

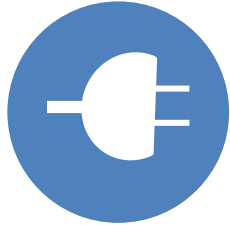
SYMPOSIUM 2019

**ENERGY SYSTEMS AND THE IMPACT OF NEW TECHNOLOGIES IN THE ECONOMY IN THE
CONTEXT OF ENERGY UNION. PRESENT STATUS OF THE NUCLEAR SECTOR**

Energy market in Romania in an European and global context

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Energy market in Romania in an European and global context

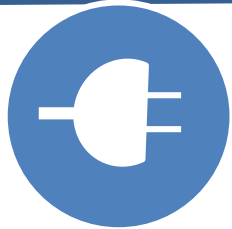
All over the world, opening of the electricity markets pursued removing natural monopoly and vertical integration of the energy sector and replace them with competitive mechanisms that enable consumers to freely choose their supplier.

The Romanian energy market is influenced by the external tendencies, especially the increase of the electrification degree, of the RES production capacities and the energy efficiency, as well as of domestic conditions. The players in the energy market need to adapt to the significant regulatory changes, as well as to respond to customers'.

The internal energy market aims to achieve the EU energy policy objectives in a most cost-effective manner. These objectives consist in ensuring an energy that is affordable, available at competitive prices, sustainable and safe.

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PRESENT STATUS OF THE NUCLEAR SECTOR

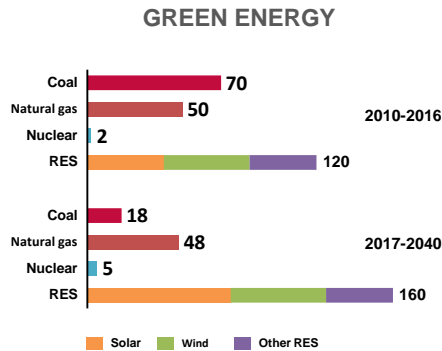


Besides the macroeconomic factors, global trends model the global and national energy policies, and the penetration degrees vary between economies

Global trends

POWER CONSUMPTION

Global energy demand will increase with 2.1% per year, and electricity will represent a quarter of the total energy consumption by the final users until 2040.



URBANIZATION AND INDUSTRIALIZATION

Globally, the urban population exceeds the rural one, 55% of the population lives in urban areas in 2018 and by 2050 this level is estimated to reach 68%.

The fourth industrial revolution will determine an increase in the productivity, and the technology will impact on humans and on the economy.

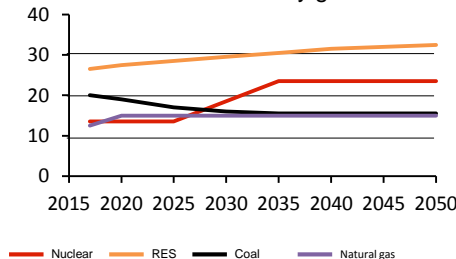
ENERGY EFFICIENCY

In the advanced economies, the impact of energy efficiency measures in lighting, cooling, and vehicles leads to a moderate energy demand taking into consideration the fact that the new advances in the power sector due to increase in EV (electric vehicles) and in the heating for residential and commercial sectors are increasing.

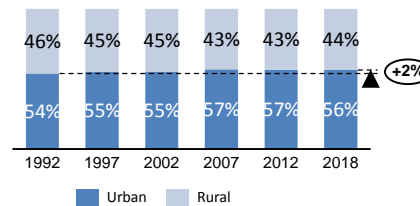
Romania

Romania's Energy Strategy until 2030 takes into consideration the increase of power availability for heating and transportation.

In Romania it is expected an increase in RES generation capacities and, additionally, it is proposed to support the distribution of the electricity generation

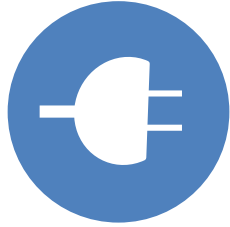


Romania's population by residency type



According to the Romania's Energy Strategy, the highest potential for increasing the energy efficiency in Romania is found in the heating of buildings, in the transformation of primary energy resources into electricity in thermal power stations, in the transportation and distribution of electricity and natural gas, respectively in transport and in industry.

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Romania's regulatory framework undergoes a significant transformation

Tariff methodology

A new distribution tariffs methodology has been approved, and is shifting the focus from capex to capital allocation

Performance

The quality of services is monitored by the regulatory authority based on specific indicators defined in the performance standards, which leads to increased pressures for performance.

Smart meters

Implementation of the SMI based on the 2019-2022 calendar, under the review by the regulator, with a potential significant impact on the distributors' business model



Last Resort Suppliers - LRS

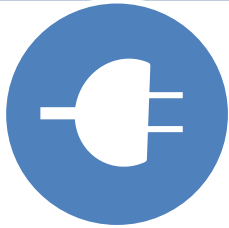
The regulations in force introduced optional LRS and thus created the premises of the competition in this regulated segment; focus on efficiency for LRS/LR segment

Energy trading

New trading rules impact suppliers' purchasing strategies; the opposite forces in the market, besides the intervention in the regulatory framework, lead to a continuous decrease of the profit for suppliers

Prosumers

A new regulatory framework has been approved for the trading of energy produced by small-capacity generation units - prosumers - to energy suppliers



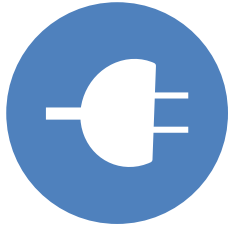
Smart grid concept

Globally, industrial companies from all sectors are going through an industrial revolution, which focuses on digitization of all the physical assets and processes from one end to the other, as well as digital ecosystems integration with the value chain partners.

Data management & Analytics represents a core capability, and the transition to this new digital industrial reality is in full swing all over the world: about one third of companies already assess their digitization level as a high one, and this level is expected to increase from 33% to 72%, on average, over the next 5 years

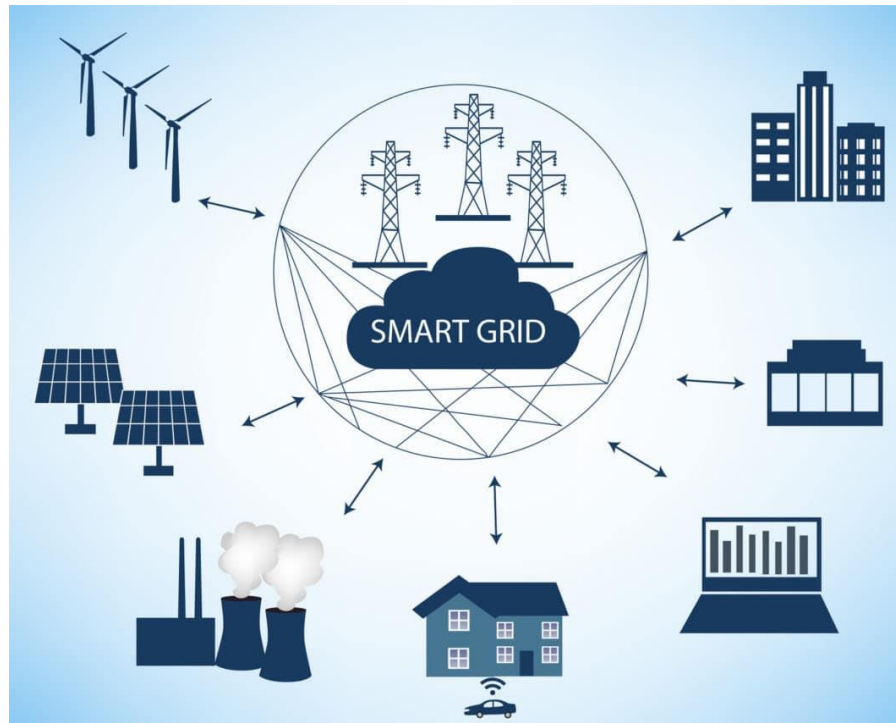
Leading industrial companies digitize essential activities within their own vertical value chain and also in relation to horizontal partners of the supply chain. In addition, they improve their product portfolio by introducing digital functionalities and innovative data services.

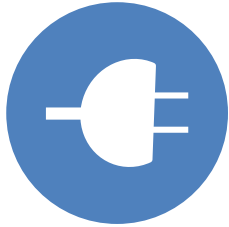
The growing digitization of the power grid is essential for addressing the new production, supply and consumption challenges confronting the electricity networks, that must become more flexible, smarter and interconnected.



Smart grid concept - Smart grids

The smart grid is considered an "Internet of the energy" because it provides real-time energy information to the consumer, thus making it possible to make smart choices.

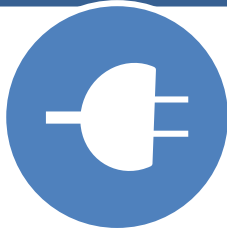




The premise of developing Smart grids in Romania

Two elements will influence Smart Grid status in Central and Eastern Europe: a long-term vision on this matter in certain countries and a legislation to support this vision.

Although some of the trends presented in the report cannot be applied, the geostrategic position and primary energy resources can help Romania become a significant player in the region, consider Deloitte Romania analysts, but only in the circumstances where Romania will keep up with technological progress and will succeed in attracting the necessary funding.



Smart grid benefits

Smart Grids can supply electricity using digital technology and can also integrate energy from renewable sources.

In addition, consumers will be able to reduce consumption during peak hours, adapting the amount taken from the network to their personal needs.

Smart Grid technology can revolutionize the industry by reducing energy consumption by up to 30%, which also reduces the need to build new power plants.



With a smart grid system, the total cost of the electricity system will decrease, with benefits for both suppliers and consumers.

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Thank you!

Questions?

