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Clean Energy Sources and Multilateral Cooperation in the European Union: A Model for the Persian Gulf?

Introduction

The main aim of this paper is to present an EU model of multilateral cooperation concerning clean energy sources as well as to analyze whether European experience can be useful for all states located in the Persian Gulf. Besides, its second aim is to find similarities as well as differences between these two regions. The question is whether the Persian Gulf states could replace fossil fuels with renewable sources of energy and this way contribute to global reduction of CO₂ emission.

The paper is an example of comparative studies based on official document analysis. As regards renewable energy sources these are sunlight, wind, tides, waves, hydroelectricity, geothermal heat, biofuel and biomass. Although there are many reasons for using them, among the most important are:

- lower consumption of fossil fuels like oil, coal or gas;
- fixed prices;
- diversity of these sources;
- availability of these sources;
- lower costs related to energy supply as renewable sources are available almost everywhere;
- protection of natural environment¹.

Clean energy sources and their role in the era of globalization

Undoubtedly, environmental consciousness has become one of the key issues in the contemporary international relations. It has also become

¹ M. Nowacki, *Prawne aspekty bezpieczeństwa energetycznego w UE*, Oficyna Wolters Kluwer Business, Warszawa 2010, p. 335.

a crucial factor of regional cooperation, for example, in the European Union and in the Persian Gulf. As regards the Persian Gulf, the pace of changes depends on such key players as Iran, Saudi Arabia or the United Arab Emirates.

Global economic crisis affected global energy market. According to the 2009 report of International Energy Agency, “global energy fell in 2009 for the first time since 1981 as a result of a financial and economic crisis, but demand is set to resume its long-term upward trend once the economic recovery gathers pace. By 2030, the reference scenario, which assumes no change in government policies, sees world primary energy demand a dramatic 40 per cent higher than in 2007”². As quantities of fossil fuels are limited, the international community is forced to look for other sources of energy. Renewable sources seem to be the best option, although most of clean energy technologies are still relatively very expensive in comparison with traditional sources. Yet such investments can also pay off in a very short period of time.

Renewable sources of energy: EU policy and practice

Renewable sources of energy are more and more important as far as EU energy policy is concerned. The EU already ranks the second on the global list of electricity generation from renewables³. This trend is to be continued. In 2007 President of the European Commission Jose Manuel Barroso enumerated four pillars of EU common energy policy, namely:

- creation of a truly common energy market;
- energy saving;
- renewable energy sources;
- development of new technologies⁴.

In the same year, namely in March, EU leaders agreed that by 2020 around 20 per cent of the EU’s energy should be produced using renewables. Most of EU member states are already global leaders in clean

² *World Energy Outlook 2009 Fact Sheet*, http://www.worldenergyoutlook.org/docs/weo2009/fact_sheets_WEO_2009.pdf (2.11.2010).

³ *EU Energy In Figures 2010*, http://ec.europa.eu/energy/publications/doc/statistics/ext_renewables_gross_electricity_generation.pdf (1.11.2010).

⁴ J. M. Barroso, *Wspólna polityka energetyczna UE*, “Międzynarodowy Przegląd Polityczny” 2007, nr 1, p. 40–41.

energy both in legal and practical terms. Countries like Sweden and Austria obtain more than 50 per cent of energy from renewable sources. Other leaders are Denmark, Latvia and Portugal⁵. Germany is to follow them and invest more and more in renewable sources of energy in order to obtain more than a half of consumed electricity from them. In 2011 Germans got around 20 percent of electricity from renewable sources⁶. At the same time this process is to make it possible to phase out nuclear power. Such process has become crucial after the earthquake in Japan in 2011. The Fukushima Daiichi nuclear disaster was like a warning for the international community. According to the National Renewable Energy Action Plan of 2009 “the Federal Government estimates the share of renewable energies in gross final energy consumption to be 19.6% in 2020. The share of renewable energies in the electricity sector will thereby amount to 38.6%, the share in the heating/cooling sector will be 15.5%, while in the transport sector it will amount to 13.2%”⁷.

Thanks to such attitude EU member states not only prevent their natural environment, but also save fossil fuels such as gas or oil. Furthermore, this way they combine energy security, namely diversification of energy supplies, with environmental issues. This factor has been very important since the Russian Federation became the main provider of natural gas to some EU member states located in Central and Eastern Europe like Slovakia or Poland. In order to avoid a risk of growing dependency the EU is forced to look either for new suppliers or new sources of energy.

Undoubtedly, the Treaty of Lisbon can become the cornerstone of the whole energy policy of the European Union. According to Bartłomiej Nowak, “the inclusion of energy in the Treaty of Lisbon as an area of shared competencies should be perceived as an attempt to establish a special cooperation *modus operandi* between the Community and national governments in the interest of greater transparency with respect to the energy markets. Transferring some of the energy competencies from national government control to Community level would certainly serve as

⁵ *EU Energy In Figures 2010*, op. cit.

⁶ *Green Energy Use Jumps in Germany*, <http://www.spiegel.de/international/0,1518,783314,00.html> (15.12.2011).

⁷ *Federal Republic of Germany National Renewable Energy Action Plan in accordance with Directive 2009/28/EC on the promotion of the use of energy from renewable sources*, http://ec.europa.eu/energy/renewables/transparency_platform/doc/national_renewable_energy_action_plan_germany_en.pdf (15.12.2011).

a very helpful step in further liberalizing the electricity and gas markets and creating a common energy policy”⁸. Undoubtedly, such common energy policy will also include renewable sources of energy.

One of the most important documents on this issue is Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. According to article 1, “this Directive establishes a common framework for the promotion of energy from renewable sources. It sets mandatory national targets for the overall share of energy from renewable sources in gross final consumption of energy and for the share of energy from renewable sources in transport”⁹. The definition of renewable sources is given in article 2: “‘Energy from renewable sources’ means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases”¹⁰. The directive set the main target, namely “at least a 20% share of energy from renewable sources in the Community’s gross final consumption of energy in 2020”¹¹. Undoubtedly, such strategy is very ambitious. Nonetheless, the main obstacles are huge differences between various EU member states. Some of them already use advanced technologies and can afford sequential investments while the rest are relatively backward as far as renewable sources of energy are concerned and therefore face serious financial and administrative problems. Of course EU official had noticed the problem long before the directive came into force. The compromise solution is based on diverse requirements for various member states. For example, target for share of energy from renewable sources in gross final consumption of energy in 2020 is 13 percent for Belgium, 30 percent for Denmark, 34 percent for Austria, 49 percent for Sweden, 15 percent for Poland or 11 percent for Luxembourg (see Table 1).

⁸ B. Nowak, *Energy Policy of the European Union: Chosen Legal and Political Aspects and Their Implications for Poland*, Wydawnictwa Akademickie i Profesjonalne, Warsaw 2009, p. 53.

⁹ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, “Official Journal of the European Union” of 5.6.2009, L 140/16.

¹⁰ Ibidem.

¹¹ Ibidem.

Table 1

National overall targets according to Directive 2009/28/EC [%]

NATIONAL OVERALL TARGETS FOR THE SHARE OF ENERGY FROM RENEWABLE SOURCES IN GROSS FINAL CONSUMPTION OF ENERGY IN 2020		
Country	Share of energy from renewable sources in gross final consumption of energy, 2005	Target for share of energy from renewable sources in gross final consumption of energy, 2020
Austria	23.3	34
Belgium	2.2	13
Bulgaria	9.4	16
Cyprus	2.9	13
Czech Republic	6.1	13
Denmark	17.0	30
Estonia	18.0	25
Finland	28.5	38
France	10.3	23
Germany	5.8	18
Greece	6.9	18
Hungary	4.3	13
Ireland	3.1	16
Italy	5.2	17
Latvia	32.6	40
Lithuania	15.0	23
Luxembourg	0.9	11
Malta	0.0	10
Netherlands	2.4	14
Poland	7.2	15
Portugal	20.5	31
Romania	17.8	24
Slovak Republic	6.7	14
Slovenia	16.0	25
Spain	8.7	20
Sweden	39.8	49
United Kingdom	1.3	15

Source: Annex 1 of the Directive 2009/28/EC.

All above arguments prove that the European Union is very experienced and advanced as far as renewable sources of energy are concerned.

Some solutions could become models for other regions in the world. The question is whether EU experience in this field can be applicable in the Persian Gulf and what the EU can learn from states located in this region.

Clean energy: A challenge to the Persian Gulf States

In the opinion of Peter Meisen and Lesley Hunter “there is a large potential for renewable resources in the Middle East which, up to this point, have remained largely untapped. This is especially true of solar power; its potential in the Middle East region alone far exceeds global electricity demand. By applying renewable sources to energy production in the Middle East, the life of fossil fuels will be expanded for future generations, decreasing carbon emissions, and encouraging socio-economic development for sustainable wealth”¹². Also Michael Mason and Amit Mor point out that “development of renewable energy resources in the Middle East and North Africa promises significant environmental and energy security gains. Regional scientific cooperation is necessary to identify such benefits and the modalities for realizing them. A starting point for any such work is to set out the security conceptions employed by state and non-state actors in the region, identifying sources of mutual understanding. Interpreting energy security in terms of human welfare and climate sustainability rather than (only) state access to energy resources increases the possibility of shared understanding on common security principles”¹³.

It should be emphasized that just a few states located in the Persian Gulf obtain some energy from renewable sources. Countries which produce at least some clean energy are Iran (hydroelectricity, wind power, solar, geothermal, biomass) and Iraq (hydroelectricity). As regards other states, the United Arab Emirates is currently developing its solar energy system.

As far as clean energy sources are concerned, there are a few important objective differences between the European Union and the Persian Gulf

¹² L. Hunter, P. Meisen, *Renewable Energy Potential of the Middle East, North Africa vs. the Nuclear Development Option*, Global Energy Network Institute 2007, <http://www.geni.org/globalenergy/research/middle-east-energy-alternatives/MENA-renewable-vs-nuclear.pdf> (19.12.2011).

¹³ M. Mason, A. Mor, *Introduction*, in: *Renewable Energy in the Middle East: Enhancing Security Through Regional Cooperation*, eds. M. Mason, A. Mor, Springer, Dordrecht 2009, p. xxiii.

region. The first one and probably the most important one is connected with different kinds of sources of clean energy in both regions, namely with diversification of renewables. While European states can obtain energy from geothermal sources, wind, water (tides, waves and rivers), biofuels and sunlight, the Persian Gulf states' choice is limited to solar energy, hydroelectric power plants and wind farms. There are not sufficient resources of plants to produce biomass or biofuel. The same applies to hydroelectricity as the Persian Gulf region suffers from lack of big rivers, although Iran is an exception here. In 2005 it opened a hydroelectric dam on the Karun river (the Karun-3 dam in Khuzestan). In the same province there is also the Dez dam opened in 1963 which also serves as a power station. Other functioning hydroelectric power plants in Iran are Karkheh, Kouhrang, Lavarak, Shahid Rajaei Dam, Masjed-e Soleiman I, Seymareh Dam and Shahid Abbaspour (Karun-1)¹⁴. In case of wave power, Iran carefully analyzes a possibility of obtaining energy from this source. Its long coastline should be an advantage in this case.

As the number of sunny days is much higher in the Persian Gulf than in most of parts of Europe, sunlight seems to be the best source of clean energy for countries like Iran or the United Arab Emirates. "Solar energy has the potential to equip the Middle East with centuries of sustainable, clean electricity. A solar power plant the size of Lake Nasser has the capacity of supplying the electricity needs of the entire region. With its stabilizing economic effects, low emissions, and potential for water desalination, solar technology would be a great asset to the Middle East's energy production, which would free up more natural resources for export instead of consumption"¹⁵.

Although cost of solar panels is relatively high, such investment can pay off very quickly in this region due to advantageous climate conditions. What is even more important, such panels can be placed almost everywhere, even in the middle of a desert. So-called solar thermal plants like the one operating in Yazd in Iran create a new opportunity for the Persian Gulf states. Another solar thermal plant will be constructed in Abu Dhabi in the United Arab Emirates. When it comes to wind energy and its potential role in the Persian Gulf region, it is not as promising as in the case of

¹⁴ *Hydroelectric Power Plants in Iran*, <http://www.industcards.com/hydro-iran.htm> (1.11.2010).

¹⁵ L. Hunter, P. Meisen, *Renewable Energy Potential of the Middle East, North Africa vs. the Nuclear Development Option*, op. cit.

solar energy. Yet there are two operating wind farms in Iran, namely Manjil-Rudbar Wind Farm (Gilan province) and another wind farm in Binaloud (Khorasan Razavi province). By the way, it should be emphasized that Iran is a regional leader as far as wind energy is concerned¹⁶. Iran already produces 8 per cent of electricity in its hydroelectric power plants. No doubt economic sanctions imposed on this country force the Iranian authorities to look for alternative sources of energy. For example, Iran cannot import any equipment which could serve to build new oil refineries. A few existing refineries are not enough to cover the growing internal demand. As a result, Iran has to export oil just to import it as petrol. In order to find other sources of energy, Iranians invest money not only in a very controversial national nuclear program, but also in projects related to further development of renewable sources of energy¹⁷. Nevertheless, as far as renewable sources are concerned Iran's experience should be a useful guideline for other states from the Persian Gulf region.

The second main difference concerns the availability of oil and gas in both regions. EU states do all they can to limit consumption of fossil fuels for three reasons. The first one is connected with energy security and diversification of energy supplies. It is not a secret that Europe is dependant on external supplies from the Persian Gulf, the Russian Federation, North Africa and Central Asia. The second reason is growing environmental consciousness among EU citizens who realize that Europe is already overcrowded and such unlimited consumption of fossil fuels can be disastrous given the relatively small territory. The third reason is an increase in prices of fossil fuels. In case of the Persian Gulf states only the second factor

¹⁶ *Iran, sole producer of wind turbine in the Middle East*, <http://www.payvand.com/news/09/mar/1032.html> (1.11.2010).

¹⁷ The international community is alarmed at the Iranian nuclear program, because it is generally perceived as a cover for a military project. If Iran possessed nuclear weapons, it would be a serious threat to other Middle Eastern states as well as Europe. More about the Iranian nuclear program: *Iran's Nuclear Future: Critical U.S. Policy Choices*, ed. L. E. Davies, RAND Corporation, Pittsburg 2011; D. Gold, *The Rise of Iran: How Tehran Defies the West*, Regnery Publishing, Washington D.C. 2009; M. Hitchcock, *Iran – the Coming Crisis: Radical Islam, Oil, and the Nuclear Threat*, Multnomah Books, Colorado Springs 2006; *Iran's Strategic Weapons Programmes: A Net Assessment*, Routledge, London 2006; A. Jafarzadeh, *The Iran Threat: President Ahmadinejad and the Coming Nuclear Crisis*, Palgrave Macmillan, New York 2007; S. Khan, *Iran and Nuclear Weapons: Protracted Conflict and Proliferation*, Routledge, Abingdon 2010.

seems to be crucial as these states are self-sufficient and are key exporters especially as far as oil is concerned.

The third difference between the EU and the Persian Gulf region is connected with different experience in regional cooperation both in legal as well as in practical terms. Despite serious problems within the Euro zone, European integration remains a model solution for other regions in the world. The current level of integration makes it possible to coordinate national policies with regard to renewable energy. In comparison with the EU, the level of regional integration in the Middle East in general and in the Persian Gulf area in particular is very low. There is the Cooperation Council for the Arab States of the Gulf (also known as the Gulf Cooperation Council), but it cannot even be compared with the EU. For example, Iran, one of the most important regional actors, is not a member state. Moreover, there is no cooperation between states in the Persian Gulf region as far as clean energy is concerned.

Last but not least, one can observe the fourth difference which could be described as political. The level of regional cooperation is much higher in the EU comparing to the Persian Gulf states. There are many reasons for that, for example, of historical, political and economic nature. It has not been long since the Persian Gulf states became really independent states and began enjoying a freer hand in international relations. Besides, some of them are conflicted, for example, Saudi Arabia and Iran. One should also emphasize the role of Sunni versus Shia Muslims rivalry. It blocks every cooperation, not only the one dedicated to renewable energy.

The EU model of integration seems to be the most advanced and best functioning in the world. Thanks to that member states are able to coordinate their policies including energy policy. In contrast to this regional integration concept, the Persian Gulf is a region of low institutionalization of international relations. Yet it does not change the fact that everything is up to the Persian Gulf states which can work out their own model of political cooperation based on Islam and values they share. Although it is unlikely at the moment, it may become possible in the future. There is no doubt that regional key players like Saudi Arabia, the United Arab Emirates or Iran can play a decisive role in this process. Its experience in the development of its own nuclear energy program proves that Iran intends to modernize its energy system in order to limit the use of fossil fuels. It is the first step towards a greener economy, because such process can result in further investments in clean energy sources, for example, in solar energy.

Conclusions

Undoubtedly, the EU policy with regard to clean energy can serve as a good example to the Persian Gulf states. Despite a few important differences connected with such objective differences as available sources of renewable energy or different reasons for financing the development of clean energy infrastructure, some legal and practical solutions could be applied in order to obtain more clean energy in the Persian Gulf region. A few of them (Iran, the United Arab Emirates, Iraq) have already invested some funds in further development of the renewable energy sector. No doubt Iran is the regional leader as far as clean energy is concerned.

There are four main differences between the EU and the Persian Gulf region concerning renewable energy sources. Firstly, different kinds of sources of clean energy which are available in both regions, namely diversification of renewables. Secondly, the availability of oil and gas in both regions. Thirdly, different experience in regional cooperation both in legal as well as in practical terms. Undoubtedly, the EU is by far more advanced in this case. Finally, the level of regional cooperation is much higher in the EU comparing to the Persian Gulf states. It also concerns energy policy.

All in all, European experience could be very useful for the Persian Gulf states, however, everything would depend on their future cooperation. In the absence of good will it can be very difficult. Nevertheless, if the Persian Gulf states decided to cooperate on various issues and create, for example, a common energy policy, the European Union should support such process as it would also be profitable for EU member states. European companies could participate in various projects. Last but not least, all sides would contribute to environmental protection.

Źródła czystej energii i wielostronna współpraca w ramach Unii Europejskiej: model dla Zatoki Perskiej?

Streszczenie

Celem niniejszego artykułu jest analiza współpracy państw Unii Europejskiej w obszarze odnawialnych źródeł energii oraz określenie możliwości wykorzystania europejskich doświadczeń w regionie Zatoki Perskiej. Region Zatoki Perskiej obfituje w surowce energetyczne takie jak ropa naftowa i gaz ziemny. Sytuacja ta nie ulegnie zmianie przez przynajmniej kilkadziesiąt kolejnych lat. Jednakże już teraz, pomimo łatwej dostępności i stosunkowo niskich cen energii pozyskiwanej ze źródeł nieodnawialnych, wśród władz i mieszkańców niektórych państw regionu rośnie świadomość

ekologiczna oraz przekonanie, iż należy przygotować się na okres po wyczerpaniu złóż ropy czy gazu. Póki co, rozwój rynku energii ze źródeł odnawialnych dotyczy zaledwie kilku państw Zatoki Perskiej i trudno ją nawet porównywać z bardzo zaawansowaną pod tym względem Unią Europejską. Niemniej, warto zastanowić się czy unijne doświadczenie współpracy na rynku energii odnawialnej (rozwiązania prawne i mechanizmy współpracy) mogłoby zostać wykorzystane w bogatych państwach Zatoki Perskiej, a następnie w całym regionie Bliskiego Wschodu. W okresie wzrostu znaczenia ekopolityki w skali globalnej oraz współzależności gospodarczej, rozwój rozwiązań prawnych oraz technologii pozyskiwania energii ze źródeł odnawialnych nabiera szczególnego, ponadregionalnego znaczenia.

