly defined guidelines and a positive outlook for the development of the continent's enormous gas resource base.
- ❑ Europe has huge potential utilizing its indigenous oil and gas resources to be found in the North Sea, in the Adriatic, in the Black Sea, in the Ionian and in the East Mediterranean .
  - ❑ Some 10-12 tcm of proven and contingent reserves with conservative estimates that could cover 40-50 years of the European consumption.



INSTITUTE OF ENERGY  
FOR SOUTH-EAST EUROPE

The background of the slide is a dark blue image of the European continent. Overlaid on the map are numerous glowing blue lines that represent energy transmission or a network. These lines are curved and connect various points across the map, with some points appearing as bright blue starbursts. The overall effect is one of a dynamic, interconnected energy system.

*Thank you  
for your attention!*

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