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The Measures of Sustainable Development – a Study Based on the European Monitoring of Energy-related Indicators

Mierniki rozwoju zrównoważonego – studium oparte na europejskim systemie monitoringu wskaźników związanych z energetyką

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Abstract

Sustainable socio-economic development is the guiding principle in the European Union policy. The implementation of that principle is monitored by a set of indicators being developed since 1995, referred to as the indicators of sustainable development. The monitoring is conducted both at the level of Member State, as well as of the entire community. The main indicators describing the social, economic and environmental issues of the EU functioning show positive results in regard to the implementation of the sustainable development strategy; however, in the themes related to the issues of social inclusion, sustainable transport, and global partnership, the indicators show a negative trend. In this paper, the sustainable development indicators in the theme of Climate change and energy are described and analyzed in detail. Their changes over the last decades were strongly stimulated by the EU energy policy. In connection with the implementation of numerous programs for the promotion of renewable energy sources, their share in the energy market is growing, whereas the greenhouse gas emissions from the EU area and the primary energy consumption are falling. During the last 25 years, the total man-made GHG emission in the EU was reduced by 18%. It should be noted that these changes are influenced not only by the manner of energy management stimulation in the EU, but also by an equally significant problem of the economic crisis, geopolitical situation, and the resulting economic change. Moreover, some indicators relevant to the concerned theme, such as energy dependency, clearly show a negative trend.

Keywords: sustainable development indicators, European Union, energy, climate change

Streszczenie

Zrównoważony rozwój społeczno-ekonomiczny jest naczelną zasadą w polityce Unii Europejskiej. Wdrożenie tejże zasady monitorowane jest zestawem rozwijanych od 1995 roku wskaźników, określanych jako wskaźniki zrównoważonego rozwoju. Monitoring prowadzony jest zarówno na poziomie państw członkowskich, jak też całej wspólnoty. Główne wskaźniki opisujące aspekty społeczne, ekonomiczne i środowiskowe funkcjonowania UE wykazują pozytywne efekty w zakresie wdrażania strategii zrównoważonego rozwoju, niemniej w obszarach tematycznych związanych z kwestią integracji społecznej, zrównoważonego transportu i partnerstwa globalnego zmiany wskaźników wykazują niekorzystną tendencję. W niniejszym artykule w sposób szczegółowy opisano i poddano analizie wskaźniki zrównoważonego rozwoju w obszarze tematycznym Zmiany klimatu i energia, których zmienność na przestrzeni ostatnich dziesięcioleci jest silnie stymulowana polityką energetyczną Unii Europejskiej. W związku z realizacją licznych programów w zakresie promocji odnawialnych źródeł energii, ich udział w rynku energetycznym rośnie, a emisja gazów cieplarnianych z terenów UE oraz zużycie energii pierwotnej spadają. Emisja gazów cieplarnianych w UE w przeciągu ostatnich 25 lat została zredukowana o 18%. Należy jednak zauważyć, że na wspomniane zmiany wpływ mają nie tylko sposoby stymulacji gospodarowania energią w UE, ale m. in. równie znaczące kwestie kryzysu ekonomicznego, sytuacji geopolitycznej oraz związanych z tym zmian gospodarczych. Ponadto, część spośród związanych z omawianym obszarem wskaźników, jak zależność energetyczna, wykazuje wyraźnie negatywne tendencje zmian.

Słowa kluczowe: wskaźniki zrównoważonego rozwoju, Unia Europejska, energia, zmiany klimatu

Introduction

Sustainable socio-economic development is one of the most important challenges of the modern world. The concept was defined in 1987 by Bruntland World Commission on Environment and Development (WCED) in the report *Our Common Future*. It defines sustainable development as one in which the needs of the present generation can be met without compromising the ability of future generations to meet theirs. This development refers to the environmental, economic and social issues that can be compared to the three legs of a table, needed in order to stand steadily. Even in the case when the human is placed in the centre of the system, the objective is to preserve the natural resources and ensure continued development capable to support all kinds of life on the planet.

Environmental sustainability can be therefore defined as: *meeting the resource and services needs of current and future generations without compromising the health of the ecosystems that provide them* (WCED, 1987). Environmental sustainability could be defined more precisely as *a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity* (Morelli, 2011).

In the face of the current financial crisis, the economic aspects of sustainable development are under more detailed investigation. Economic growth is one of the most important policy goals across the world, commonly accepted by society. In this perspective, it is the reason why the balance between economics and sustainability is not easy to be achieved. Regardless of the fact that there are voices in discussion talking about idea of *degrowth*, economic sustainability is still a mainstream concept, defined as increasing consumption and based on the economic progress (Moldan, 2012).

The social pillar of sustainability concept is strongly connected with its core objective – to provide the opportunity to lead a decent life in the society and clean environment to everybody, everywhere, and at any time. It is assumed that this demand for a high quality of life should include a developed standard of living, social cohesion, full participation and a healthy environment (WCED, 1987). Social sustainability is based on the personal properties such as education, skills, consumption, income and employment, as well as institutional issues like democracy, gender equity or independent and pluralistic sources of information (Omann, Spangenberg, 2002).

Key indicators of sustainability in European Union's legislation

The idea of using sustainability indicators as a solid basis for decision-making at all levels was mentioned in Agenda 21, one of the documents introduced during the Earth Summit which took place in Rio in 1992. However, at that time there were no specific tools intended to monitor the effects of sustainable development deployments, so an effort had to be undertaken in order to develop such indicators.

In 1995, the Commission on Sustainable Development approved *Work Programme on Indicators of Sustainable Development* and the first set including 134 indicators was presented. In the period from 1996 to 1999, 22 countries across the world voluntarily pilot-tested the indicator set. Between 1999 and 2000, the results of the national testing were evaluated, whereas the indicator set was revised and reduced. In 2001, the second set of 58 indicators was presented and published. They have been extensively tested, applied and used in many countries. A large number of countries had developed their own national indicators. Additionally, indicators were used to measure progress on achieving the *Millennium Development Goals* (*United Nations Millennium Declaration* adopted in 2000). The third edition of indicators related to the development on the national level was published in 2007 (United Nations, 2007; Rametsteiner, 2011).

Sustainability indicators are essential tools for monitoring the essence of the concept of sustainable development in a measurable way. In relation to the nationwide or global monitoring systems, a variety of indicators is used, describing different aspects, including Gross Domestic Product per capita, etc. However, there are opinions that the current indicators are insufficient to measure the sustainable trends (they are rather created to evaluate the unsustainable trends) and are insufficient at the national level (Dahl, 2012).

An indicator of sustainable development can commonly be understood as a measureable tool that enables to analyse changes by quantifying the progress towards the sustainable use and management of social, economic, and environmental resources. In this meaning, an indicator is a measure that directs to a specific issue. Its function is to show whether the assessed system is running towards the defined goals. Indicators can evolve either into a quantifiable or qualitative pointer, depending on the purpose of evaluation (Gallopin, 1997).

The most important feature of the indicator is the comparability of its value (in contrast to the general characteristics expressed by absolute values), used

Table 1. The evaluation of progress in headline indicators for EU-28 (Eurostat, 2015)

Theme	Headline indicator	Progress towards SD	Time span of comparison
Socio-economic development	Growth rate of actual GDP per capita	+	2002
Sustainable consumption and production	Resource productivity	++	2011
Social inclusion	Persons at-risk-of-poverty or social exclusion	– –	2008
Demographic changes	Employment rate of older workers	++	2005
Public health	Healthy life years and life expectancy at birth, by sex	+	2002
Climate change and energy	Greenhouse gas emissions Share of renewable energy in gross final energy consumption Primary energy consumption	++ ++ –	2005 2005 2002
Sustainable transport	Energy consumption of transport relative to GDP	–	2003
Natural resources	Common bird index	+	2002
Global partnership	Official development assistance as share of gross national income	–	2010
Good governance	No headline indicator	...	...

for specifying the position of the system / country in relation to other systems / countries. In this sense, the indicator is a function of one or more features. For example, Gross Domestic Product per capita is a function of GDP (feature 1) and population (feature 2).

The distinction between *indicator* and *index* can be assumed as follows: the indicator applies to certain state phenomenon, while the index expresses its change in time. Among the many requirements of correctness, sustainable development indicator should also be characterized by (Czarski, 2011):

- the connection with the sustainable development, which can be evaluated through a clear answer to the question: does a specific indicator express the importance of sustainable development in the chosen pillar (e.g. environmental) and particular area (e.g. climate change),
- the clear principle of calculation and purpose of the described SDI.

The indicators are used in European Union monitoring system by Eurostat, as well as the European Environment Agency (EEA, 2015). The system used by Eurostat relies on over 100 positions of the European Union Sustainable Development Indicators (Eurostat, 2015). The current set of sustainable development indicators for the EU consists of ten *Themes* with 12 *Headline indicators*. Topics gradually progress from the economic, social, and environmental to institutional and political ones (Table 1). Themes (level 1) are then divided into sub-themes (level 2) called *Operational objectives* and *targets* and *Actions* (level 3). In a natural way, they also reflect the main objective – achieving prosperity based on the principle of sustainable development, as well as the guiding principles related to good governance.

The evaluation based on the headline indicators (Table 1) shows clearly favourable changes in Sustainable consumption and production and Demographic changes. Moderately favourable changes can be observed in Climate change and energy, Natural resources, Public health and Socio-economic development. The remaining headline indicators indicate a rather unfavourable tendency of change. The rising number of persons living at risk of poverty, exceeding 122 million of people, constitutes an example. Due to the economic crisis, the percentage of persons affected by poverty and social exclusion has been rising for both *old* and *new* Member States (Eurostat, 2015). At the same time, the disproportion between the incomes of the richest and the poorest parts of society increased, which has to be classified as an unsustainable effect (Pawłowski, 2011).

European targets in energy policy

One of the EU strategic goals is connected with the minimization of environmental burdens related to the energy sector, especially those responsible for the global warming effect. Considering the meaning of the sustainable development indicator in this area, it is necessary to note the following issues:

- price of electricity unit, since unfavourable economics are not sustainable,
- greenhouse gas emissions as the key parameter that defines sustainability of energy generation,
- availability and limitations of each technology of energy generation in the case of the strategic

- regulations in this particular area. For example, land use requirements are important in the case of renewable energy sources, since they may comply with arable land, whereas the water consumption is important in arid climates,
- efficiency of energy transformation,
- social impacts used for identification and quantification of the human risks and consequences (Evans et al., 2007).

The European system of monitoring the Climate change and energy theme includes three headline indicators: Greenhouse gas emissions, Share of renewables in gross final energy consumption, and Primary energy consumption. The remaining indicators in this theme are divided into *Operational objectives and targets*, and *Actions*.

Greenhouse gas emissions are presented as the annual total GHG emission in relation to Kyoto base year (which differs for individual countries) or to 1990, when the indicator was equal 100. This indicator presents the trends in the sum of man-made emissions of the greenhouse gases expressed in the equivalent of CO_2, through the use of Global Warming Potential factors. The Kyoto list of greenhouse gases includes: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). The indicator does not incorporate the sources related to land-use change and forestry, or the emissions from the international marine transport. International aviation is included in the data indexed to 1990, yet not in Kyoto base year (Schneider S. H., 2009; Eurostat, 2015).

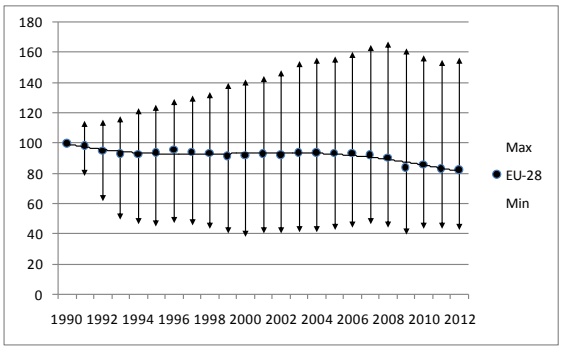
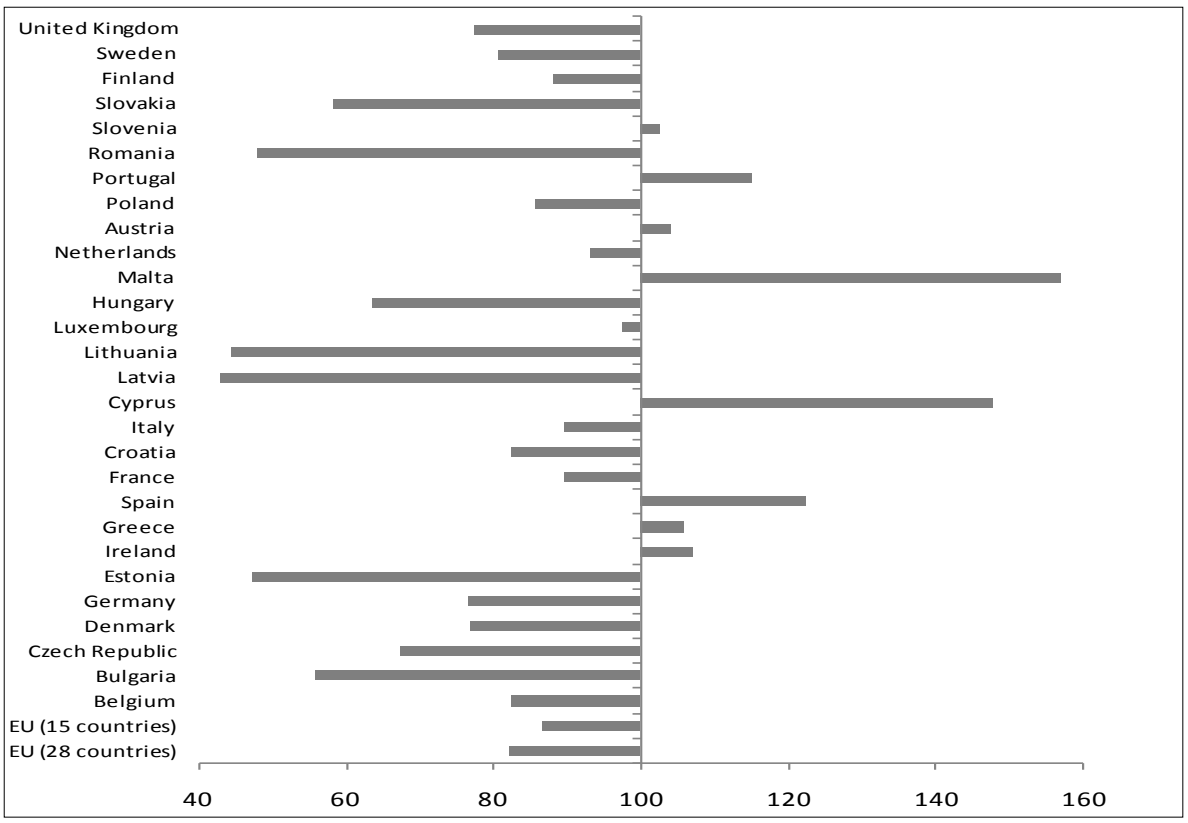


Figure 1. Emission of GHG indexed to 1990, average for EU with extreme values for individual Member States [1990=100] (Eurostat, 2015)

As presented in Figure 1, total man-made GHG emission was successfully reduced during the last 25 years by 18%, and the indicator reached the level of 82.14 in 2012. The latest data on emission of GHG refer to 4 678.8 million tons of CO_{2eq} in 2012. The greenhouse gas that comprises nearly 97% of emissions is carbon dioxide (CO_2). According to Eurostat data, in 2013 carbon dioxide emissions from fossil fuel combustion decreased by 2.5% in the EU-28 in comparison to the previous year, following the drop of 1.6% in 2012. This data includes international aviation, and, as reported in European Environmental Agency statistics, the decrease without aviation was even higher (EEA, 2015).

It should be noted that the minimal GHG emission in relation to the base year 1990 was reached by Latvia, Lithuania, Estonia and Romania (42 – 47), while Cyprus and Malta are represented by the highest indicators (147 and 156), as presented in Figure 2.

Figure 2. Emission of GHG indexed to 1990 for European Union and Member States in 2012 [1990=100] (Eurostat, 2015)



The high diversity of this indicator is related to individual characteristics of countries, their energy and transportation sectors, climate, policy goals, and finally public awareness of global warming. The examples are Malta and Cyprus, two countries which are not obliged to diminish GHG emission by the ratification of Kyoto protocol and are deprived of its own resources, importing coal mainly from Russia. On the other hand, in the countries with nuclear power plants, like Lithuania, governmental mechanisms influencing the energy market and increasing access to renewable sources presented a positive trend of GHG emission decrease.
Considering the amounts of GHG emission instead of indicator discussed above, it is crucial to note the role of leading European countries including Germany, United Kingdom, France and Italy (Figure 3), where the high level of industrial and social development influences the level of emission. Poland is the fifth biggest emitter due to the coal-based energy sector.

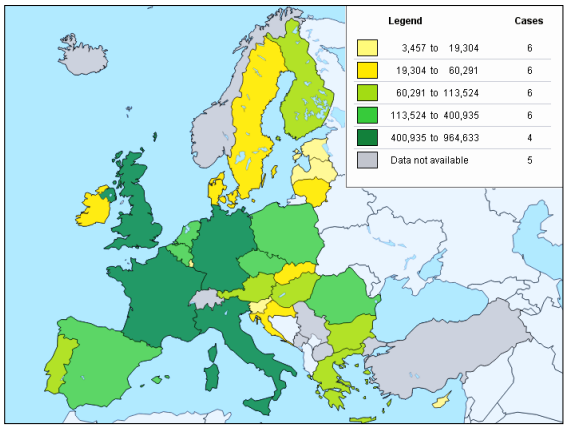


Figure 3. The map of Europe GHG emission [tons] in 2012 (Eurostat, 2015)

Greenhouse gas emission by sector is another quantitative indicator, assigning the emission data to individual branches of the economy. In this case, the most significant sectors are energy and transportation. The decrease of GHG emission from energy sector is not only the result of EU policy towards transformation of energy sources and efficiency. The lowered energy demand during the economic crisis caused a significant fall in energy consumption and consequently, in the GHG emissions between 2007 and 2012 (Figure 4). The mild winter in 2010/2011 could be another important factor. Therefore, the current reductions may not only be connected with the transformation of energy sector, but partially also with the low economic performance (Eurostat, 2011).
The greenhouse gas intensity of energy consumption is another important indicator. It is expressed as the ratio of energy-related greenhouse gas emissions (including carbon dioxide, methane and nitrous oxide) to gross inland energy consumption, indexed to the base year 1990. The changes in emissions from energy use (Figure 5) suggest that the energy production has switched towards less GHG-intensive sources such as the renewable ones.

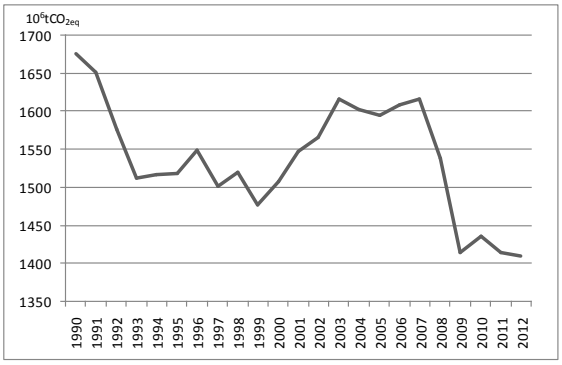


Figure 4. Emission of GHG from energy industry in EU-28 [10^6 tons] (Eurostat, 2015)

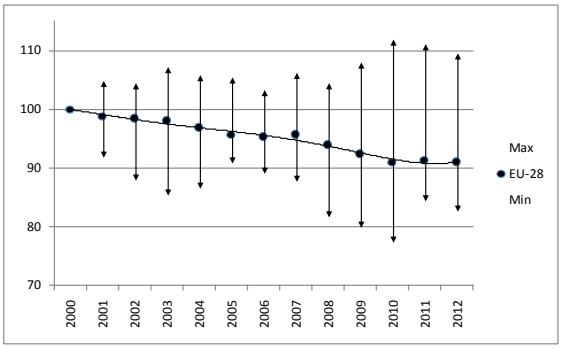
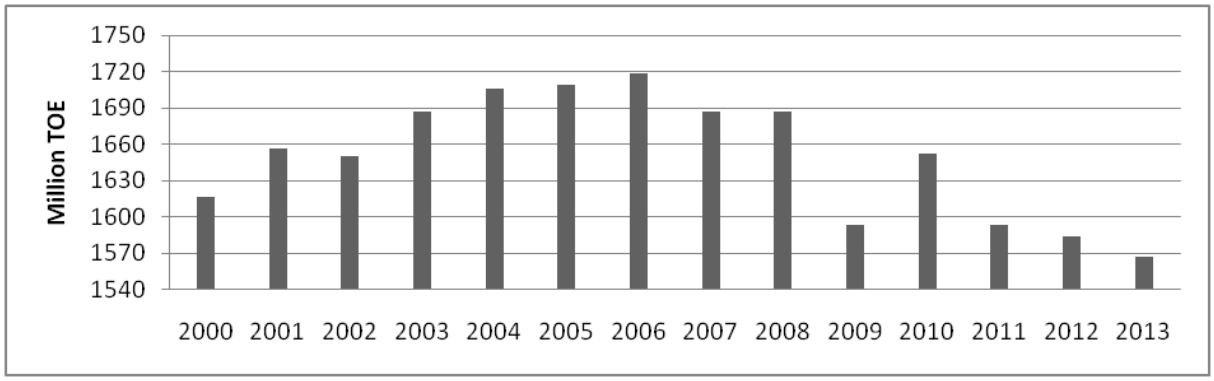


Figure 5. GHG intensity of energy production in EU-28 indexed to the base year 1990 [1990=100] (Eurostat, 2015)

Yet another group of indicators discussed in this article is related to the issue of energy. They are used to monitor the progress resulting from the adoption of the *Europe 2020* strategy. Primary energy consumption indicator (Figure 6) shows gross inland consumption of energy carriers used for energy purposes (consumption by the energy sector itself, distribution and transformation losses, final energy consumption by end users). In the calculation of gross inland consumption, the energy provided to international maritime bunkers (including all dutiable petroleum products loaded aboard a vessel for consumption by that vessel / the storage and supply of fuel oil to maritime vessels) is not included.
Since 2006, a downward trend of primary energy consumption in European Union is observed. In 2013, the primary energy consumption of all Members States amounted to 1566.5 million tons of oil equivalent. The exception was noted in 2010, after a significant decrease in 2009 resulting from the financial and economic crisis. In 2013, the primary energy consumption was 8.3% lower than in 2005.
The share of renewable energy in gross final energy consumption (expressed in %) is identified as a key indicator for measuring the progress under *the Europe 2020* strategy. The gross final consumption of energy from renewable sources is calculated as the sum of:

Figure 6. Primary energy consumption in EU-28 [Million TOE] (Eurostat, 2015)



- The final gross electricity consumption from renewable energy sources,
- gross final energy consumption from renewable sources in heating and cooling,
- final consumption of energy from renewable sources in transport.

The share of renewable energies in the fuel consumed by the transport sector is calculated on the basis of energy statistics, according to the methodology described in Directive 2009/28/EC. Biofuels are included in calculation up until 2010. From 2011 onward, the data for biofuels are restricted only to the biofuels compliant with Directive 2009/28/EC.

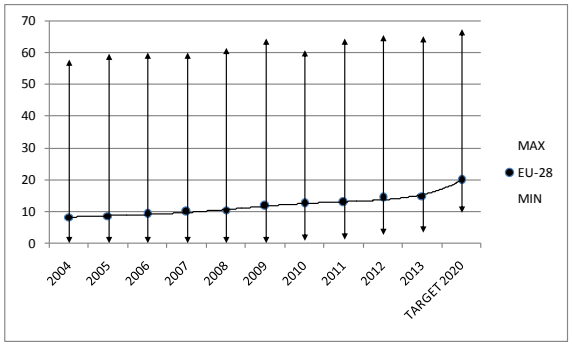


Figure 8. Renewable energy share in gross energy consumption for EU-28 with extreme values for individual Member States [%] (Eurostat, 2015)

In gross inland consumption, primary production, recovered products, total imports, and variations of stocks are taken into account. Total exports and bunkers are not included. Furthermore, this indicator corresponds to the addition of final consumption, distribution losses, transformation losses and statistical differences. In Figure 7 the share of renewable energy in the gross energy consumption throughout the last decade is presented.

Between 2004 and 2013, the share of renewable energy in gross inland energy consumption has increased from 8.3% to 15%. Sweden, Latvia, Finland and Austria are the countries in which this indicator assumes the highest value. In 2013, its value amounted to 52.1%, 37.1%, 36.8%, and 32.6%, respectively. Countries that have already reached the target are: Bulgaria, Estonia, Lithuania, and Sweden. The smallest progress in that matter is noted in United Kingdom, Netherlands, France, and Ireland. Taking into account that the target for all Member States is to achieve the agreed 20%, 5% more is still needed.

Another indicator is the electricity generated from renewable sources. The share of renewable energy sources is defined as the ratio of the electricity produced from renewable energy sources to the gross national electricity consumption. Electricity produced from renewable energy sources comprises the electricity generation from hydropower plants (excluding pumping), biomass, waste / wind, solar and

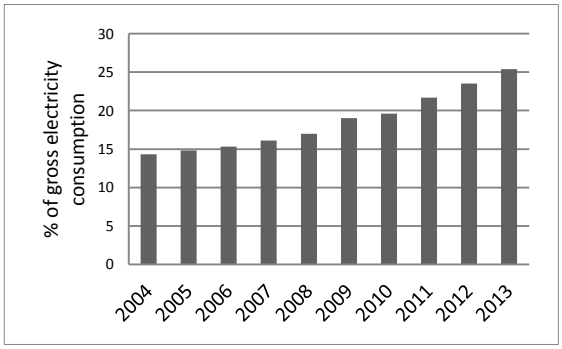
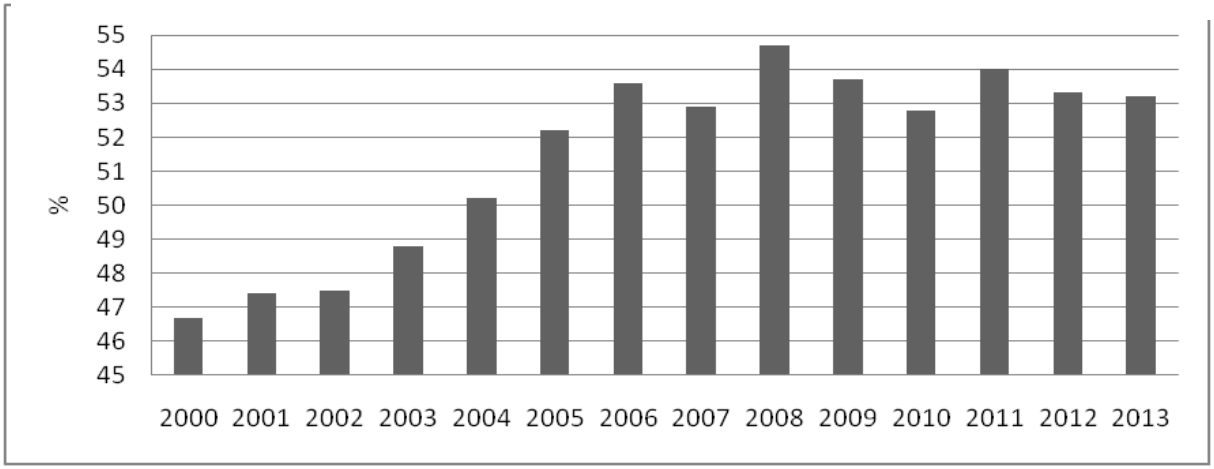


Figure 7. Electricity generated from renewable sources in EU-28 [%] (Eurostat, 2015)

geothermal installations. On the other hand, gross national electricity consumption comprises the total gross national electricity generation from all fuels (including autoproduction), including the electricity imports, but not the exports.

The share of electricity generated from renewable sources in gross electricity consumption in the EU increased from 14.3% in 2004 to 25.4% in 2013. Austria and Sweden are the countries in which the largest part of electricity demand is covered with renewable sources. For these countries, the share in 2013 amounted 69.1% and 61.8%, respectively. In Malta and Cyprus, the use of renewable energy sources for electricity production is negligible. For Cyprus it increased from 0 to 6.6% between 2004 and 2013, while for Malta it increased from 0 to a mere 1.6%.

Figure 9. Average energy dependency for EU-28 [%] (Eurostat, 2015)



This fast expansion of renewable energies, particularly in the electricity sector, is supported by many initiatives on the European and governmental level, including the direct economic support. In the 2007-2013 financial perspective, nearly 11 billion of Euro, representing approx. 3% of the EU general budget, was allocated to the energy purposes (development of renewable energy sources, increase of energy efficiency and construction of trans-European networks) (Pająk, Mazurkiewicz, 2014)

Energy dependency indicator (expressed in %) shows the extent to which a country relies upon imports in order to meet its energy needs. The indicator is calculated according to the following formula (European Commission, 2013):

$$EDI = \frac{M_j - X_j}{GIC_J + Bunk_j}$$

Where: X – export, M – Import, J – energy product, GIC – gross inland consumption, Bunk – consumption of international bunkers (for international maritime and aviation transport).

Import dependency has been calculated for the following energy products: natural gas, crude oil, solid fuels (hard coal and derivatives, and lignite and derivatives) plus the total that is all of the above-mentioned products combined. The average energy dependency for European Union is presented in Figure 9 (Eurostat, 2015).

In the years 2010-2013 import energy dependence in the European Union rose by 6.5%. This increase was associated with a substantial reduction of primary energy production in EU, especially of oil and hard coal, which was not matched by an increasing production of renewable energy.

Denmark was the only EU Member State with a negative dependency rate between 2000 and 2012. Other Member States with the dependency rates below 30.0 % include Estonia, Romania, the Czech Republic and Sweden. Conversely, Malta, Cyprus and Luxembourg are the countries that are dependent on imported energy to the greatest extent.

Energy dependence is a source of concerns related to the security of energy supplies. In 2013, more than half (53.2 %) of the EU's gross inland energy consumption came from the imported sources. A high proportion of energy imports is concentrated among relatively few partners, thus the security of the EU's primary energy supplies may be threatened. Currently, the main crude oil and natural gas supplier is Russia. In 2012, 33.7% of the EU-28's imports of crude oil and 32% of natural gas came from Russia. Other important supplier of crude oil is Norway (11.1% in 2012); in the case of natural gas, these include Norway and Algeria (31.3% and 13.5% in 2012, respectively). In recent years, Russia also emerged as the leading supplier of solid fuels reaching 25.9% in 2012. Other suppliers are Colombia and United States (23.7% and 23% in 2012, respectively). For individual countries, Russia is the largest providers of energy sources. Greece, Hungary and Austria are dependent on the gas supplies from Russia in more than 80%. Lithuania, Hungary, Slovakia and Poland are almost entirely dependent on the oil supplies from Russia. In turn, Estonia, Latvia, Lithuania and Cyprus are almost completely dependent on the coal supplies from Russia (Eurostat, 2015).

The strong dependence of the EU on the external energy supplies has a negative impact on the issue of energy security. In this situation, the EU economy is exposed to serious risks related to energy prices, including potential supply shocks (Gawłowski et al., 2010). Recent internal conflict in Ukraine and the collapse of the conciliatory policies of Western countries towards Russia showed that energy dependency and energy prices can become an instrument of manipulation in international politics.

The set of indicators discussed above is related to the issues of energy and climate change. It does not consist in the individual technologies, but rather the whole energy sector; therefore, the issues concerning the limitations of specific technologies and their individual carbon footprint are neglected on this level. However, the economic and social impact of energy sector seems to be underestimated in the European statistics, since there is no direct evaluation of the

connection between its transformation, price of energy unit and the number of workplaces in this branch. It is noticeable that this number increases for RES sector; however, the limitations of carbon emission in the case of coal-based industry may lead to decreased production efficiency and dismissals. The price of energy sector transformation is paid by the entire European society, firstly in the taxes spent on promotion of RES and the efficient technologies from the EU budget, and secondly in the lower economic performance and rising energy prices. Therefore, the social discussion on the EU energy policy can be, in some cases, the reflection of its negative assessment, especially in the case when this policy is compared to the global targets and considering the lack of limitations for the leading emitters, like India.

Conclusions

The system of indicators used in the EU as the basis of growth evaluation in most of the cases shows positive changes, resulting from the implementation of strategic policies towards environmental, economic and social sustainability. In relation to climate change and energy, the trend is fairly good, with exceptions occurring for a small number of indicators. If the current rate of GHG emission reduction continues, the EU will exceed 20% goal in 2020. However, the emission reductions between 2000 and 2012 are not satisfactory, considering the long-term commitment to reduce GHG emissions by 80-95% till 2050 – in relation to the base year 1990 (COM 2011). Moreover, a part of reduction is connected with political and economic changes which occurred in Eastern Europe in 1990ties, when a part of heavy industry was transformed into more service-based economies.

Most of the Member States are on the way to achieve their individual 2020 goals by increasing the share of renewable sources in gross final energy consumption, which resulted in a noticeable increase of the indicator for the whole Union. However, some trends are not continuous and cannot be simply explained as resulting from the transformation into low carbon economy and the increase of energy efficiency. Energy consumption is a function of many factors, for instance economic crisis and weather conditions; therefore, this indicator is likely to show an unsteady tendency of changes.

Furthermore, increasing the energy imports may result in compromising the security of the EU's primary energy supplies. The EU's dependence on external energy suppliers is not only the result of the growing demand for energy, but also the depletion of the Member States' resources. The general negative trend in energy production may, at least in part, be influenced by the exhaustion of raw materials and the uneconomical exploitation of limited resources.

The growing importance of energy security in the hierarchy of the EU's objectives also results from the increased awareness of progressive dependence on energy imports. Long transportation distances and the necessity of transit may influence the prices, as well as the accessibility of fuels, resulting in deterioration of the EU's economic stability. Therefore, changes in this area cannot be presented as positive and certain actions, at least leading to diversification of suppliers, should be taken.

The EU's ambitious goals concerning energy sector were established to diminish the global warming effect. Since 1990s, the GHG emission of European countries maintains a declining trend; nevertheless, it only includes the direct emissions, without those connected with imported and consumed goods, which remain at the constant level. Moreover, according to US Environmental Protection Agency, global GHG emission during that time has been growing (EPA, 2015). The largest increase of emissions is noted especially in Asian developing countries, and the contribution of Europe in total anthropogenic emission shows the decreasing tendency. Currently, the EU's share in this emission amounts, approximately, to 10%. Taking into account all of these facts, together with the economic crisis and the social issues, such as the increasing number of people affected by poverty, it remains a question of the compatibility between the political vision of European leadership in environmental awareness, and the social expectations of its habitants.

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