# Energy Price Liberalization Consequences on Energy Production Market in the European Union

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***Abstract***

*In this paper, the author are making an overview of the energy market in European Union (EU) countries. The present EU energy market and its evolution after price liberalization decision is also analyzed in this article. The steps made to assure national energy markets integration and the evolution of energy consumption and prices are also presented in the manuscript. The dependence of Russian imports is an important issue nowadays in the EU and the main conclusion of the paper is that the governments should develop more the renewable energy systems in order to decrease the dependence on the Russian energy.*

**Keywords***: energy market, energy price evolution, energy mix, liberalization process, energy market, EU.*

**JEL classification:** K32, L94, L95
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## 1. Introduction

Starting with 1996, European Union (EU) decided to liberalize internal energy market and, in this respect, measures were taken to address access to markets, transparency and governance, consumer protection, facilitating interconnection, and sufficient amounts of supply in this regard.

With market-based supply prices, these policies seek to create a more competitive, customer-focused, flexible, and non-discriminatory EU energy market. By doing this, they address issues like energy poverty, the roles and responsibilities of market participants and regulators, and the security of the supply of electricity, gas, and oil. They also address the creation of trans-European networks for the transportation of electricity and gas.

The completion of the EU's internal market in the energy sector necessitates the removal of several barriers to trade, the adequacy of tax and pricing policies and

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measures in relation to norms and standards, and the enforcement of environmental and safety rules. The goal is to guarantee a functional market with equitable market access, high standards of consumer protection, suitable levels of interconnection, and sufficient levels of generation capacity. (Pepermans, 2019).

## 2. Literature review

Starting with 90's EU and member states decided to gradually open the energy markets to competition and to make transition from monopoly / state-imposed price to liberalization.

In gas market first liberalization directive (First Energy Package) was adopted in 1998 and was transposed in member state internal regulation in 2000.

The process of law actualization on EU continues with Second Energy Package which was adopted in 2003 and transported to national regulation in 2004 and 2007.

According to these law package the industrial and domestic consumers were able to choose freely their gas provider on a competition premises.

Second Package was amended in 2009 by the Third Energy Package which continues liberalization of the energy markets being the cornerstone for implementation of internal energy market (Kustova, 2017; Busu 2012).

The Fourth Energy package introduces new electricity market rules to meet the needs of renewable energies and to attract investments. It provides incentives for consumers and introduces a new limit for power plants to be eligible to receive subsidies as capacity mechanisms (Busu, 2019; Stolaroff et al., 2018; Dinca et al., 2022).

It also makes it a requirement for the Member States to prepare contingency plans for potential electricity crises, and increases Acer's competences in cross-border regulatory cooperation when there is the risk of national and regional fragmentation (Nedelcu and Busu, 2022).

The fifth energy package, „Delivering the European Green Deal", was released on 14 July 2021 with the aim of aligning the EU's energy targets with the new European climate ambitions for 2030 and 2050; the debate on its energy aspects is ongoing (Dobbs et al., 2021; Dumitrache et al., 2021; Catuti et al., 2020).

For promoting cooperation between national Regulatory Authorities, transmission and distribution operators was establish Agency for Cooperation of Energy Regulators and European Network Transmission Systems Operators (ENTSOs).

Additionally, by requiring Member States to make sure that these rates and the pricing mechanisms employed are disclosed to Eurostat once or twice a year, Regulation (EU) 2016/1952 enhances the transparency of gas and electricity costs charged to industrial end-users. To ensure ethical trading activities on European energy markets, the EU issued Regulation (EU) No. 1227/2011 on Wholesale Energy Market Integrity and Transparency (REMIT) in October 2011.

Regulation (EU) 2017/1938 was adapted in 2010 and revised in 2017 in order to prevent and create response procedures for safeguarding de oil and gas supply in EU.

Directive (EU) 2019/962 refers to cross-border gas pipelines in order to increase security of supply in EU.

## 3. Liberalization of the Energy Market

### 3.1 EU market regulator integration

Until recently energy market in EU was state regulated in each EU market, and sale prices were established without any connection to market principles.

Further to global heating and to determination of EU to move to an economy climatic neutral, one of the main measures taken by EU is transition to a unique energy market in order to obtain maximum efficiency of energy consumption

Main goal of creating a sole energy market in EU is to assure to all final consumers, householders and businesses, a safe and stable energy, competitive and at fair price. Having in view this goal imbalances of the market should be eliminated and the intervention of transport and regulation operators for balancing the market should be considerably reduced.

### 3.2 EU market consumption mix

Following its policy regarding transition to a environment neutral economy, EU tries every year to reduce the emission of CO2 and greenhouse gases.

The proportion of oil and petroleum products in the EU's energy mix in 2020 was 34.53%, followed by natural gas (23.71%), renewable energy (17.39%), nuclear energy (12.7%), and solid fossil fuels (10.17%).

Over the past few decades, the energy mix has changed, with a decrease in oil products, a smaller decrease in natural gas, a continued increasing trend for renewable energy sources, and a decrease in coal and nuclear power.

At least a portion of these developments can be attributed to attempts to decarbonize the energy sector.

**Table 1. The Energy mix in EU in 2020**

| | **Solid fossil fuels** | **Peat Product** | **Oil shale and oil** | **Natural gas** | **Oil** | **Renewable** | **Waste** | **Nuclear** | **Electricity** | **Heat** |
|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | 5,875 | 73 | 104 | 13,696 | 19,944 | 10,047 | 598 | 7,334 | 50 | 46 |
| % | | | | | | | | | | |

*Source:* EUROSTAT

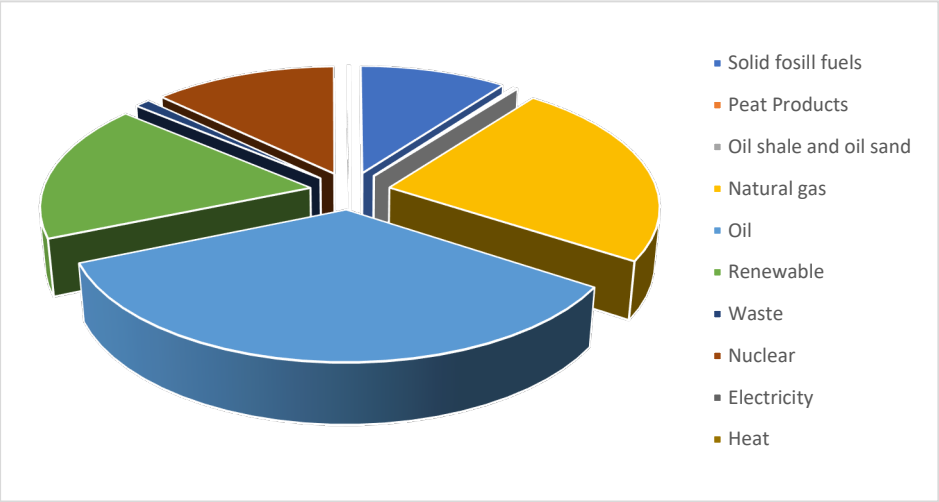


**Figure 1. EU energy mix in 2020**
*Source:* EUROSTAT

### 3.3 EU common market price evolution

The impact of energy prices in today world is enormous, because they have a very big impact on budgets of the householders but also to the business, energy cost having a big impact on production / services activities.

Following the market price liberalization, institution which monitored their evolution were created so that in EU the price of energy is analyzed on trimestral basis.

**Table 2. EU ENERGY HICP, as of October 2022**

| TIME | HICP |
|---|---|
| GEO (Labels) | |
| Belgium | 69.2 |
| Bulgaria | 22.1 |
| Czechia | 14.2 |
| Denmark | 53.2 |
| Germany | 43.5 |
| Estonia | 60.9 |
| Ireland | 47.7 |
| Greece | 20.7 |
| Spain | 7.9 |
| France | 20.0 |
| Croatia | 19.0 |
| Italy | 71.7 |
| Cyprus | 25.6 |

| TIME | HICP |
|---|---|
| Latvia | 56.5 |
| Lithuania | 60.3 |
| Luxembourg | 33.4 |
| Hungary | 28.3 |
| Malta | 0.0 |
| Netherlands | 99.7 |
| Austria | 52.5 |
| Poland | 33.7 |
| Portugal | 27.6 |
| Romania | 24.1 |
| Slovenia | 20.1 |
| Slovakia | 19.0 |
| Finland | 27.4 |
| Sweden | 27.6 |
| Iceland | 20.3 |
| Norway | 30.4 |
| Switzerland | 20.9 |

*Source*: EUROSTAT

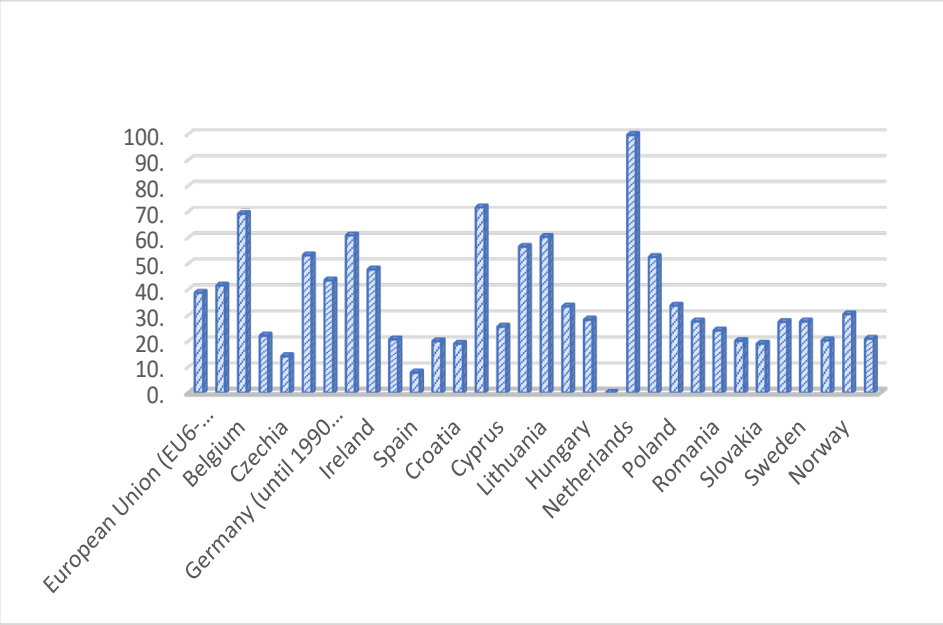


**Figure 2. EU ENERGY HICP, as of October 2022**
*Source*: EUROSTAT

As we can see on bellow chart extracted from EUROSTAT in present years energy harmonized index of consumers prices experience a global increase starting

from a low 7.9 % in Spain to about 20% (Bulgaria,Greece,France, Croatia, Slovenia, Slovakia, Iceland) reaching to about 70% (Belgium, Italy) and ending with 99.7% increase in Netherlands.

A singular case is Malta which experience a zero-price increase.

European Union energy harmonized index of consumers prices experience was 38.7%.

### 3.4 The import of energy from Russia

According EUROSTAT data for 2020, union import about 24.4 % of its energy from Russia (see Figure 3). The EU imports from Russia is about 24.4% of total imported energy.

Although in during last years the mix of European Union energy imports experienced changes, Russia maintains its leading position for natural gas, crude oil and hard coal.

Energy dependency on Russia varies greatly depending on the country due to its diverse energy mix and reliance on imports. Lithuania (96.1%) had the highest percentage of its EU energy demands met by imports from Russia in 2020, followed by Slovakia (57.3%) and Hungary (54.2%). Cyprus (1.7%) has the lowest dependence rate, followed by Ireland (3.2%) and Luxembourg (4.3%).

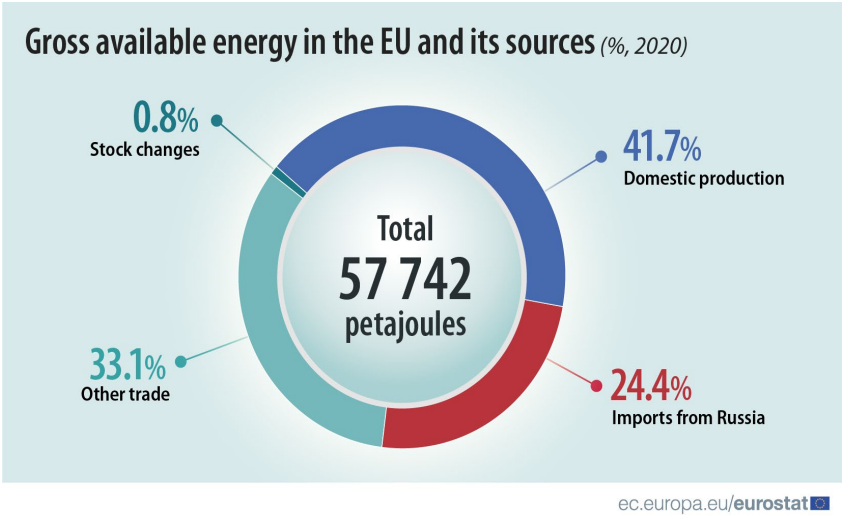


**Figure 3. Gross energy consumption in 2020**
*Source*: EUROSTAT

Other interesting and useful figures are related to the Natural Gas, oil and coal consumption in the EU. In Figures 4-6 we could see the values of these indicators divided by domestic production, imports from Russia, stock changes and other trades.

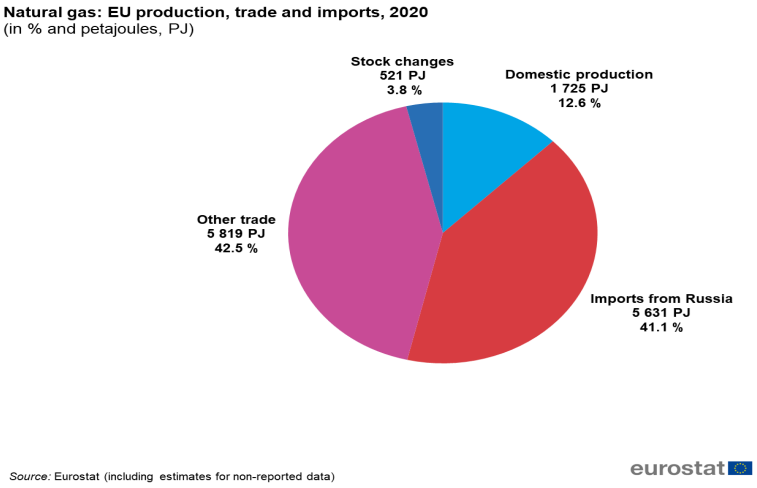


**Figure 4. The natural gas consumption in the EU in 2020**
*Source*: EUROSTAT

From Figure 4 we could see that the imports from Russia are about 41.1% (5. 631PJ), while the domestic production in EU is about 12.6%, other trade is 42.5% and stock changes as low as 3.8%. This underlines the significant impact of imports from the Russian Federation in the EU.

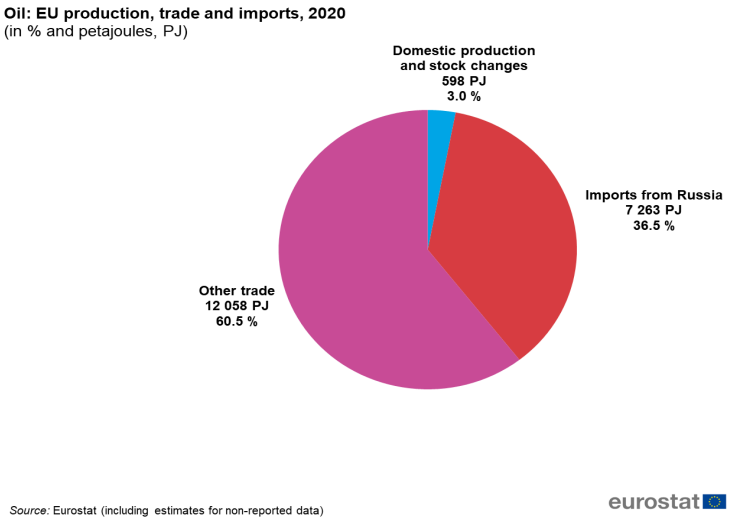


**Figure 5. The oil consumption in the EU in 2020**
*Source*: EUROSTAT

In the figure above we could also see that about 6.5% of the total oil consumptions in the EU in 2020 came from the Russian Federation. At the same time, 60.5% came from other trade and only 3% was domestic production and stock

changes. This also underlines the high impact of the oil consumption in the EU from Russia.

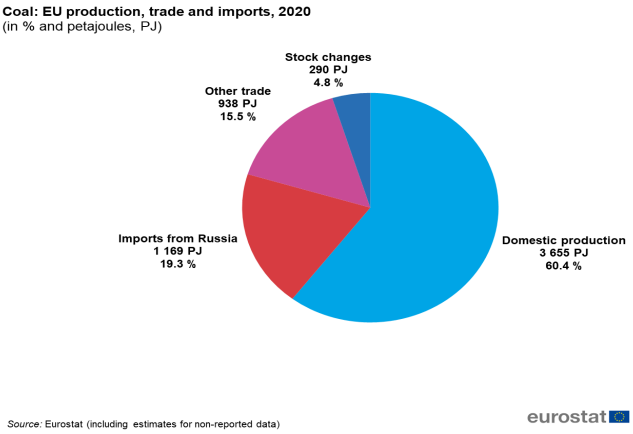


**Figure 6. The coal consumption in the EU**
*Source*: EUROSTAT

From the above graph, we could see that large shares of the coal consmuption in the EU comes from the Russian federation of 19.3%, while 4.8% is part of the stock changes, other trade is 15.5% and the domestic production was about 60.4% in 2020.

The creation of a common market has also some side effects which manifest until free market mechanism with eliminate them.

One of them, which manifest very intense nowadays is the important increase of the prices (see Figure 7).

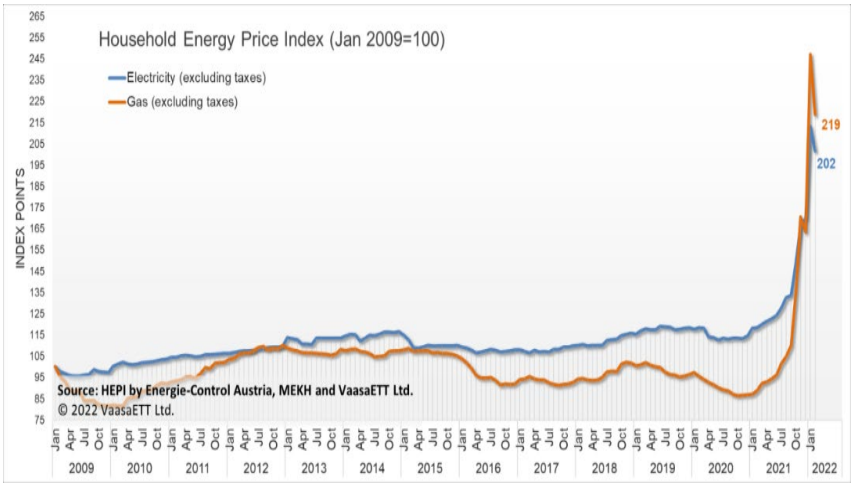


**Figure 7. The electricity and gas price evolution in the EU**
*Source:* HEPI Press Release, 2022

## 4. Conclusions and recommendation

Hence, from Figure 7, we could see that both energy and gas prices went up significantly in the first part of 2021. The main reasons were related to the Market Liberalization processes and well as the energy world crises, which started after the was in Ukraine.

## 5. Conclusions

The desire of achieving a common energy market, based on common electricity and gas market, was one of main goals which constitute the foundation of CEE and after that of EU.

In order to achieve this goal, EU's and national members state legislations have been adopted and harmonized in order to create common market regulatory framework, institutions and operators.

Creation of common legal system was created during years in several steps having as final goal creation of single common gas market in all EU.

The internal energy market final goal is to assure free access on the markets for all, participants and to prevent exclusive practices for non – household consumers.

The main conclusion is that the EU countries should develop alternative systems for energy production, such that they will be less dependent on the energy imports from the Russian Federation.

A limitation of the study is related to the data availability. Thus, future researches should extend the analysis to a longer period of time as well as to other regions all over the world.

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