

The energy union - Perspectives for consolidating the European Union through a common energy market

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Abstract. *The European Union develops a new energy policy as an answer to the challenges of climate change which is a global issue affecting all of us. The package “Clean Energy for All Europeans” adopted by the European Commission in 2016, contains instruments for a new energy policy at the level of the European Union, based on an Energy Union, on promoting energy efficiency and the use of Clean Energy. These are the first steps in creating an institutional and legal framework for a common energy market of the European Union. This way the Internal Market of the European Union would be completed by a common energy market and the result would be a consolidated European Union. This is the research hypothesis the present paper is dealing with. It analyzes as well the impact of the new energy policies on the business environment in terms of new innovative business models at European Union level. The research is based on an interdisciplinary approach considering aspects of European policy, European law, business and economics. Qualitative research methods, such as the analysis of European regulations and provisions representing the basis for a harmonized framework in the energy sector at European Union level and case studies from European Union Member States will be applied. Relevant indicators provided by the European Commission and by Eurostat statistics analyzed in the present paper will complete this assessment.*

Keywords: Energy Union, common energy market of the European Union, new energy policy, Clean Energy, business models.

Introduction

The project of the European Union developed in time based on the process of harmonization, growing from an economic community to an union relying on common accepted values and principles. In this development the Internal Market had a very important role in strengthening the European Union. Now it is time to further develop this project by adding a new dimension: the dimension of sustainability. This is reflected in a common energy market of the European Union built on an Energy Union, with common values related to environment protection, to clean energy and to a healthier environment for the citizens of the European Union.

This new energy policy trend has a practical expression in initiatives of the European institutions, such as the project “European Innovation Partnership on Smart Cities and Communities” of the European Commission. Another direction with a strong impact will be the business environment, focusing on innovation in order to support new and clean technologies.

The same trend is reflected in the package “Clean Energy for All Europeans”, an initiative of the European Commission creating an institutional and legal framework for cooperation within the European Union aiming to build a common energy sector at the level of the European Union.

New perspectives consolidating the European Union are connected to these projects, opportunities that will be analyzed and assessed in the present article.

Literature review

An interesting finding after consulting relevant literature is that the basic principles of the energy policy at European Union level formulated twenty years ago are still valid, such as the principle of security of supply, the principle of the common market, the principle of transparency and non-discrimination, the principle of environment protection, the principle of economic and social cohesion and employment policy (Briche, 1997, pp. 7-8). More than that, these principles are now common values of the European Union energy sector. They are reflected as well in the package “Clean Energy for All Europeans”.

Legal provisions contained in documents of this package have been analyzed in the present article, such as the new Directive on Energy Efficiency and the new Directive on Renewable Energy, which are a result of this package. These new legal documents set some new targets for the energy policy, for example the new target for energy consumption of 32% for energy from renewable sources by 2030.

As a practical implication of the new energy policy of the European Union, some new concepts were developed, such as the concept of smart city. This refers to the optimization of energy use in the building and transport sector and the use of sustainable IC&T-based solutions (Papastamatiou et al., 2017).

Some improvements are needed in order to have a common basis of defining sustainable development in smart cities, as there is no common approach towards this issue yet. This is why it is rather difficult to compare smart cities, as each country defines a smart city in its own way. In order to consolidate the vision of the European Union towards sustainability it is necessary to elaborate a common basis for the energy policy and for its practical implementation in the Member States of the European Union.

Another term to be defined in order to build a sustainable Energy Union is the concept of Clean Energy. This type of energy is produced from resources with less pollution than the conventional energy, such as the renewable energy (Weber and Page, 2012, p. 2). Clean Energy is a key element of the new energy policy of the European Union and it is reflected in trends regarding innovation and new business models and opportunities at European Union level.

Methodology

The present article uses an interdisciplinary research approach combining elements of European policy, European law, business and economics. Relevant documents of the package “Clean Energy for All Europeans” are analyzed from various perspectives within a multidisciplinary approach, emphasizing the economic, the social and the environmental impact of the measures related to the package “Clean Energy for All Europeans”.

Qualitative methods, such as case studies are used in order to illustrate the implementation of the new energy policy in the European Union and new business models arising with this issue. A case study refers to Vienna, as it is the city ranked in 2018 as the most liveable city. Another case study refers to Milan, which is as well an important smart city of the European Union.

This qualitative approach is completed by a quantitative indicators-based approach for evaluating the Energy Union and its effects. Some key indicators related to the Energy Union are the following, proposed in documents of the European Commission: Aggregate supplier concentration index, Electricity interconnection, Market concentration index for power generation, Market concentration index for wholesale gas supply, Final energy consumption, Renewable energy share, Public

investments on Energy Union related R&I (%GDP), patents related to Energy Union R&I priorities (per inhabitant) (https://ec.europa.eu/commission/sites/beta-political/files/swd-energy-union-key-indicators_en.pdf). The indicators are provided by Eurostat.

Results and discussions

The construction of the European Union is a very solid one. The European Union achieved a phase of strong integration through the Internal Market. The Energy Union as a new concept developing at European Union level in the energy sector is a strong form of integration of the energy market, based on a common policy and on common values. This process is based on harmonization of the rules and standards in the energy sector. It started in the 1990's at the initiative of the European Commission it was continued with the Directive 96/92/EG related to the electricity market, the "Second Energy Package" from 2003 and "The Third Energy Package" in 2009. The current phase of this evolution is the package "Clean Energy for All Europeans". This one brings the consumer focus as a new element compared to previous harmonization attempts.

Some important principles of this package are transparency and non-discrimination, values that are very important for the business environment in the European Union.

Another important value is promoting innovation at the level of the European Union. This way the European Union could become more powerful compared to the United States of America and to China or Japan, which are its competitors. The Energy Union is meant to consolidate the position of the European Union towards its competitors and to make it possible to speak with one voice when negotiating aspects of environment or energy policy in light of promoting sustainability.

Related to new business models based on innovation, the concept of smart cities is the result of these new developments. Smart cities show the implementation of rather theoretical concepts of sustainability in the practical life of citizens.

The results of analyzing Vienna as an example of a smart city is summarized in the table below:

Table 1: Smart City Vienna

| Vienna | Goals until 2050: |
|------------|--|
| Smart City | <ul style="list-style-type: none"> → efficient use of energy → good energy performance for buildings → good mobility with effective use of resources → environment friendly city → high rate of social inclusion → good education for its inhabitants → focus on research, innovation and development |

Source: Own research based on Stadt Wien (2019)

Vienna was chosen as a case study in the present article as it is known as a city with a very good life quality. This was proven as well by the fact that it was ranked as the most liveable city in 2018, according to international rankings.

Another important smart city in Europe is Milan, a city participating in several research projects in order to achieve and maintain the status of a smart city. The most important measures in this direction are summarized in the table below:

Table 2: Smart City Milan

| | |
|-------------------|---|
| Milan | Goal: To be one of the leading smart cities in Europe |
| Smart City | Policy measures & actions: energy policy in smart cities → focus on energy efficiency → measures in the field of public transportation → building envelopes → public lighting → development of energy systems supporting energy efficiency → energy smartness as a component of energy policies in smart cities |

Source: Own research based on Causone et al, 2017.

Cooperation is needed and encouraged at European Union level in order to exchange useful information and best practices on business models that could consolidate the European Union as a business environment and as a place promoting innovation and good life quality. The European Commission proposes a platform in order make this exchange of information easier, platform that is represented in the figure below:



Figure 1: European Innovation Partnership on Smart Cities and Communities

Source: <https://eu-smartcities.eu/>

In order to make this cooperation possible, the Energy Union plays an important role in consolidating a common vision on this issue. The evolution of the process can be summarized in the table below, an assessment proposed by the European Commission in its monitoring of the Energy Union development:

Table 3: Indicators for monitoring progress towards Energy Union objectives

| Energy Union dimension | Union dimension indicators |
|---|--|
| Energy security, solidarity and trust | SoS1: Net import dependence |
| | SoS2: Aggregate supplier concentration index |
| | SoS3: N-1 rule for gas infrastructure |
| A fully integrated internal energy market | IM1: Electricity interconnection capacity |

| | |
|--|---|
| | IM2: Market concentration index for power generation |
| | IM3: Market concentration index for wholesale gas supply |
| | IM4: Wholesale electricity prices |
| | IM5: Wholesale gas prices |
| | IM6: Annual switching rates electricity (household customers) |
| | IM7: Annual switching rates - gas (household customers) |
| | IM8: Energy affordability - energy expenditure share in final consumption expenditure for the lowest quintile |
| Energy efficiency and moderation of demand | EE1: Primary energy consumption |
| | EE2: Final energy consumption Final energy consumption of main economic sectors, i |
| | EE3: Final energy intensity in industry |
| | EE4: Final energy consumption per square meter in residential sector, climate corrected |
| | EE5: Final energy consumption in transport |
| | EE6: Final energy intensity in services sector |
| Decarbonisation of economy | DE1: GHG emissions reductions (base year=1990) |
| | DE2: Gap between GHG emissions projections and 2020 target in Effort Sharing sectors |
| | DE3: Gap between latest (proxy) inventory of Effort Sharing emissions and interim targets |
| | DE4: GHG intensity |
| | DE5: Renewable energy share |
| Research, innovation and competitiveness | RIC1: Public investments on Energy Union related R&I (%GDP) Public |
| | RIC2: patents related to Energy Union R&I priorities (per inhabitant) |
| | RIC3: Real unit energy costs in the manufacturing sector (excl. refining |

Source: European Commission: Second Report on the State of the Energy Union - COMMISSION STAFF WORKING DOCUMENT - Monitoring progress towards the Energy Union objectives – key indicators (https://ec.europa.eu/commission/sites/beta-political/files/swd-energy-union-key-indicators_en.pdf).

The table shows that the common energy market is an important goal of the European Union and in this process it is important to underline the contribution of the Energy Union towards a common vision related to the energy sector.

This common vision is visible in the national strategies and in the position adopted by European Union Member States towards the implementation of targets, such as the target for share of energy from renewable sources in gross final consumption of energy, illustrated in the table below:

Table 4. National overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020

| Member State of the European Union | Share of energy from renewable sources in gross final consumption of energy, 2005 (S ₂₀₀₅) | Target for share of energy from renewable sources in gross final consumption of energy, 2020 (S ₂₀₂₀) |
|------------------------------------|--|---|
| Belgium | 2,2 % | 13 % |
| Bulgaria | 9,4 % | 16 % |
| Germany | 5,8 % | 18 % |
| Spain | 8,7 % | 20 % |
| France | 10,3 % | 23 % |

| | | |
|-------------|--------|------|
| Italy | 5,2 % | 17 % |
| Luxembourg | 0,9 % | 11 % |
| Netherlands | 2,4 % | 14 % |
| Austria | 23,3 % | 34 % |
| Poland | 7,2 % | 15 % |
| Portugal | 20,5 % | 31 % |
| Romania | 17,8 % | 24 % |

Source: Annex 1 of the Annexes to the Proposal for a Directive of the European Parliament and the Council on the promotion of the use of energy from renewable sources (<http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016PC0767&from=EN>).

The development directions of the use of renewable energy are influenced as well by a cultural factor, by a cultural dimension (Pelau & Pop, 2018). This could be an influencing factor as well in selecting the business models to be implemented in society (Tantau & Nichifor, 2016). The cultural dimension and consumer preferences thus play an important role. These dimensions can be as well educated through awareness raising campaigns.

Conclusion

The Energy Union is a key issue in the development of a common energy market of the European Union. Such a common energy market would make it possible to have a more important role in promoting innovation and in promoting new business models related to sustainable energy policies. Such business models are reflected in the development of smart cities, a dynamic field that will further develop in the years to come. Energy policy is a very important element of European Union policies, given the international context of climate change and the related challenges.

Changes in technology are as well a chance that should be used in a practical manner in order to improve life quality of citizens of the European Union. This is an important dimension of smart cities near the dimension of sustainable use of natural resources and of energy.

This field is one of great interest with a high potential of development and this is why further research projects will occur in this field. The results of the present paper could be improved and used for further research, which will for sure be necessary in the future.

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