

7th AIEE SYMPOSIUM ON ENERGY SECURITY - 14-16 December 2022

The supply system and the price of natural gas in Europe: toward an epochal change

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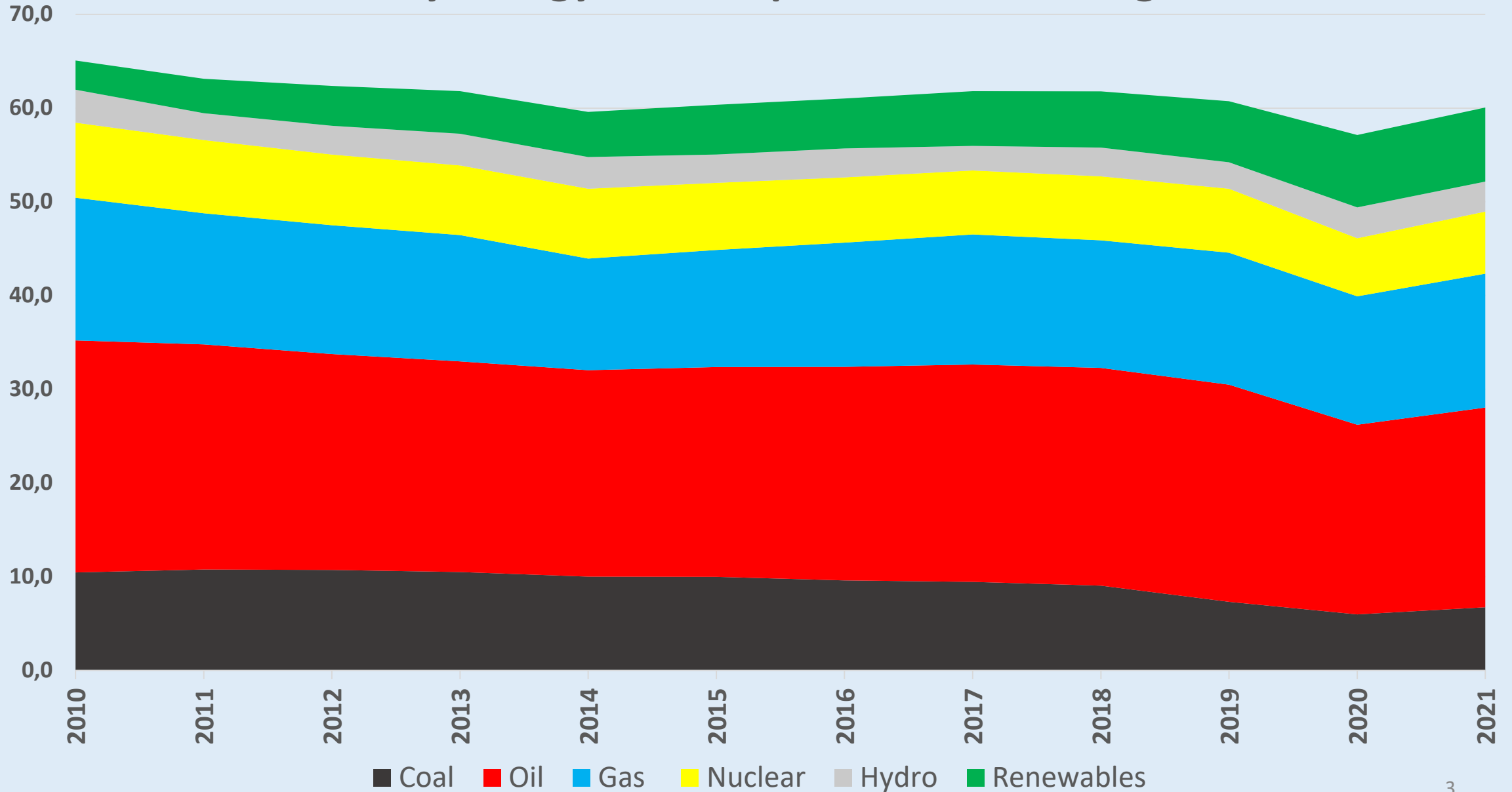
Data From : IEA,BP Statistical Review of energy industry, Specialized literature

The European energy system, which boasts the primacy in the transition policies towards a new energy system completely decarbonized, has suffered two deep shocks in recent years, one linked to the pandemic and the other linked to the crisis in relations with Russia, which has had particularly heavy repercussions on the European gas system.

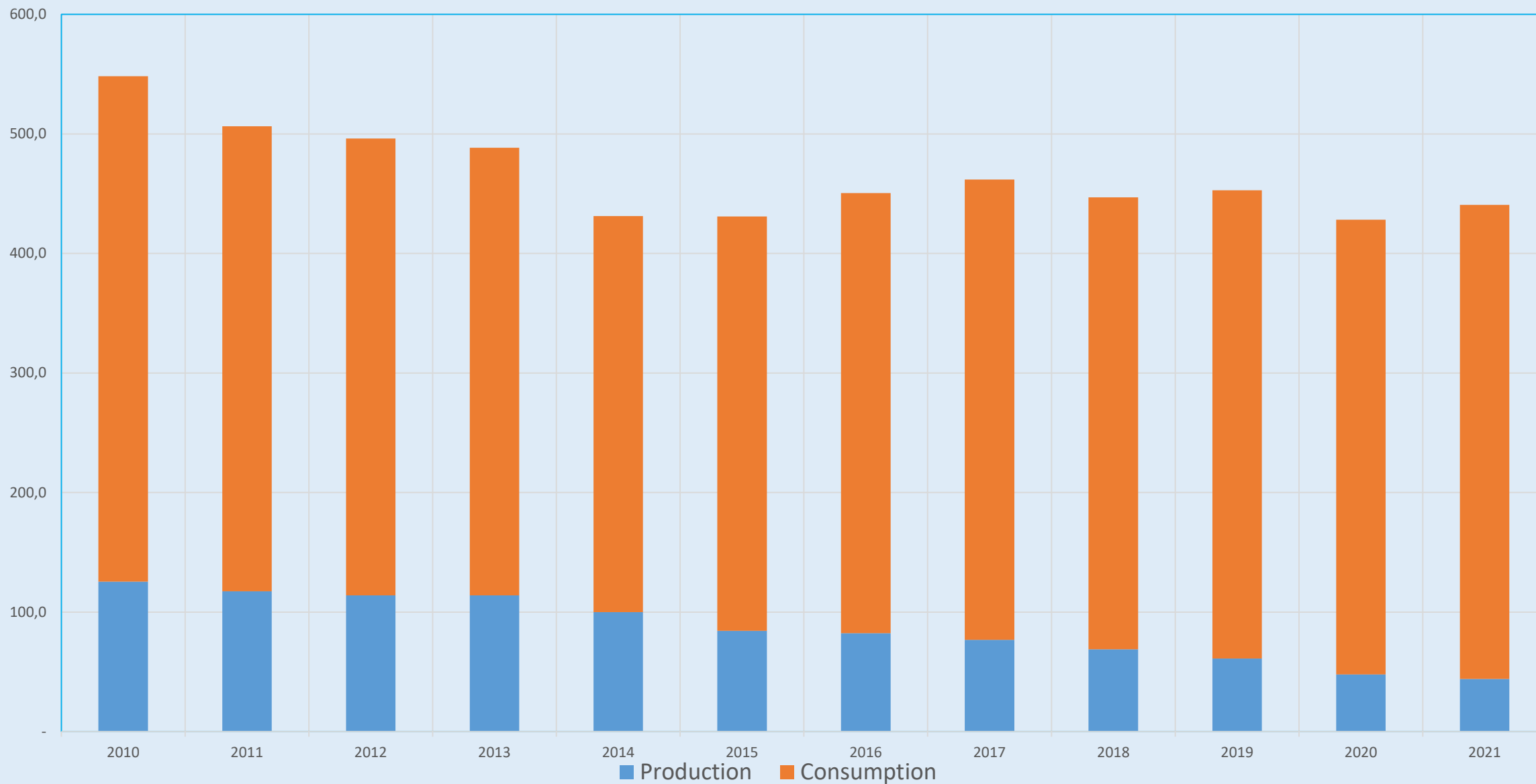
In particular, this paper aims to examine especially from a qualitative point of view given the shortness of the period and the lack of an adequate statistical basis, the consequences of this second crisis from the point of view of prices also providing some indications on the new market model that is emerging

Exajoules

EU Primary Energy Consumption and natural gas role



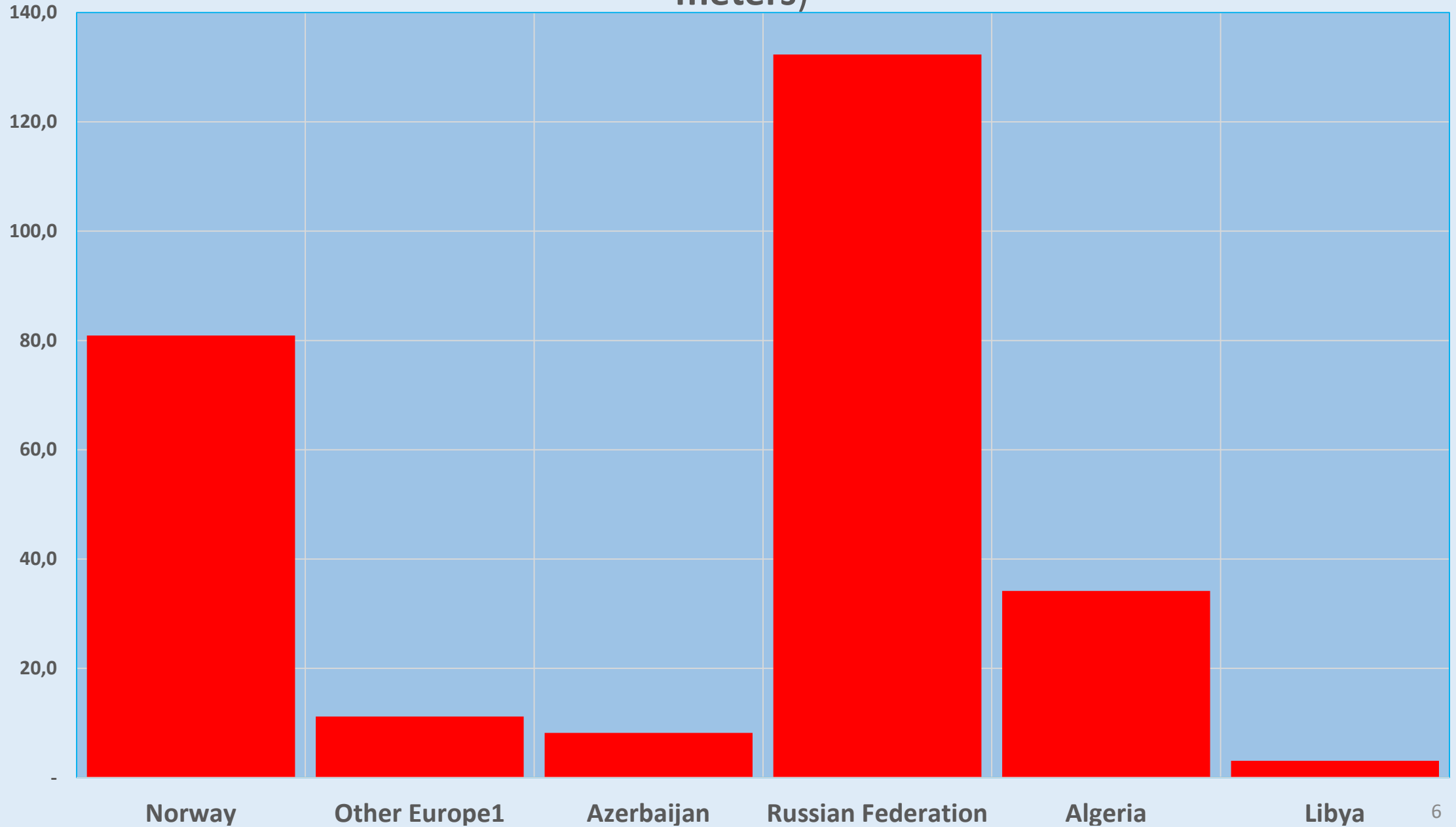
Eu Natural Gas Production and consumption : 2010-2021



1. As far as supply is concerned, the situation even before the crisis was not satisfactory from the point of view of security and diversification: in 2021 domestic production, already in sharp decline, amounted to about 44 billion cubic meters or 11.0% of total consumption equal to about 400 billion cubic meters while imports provided the remaining 89% equal in physical terms to 356 billion cubic meters.
2. The latter were divided between 260 billion cubic meters arrived by pipeline and 96 billion cubic meters (27%) arrived by LNG carriers.
3. A decidedly unbalanced situation in favour of gas pipelines with a weight of 73.0% and with values for some countries well above this average and with a role for Russia that has reached almost 50%.

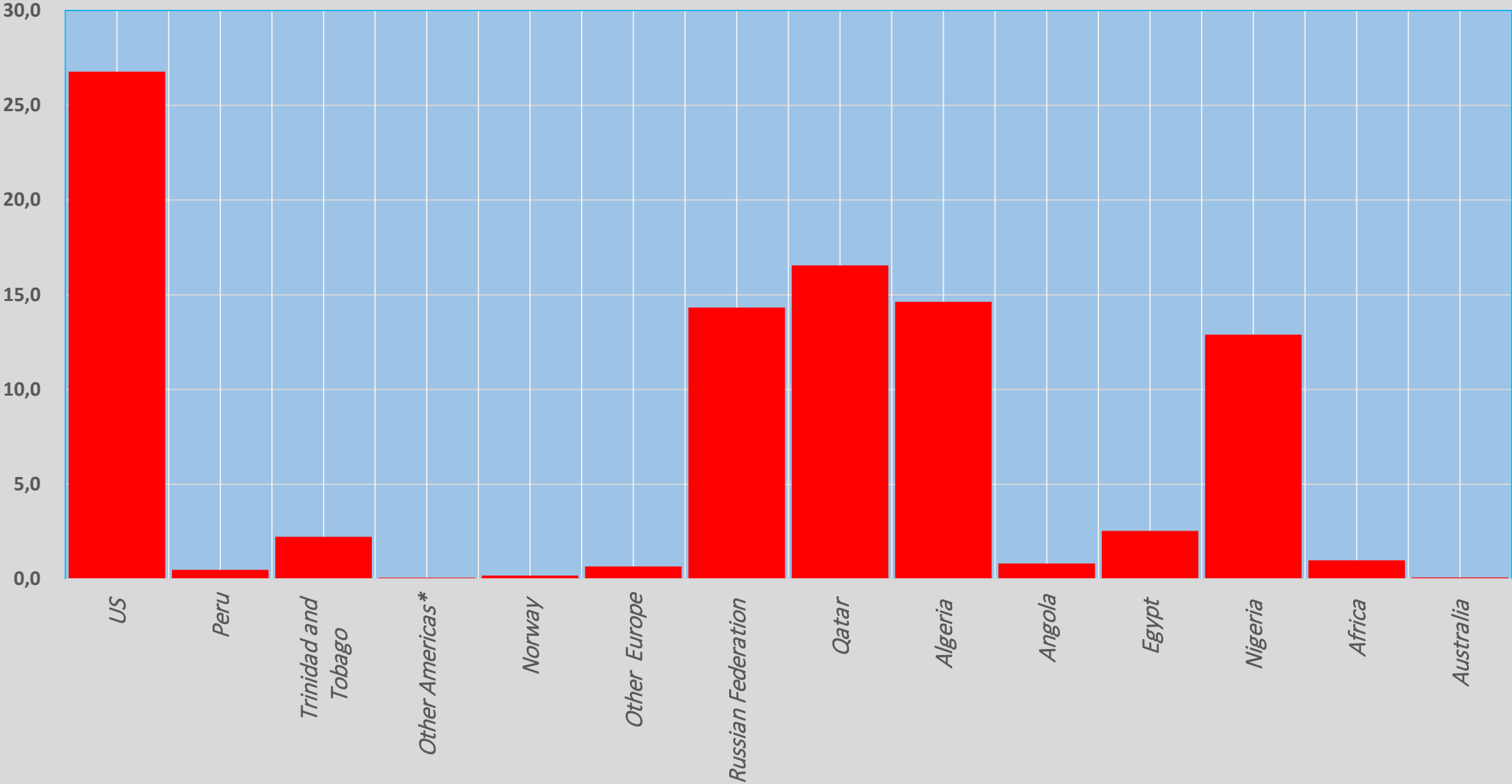
2021 EU Net imports of Natural Gas via Pipe (270 Billion cubic meters)

Billion c.m .



2021- EU Net LNG imports of Natural Gas (93 Billion cubic meters)

Billion c.m.



The crisis : first signs

- Starting from this basis, in the first half of 2021 the gas market had to face the first signs of a crisis
- The emergence of some problems in the growth of renewables, lower nuclear production , accelerated decline in European oil and gas production have enormously increased the pressure on imported gas that has found itself in the position of supplier of last resort.
- Faced with this new situation, there has been a historic change of attitude on the part of Russia. This country, which came to control 50% of Europe's gas imports and about 40% of its own needs in conjunction with the strong recovery in gas demand, began a policy of supply control to increase its revenues to support a policy of expansion of its role in the world, which had already had a precedent in the reconquest of Crimea.
- This change has profoundly changed two fundamental features of the international gas market: that of trust between buyer and seller and that of price and supply stability that had been the basis of the large pipe supply contracts between Russia and most European countries, including Germany and Italy in the first place

The impact on prices in 2021

- ❖ The consequences of Russian policy on prices have been immediate and very significant with the overtaking, never before, of gas prices over those of oil, both expressed in a single unit of measurement, in this case the dollar per barrel. Due to the increased responsiveness of the spot market to any change in supply or demand, spot gas prices on the TTF market in July 2021 overtook the average price of long-term contracts.
- ❖ This condition also extended to the remaining months of 2021 in a crescendo of difficulties that among other things led to the suspension of the use of the northern Stream 2 gas pipeline which should have confirmed even more the European dependence on Russian gas, to end in December 2021 with average gas prices on the TTF above \$ 200 / b, TOP contracts (Take or Pay) on \$ 150 / b while Brent stood at \$ 74 / b.

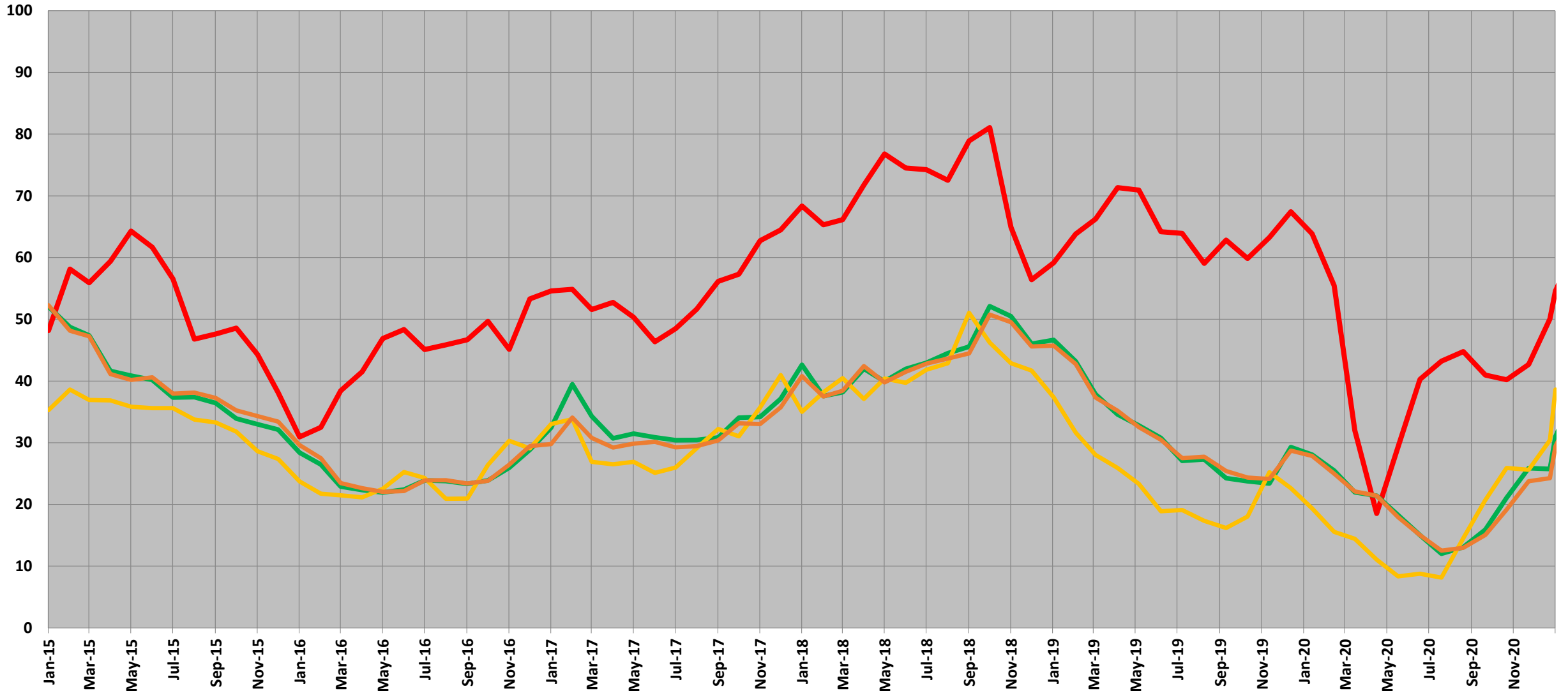
The 2022 dramatic events and the impact on prices

- The confirmation of the need for a radical change in the European gas supply system came from the dramatic developments of the first part of the current year with the Russian invasion of Ukraine in execution of a geopolitical design to reconquer the economic and political spaces of the former Soviet Union.
- In implementation of this strategy, Russian supplies to Europe and mainly those directed to Germany through the Nord-Stream gas pipeline were progressively interrupted until a mysterious attack destroyed an underwater section of this infrastructure. The consequences of the conflict on the European gas market have been devastating with a very serious impact on economic activities and the rate of inflation.
- The price of gas at the Dutch HUB TTF after a phase of relative decline in the first two months of the year jumped in March to 223.3 \$/ b against the background of the intensification of fighting between Russia and Ukraine, exceeding the previous peak in December. After a new phase of descent, coinciding with the conclusion of the winter season overcome with the wide use of storage, prices began to rise dramatically coinciding with the start of the storage campaign for the winter season 2022-2023.
- Starting from September, the overall reactions aroused by the explosion in prices on the demand side, lower consumption due to the shutdown of many energy-intensive activities and rationalization interventions, above-average temperatures, and supply, with higher imports from other countries, began to affect the price dynamics at the TTF hub. After this reduction the prices started to climb again .
- We are still far far from the solution

Oil and gas prices in Europe : 2015-2020

Brent, European Border Prices Estimates (TOP contracts) , TTF Prices

(\$/b)



 Brent

 Estimated TOP Prices South Europe

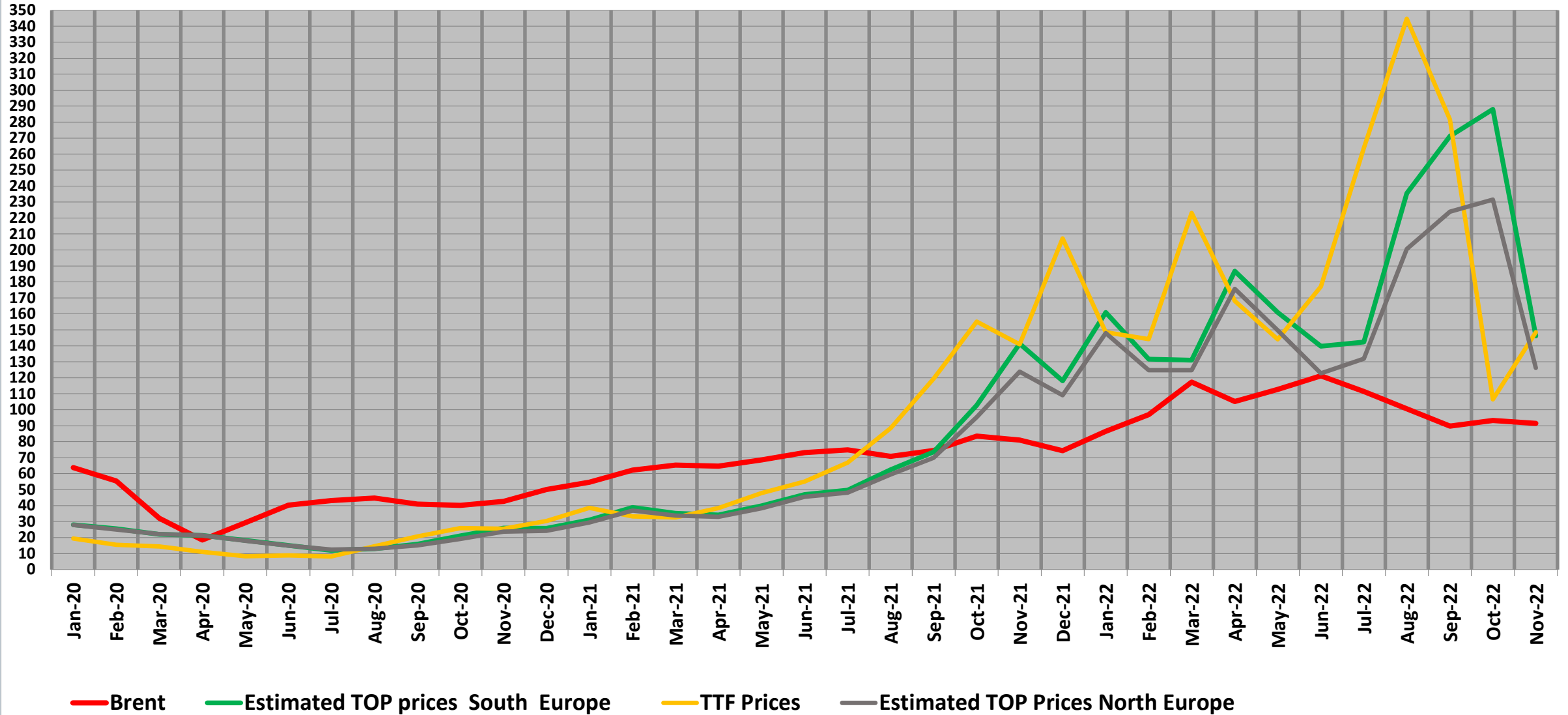
 TTF Prices

 Estimated TOP Prices North Europe

Oil and gas prices in Europe : 2020-2022

Brent, European Border Prices Estimates (TOP contracts) , TTF Prices

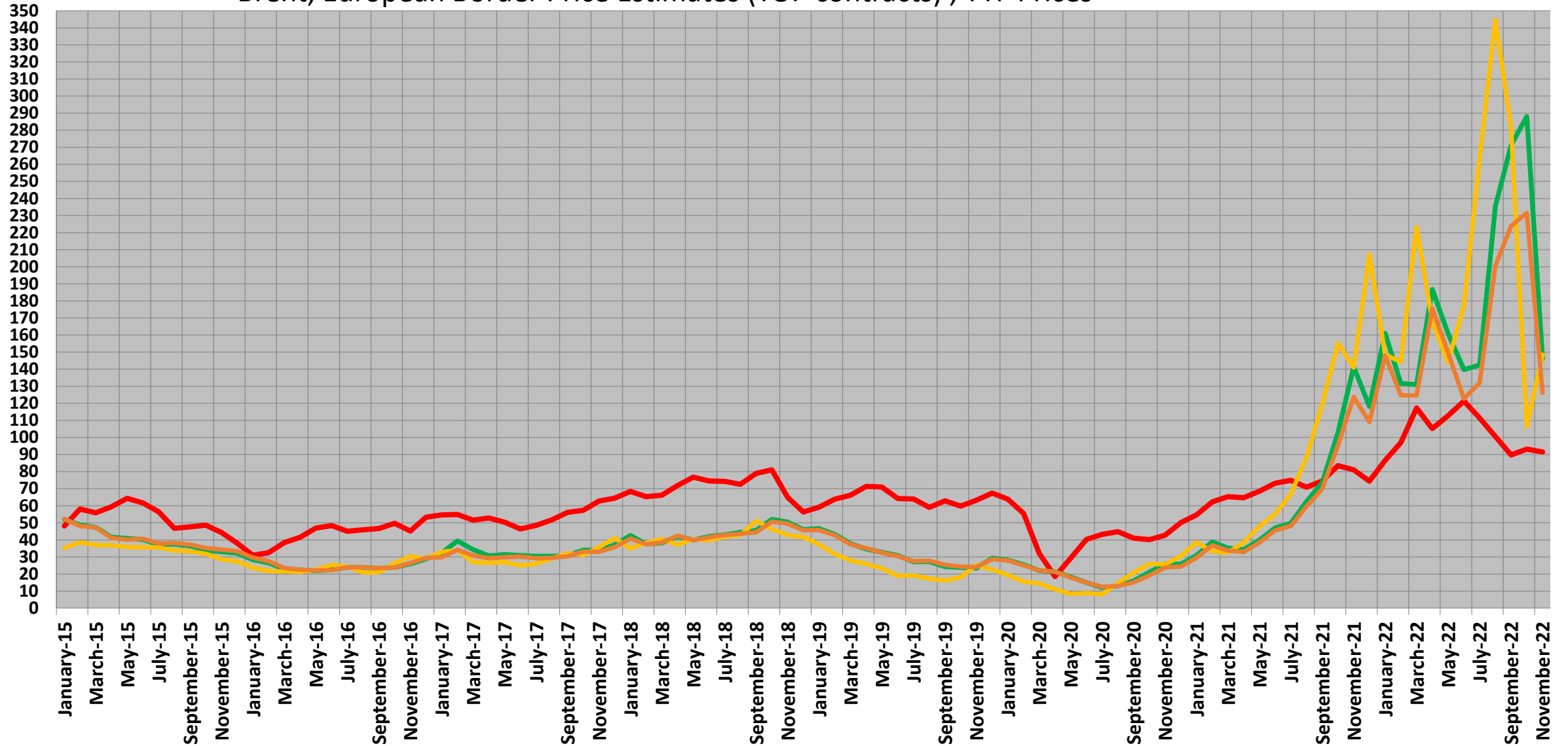
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Oil and gas prices in Europe : 2015- 2022

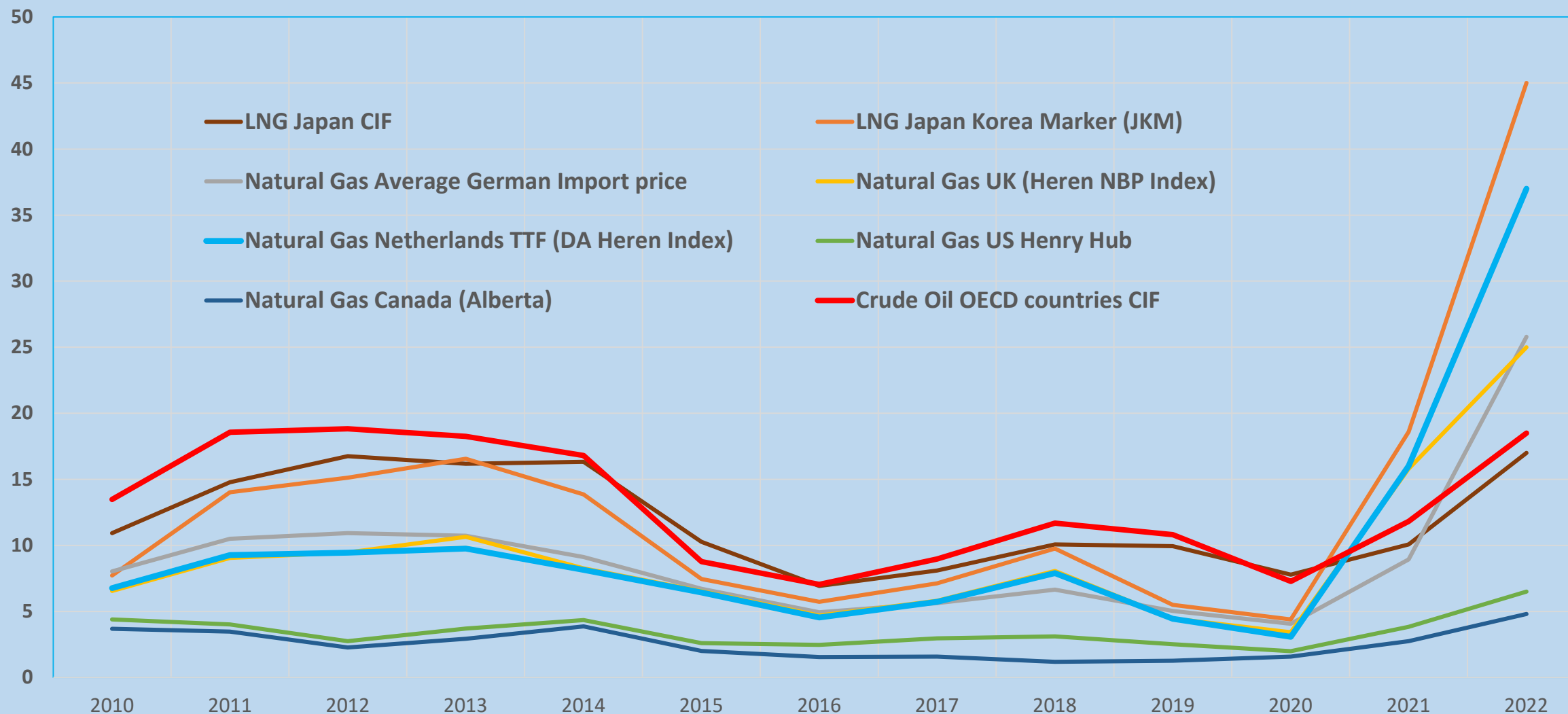
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Brent, European Border Price Estimates (TOP contracts) , TTF Prices



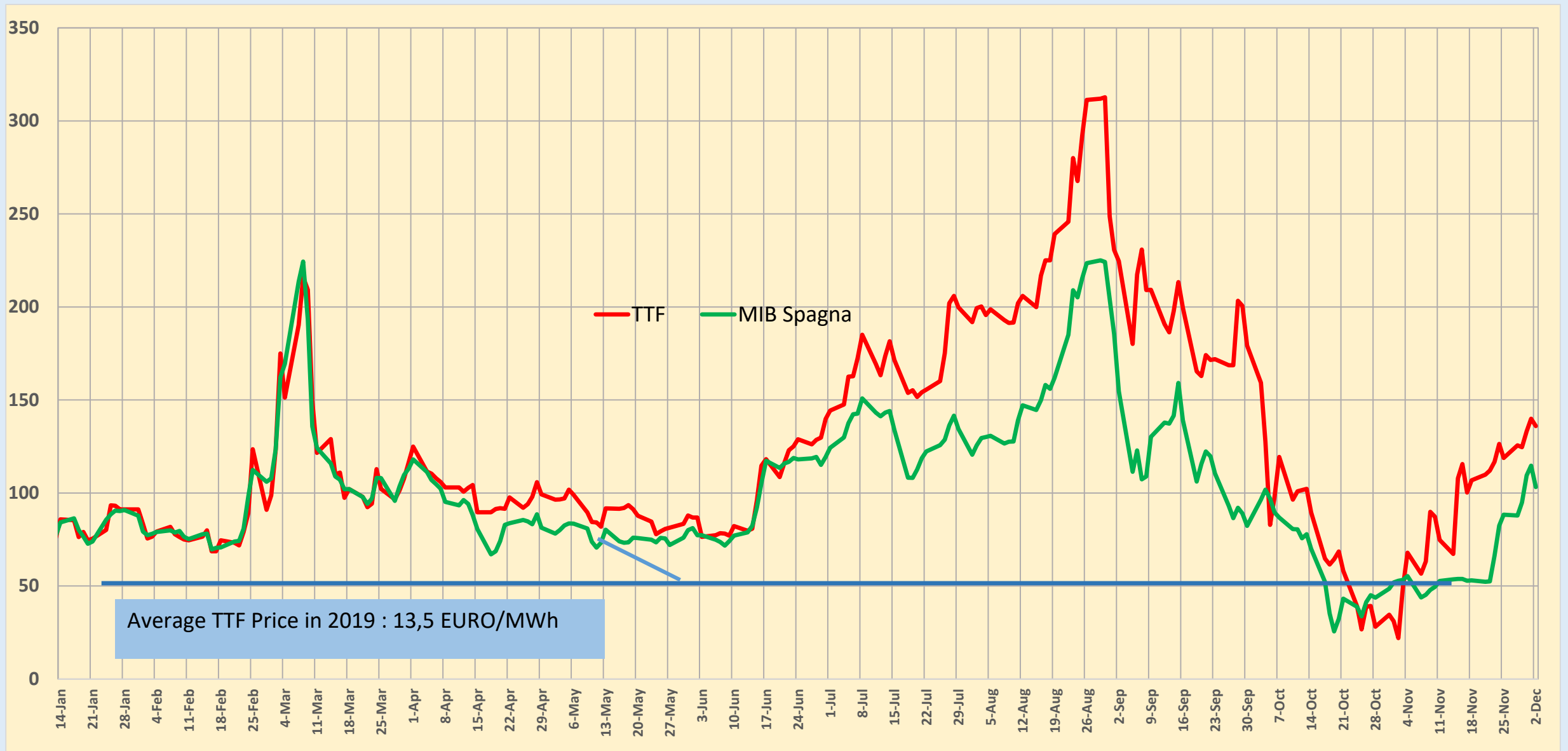
US \$ /million BTu

International gas prices : the 2022 revolution



Data 2010 -2021 from BP Statisticak Review ; 2022 data : preliminary estimates from specialized liiterature

Daily prices at TTF and MIB in 2022 EURO/ MWh



The prospects and the role of LNG

- LNG has been the great protagonist of this change thanks to the first upgrading of receiving infrastructures in northern Europe and the full use of those located in Spain, Italy and France that will form the basis of a system that will have the Mediterranean as its center of gravity.
- In other words, to achieve a stabilization of the market after a phase that will still be characterized by strong volatility that will affect the whole of 2023, it will be necessary that all the initiatives undertaken in this emergency period to create a new supply system based on LNG and a bigger role for the Mediterranean is implemented without delay
- LNG that has all the characteristics of a global market commodity, not subject to discriminatory practices by a single country or by cartels of producers, as occurred in the past with OPEC for oil.
- With the expansion of the supply of which there are all the prerequisites, gas prices will return to levels much lower than the current ones, but which will still have to be sufficient to ensure its competitiveness vis-à-vis oil and renewables.
- This could be around 40-50 \$/b as also envisaged in the basic assumptions of the “World Energy Outlook” of the International Energy Agency published a few days ago.

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