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Renewable Energy in EU – Georgia:

Legal and Regulatory Perspective

MA in European Studies

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Tbilisi 2011

Abstract

The issue of energy supply and security has been a growing concern globally attracting particular attention of many states in different parts of the world. In the modern globalized context, the subject of energy has acquired even greater importance: the evolving patterns of interdependence and the processes that go beyond borders reverberate on the policies and strategies of states and the discussions in international fora.

The European Union (EU), as one of the key international actors has been cognisant of the global energy challenge as well as its own vulnerability due to its constantly increasing external energy dependence involving economic, social, ecological and physical risks (Renewable Make the Difference. www.europa.eu). The EU's strategy for energy security builds upon five main pillars: an energy efficient Europe, a truly pan-European integrated energy market, the highest level of safety and security, extending Europe's leadership in energy technology and innovation, strengthening the external dimension of the EU energy market. Therefore, it is of no surprise that the EU has enhanced its efforts to support the development of renewable energy as an important factor contributing to "reducing greenhouse gas emissions and other forms of pollution, diversifying and improving the security of (EU's) supply and maintaining (EU's) world-leading, clean energy technology industry" (Energy 2020. www.europa.eu).

This research aims to provide brief overview and analysis of the EU *acquis* concerning renewable energy specifically focusing on the electricity sector. Furthermore, it gives concrete examples of several EU Member States (MSs) to portray how these member states translate the *acquis* into their legislative and regulatory systems to achieve the goals set by the EU. The next section is dedicated to the EU-Georgia interaction in the area of renewable energy reflecting on the existing legal and regulatory frameworks in Georgia to promote renewable energy and the progress achieved by the country in this regard.

The main question of the research is to see if Georgia has developed adequate legislative and regulatory environment to foster the growth of renewable energy and what is the level of harmonization with the EU *acquis* in this field.

It should be specifically noted that the purpose of the research is not to be a critique on the selected topic. Rather, the research endeavors to provide useful insight for possible practical application and strives to contribute towards raising awareness on the significance of renewable energy.

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Abbreviations

EU – European Union

MS – Member States

UK – United Kingdom

RE – Renewable Energy

NGO – Non-governmental organization

EPP Group - European People's Party Group

TPA – Third Party Access

NRA - National Regulatory Authorities

TSO – Transmission System Operator

DSO – Distribution System Operator

FIT – Feed-in Tarrif

TGC - Tradable Green Certificates

MWh- Megawatt hour

MW – Megawatt

kV – Kilovolt

NREAP - National Renewable Energy Action Plan

PCA - Partnership and Cooperation Agreement

ENP - European Neighbourhood Policy

ENP AP - European Neighbourhood Policy Action Plan

EaP - Eastern Partnership

MoENRG – Ministry of Energy and Natural Resources of Georgia

GNEWSRC – Georgian National Energy and Water Supply Regulatory Committee

ESCO – Electric System Commercial Operator

UNDP – United Nations Development

GFSIS – Georgian Foundation for Strategic and International Studies

Introduction

Needless to say that today energy is a vital part of everybody's life. What was observed about a hundred years ago by one scientist holds true presently: no one today is ignorant of the part played by energy, not only in science, but in industry, politics, and the whole science of human welfare. The importance of guaranteeing that energy is available, and the link between this availability and economic activity, has since been acknowledged by policy-makers around the world (Sanam S Haghighi. 2007.1).

However, the new reality brings about new challenges necessitating developing adequate and effective energy policies and practices as well as creating conducive legal and regulatory frameworks to be able to successfully address all the facets of this complex issue including the environment and sustainable development. Projections for the year 2050 indicate that consumption of coal and nuclear energy will be reduced and consumption of hydroelectricity and other renewable sources will rise slowly (Sanam S Haghighi. 2007.13). The EU's energy strategy sets ambitious goals for dramatically enhancing renewable energy and energy efficiency for 2020 and beyond.

It is important to underline that the EU has adopted a comprehensive approach to its "greater than ever" energy challenge (Energy 2020. www.europa.eu) offering a combination of measures emphasizing internal as well as external facets. Substantial reduction of dependence on outside sources would only happen if and when the use of renewable of energy or other alternative sources becomes dominant. In addition, the management of demand through the implementation of regulations on energy efficiency and the use of renewable sources becomes a vital task in this complex picture (Sanam S Haghighi. 2007. 17,419). The issues of effective internal market, energy security and the environment are intertwined, for instance, having a truly competitive energy market would enable suppliers of electricity from renewable energy sources to enter the market and investment incentives for production of electricity from renewable energy sources could contribute towards creating a stable environment for investment (EC Communication. January 2007. www.ec.europa.eu).

Paradoxically, two of the founding treaties of the European Community concerned energy but its energy policy developed from humble beginnings and took many years to progress. With advent of the internal market, which also came to include energy, a policy in this area gradually emerged. The extension of EU's agenda to include energy policy in the post-1985 period was influenced by external events not least being the increasing importance of environmental policy. The "added dimension" of the environment has made energy policy much more complicated than before. This means there will be greater need for the Member States to develop a common policy and level playing field to respond to common problems (Jane Haaland Matlary. 1997.15,6,9,157). Although historically there have been substantial obstacles in the path of many proposals to adopt new energy policies at the EU level, the last decade has witnessed a drastic change where the pooling together of Member States' energy policies and regulating a European Energy market has been included in the European policy-making agenda (Sanam S Haghighi. 2007.420).

The abovementioned allows underscoring a significant aspect: there is a "window of opportunity" for the EU to engage more actively in promoting renewable energy and energy efficiency internally as well as externally, especially considered that the third strand of EU energy policy, climate change is the one in which the EU has shown the greatest ambition and EU policy-makers seeing themselves as pioneers in developing both international and domestic measures to mitigate climate change (Wallace, Pollack, Young. 2010.375).

This process has already started, and the EU's Renewable Energy Directive 2009 setting far-reaching objectives is a solid proof. The Directive introduces a legislative framework designed to promote the achievement of the 20% target for renewable energy in 2020, but the legal framework must be properly enforced to ensure investor confidence in new production. The EU Energy Strategy also calls upon the Commission to ensure the required degree of convergence between national support schemes as the market of renewable is moving from a local to a cross-border supply (Energy 2020. www.europa.eu).

Considering that the renewable market is in the process of development within Europe and taking into account the impact of recent legislative changes introduced by the EU in this area, the research will attempt to provide analysis of the substance of the secondary law as well as

what legal and regulatory mechanisms have put in place Member States to meet the set requirements. The latter will be done by focusing on the examples of four Members States, namely Germany, Ireland, the Netherlands and the United Kingdom. This can be important for not only understanding the legal and regulatory dimension of renewable energy in the EU but also for providing input that might contribute towards further developing renewable energy in Georgia.

In addition, the research will look at the Georgian legal and regulatory framework for promoting renewable energy. However, this research does not intend to elaborate on the critical analysis of the situation in Georgia. It acknowledges the fact that the effective management of renewable energy is a relatively new area for the country. Furthermore, some of the renewable technologies have not yet reached maturity even in Europe. The recent Directive for Renewable Energy is only "the first step" to achieve 20% target and some significant challenges exist even there (Energy 2020. www.europa.eu). It is also noteworthy that harmonization with the EU legislation can sometimes be burdensome and require time and effort from the partner country.

Although renewable energy has been identified as one of the areas of the EU-Georgia cooperation, significant progress is still lacking. During the last few years, Georgia has undertaken some positive steps towards establishing legislative and regulatory environment for renewable energy, but the core elements such as the comprehensive draft law on renewable energy and energy efficiency have not yet materialized. Some ideas might exist but the current legislative and regulatory initiatives remain patchy. Enhanced efforts are needed to advance, in line with the Action Plan, on energy efficiency and the use of renewable energy sources (EC Communication. ENP Progress Report Georgia in 2009. 2010.www.ec.europa.eu). The overview presented in the thesis solidifies this conclusion.

For the country whose energy sector is still in the process of development such as in Georgia, renewable energy might not be considered as the highest priority due to the following possible reasons: lack of technological knowledge; lack of capacity to elaborate effective legal and regulatory mechanisms; divergence of immediate priorities, lack of pressure from different actors and others. Although explaining the reasons for limited progress in establishing a

comprehensive legal and regulatory framework for renewable energy in Georgia goes beyond the scope of this research, some key issues can be identified although limited in justification.

Structure

The thesis starts with a brief overview of the evolvement of the EU's energy *acquis* including respective primary and secondary sources of the EU law. This is followed by a more detailed analysis of the renewable energy legislation placing particular emphasis on the Renewable Directive 2009.

The next section explores the legislative and regulatory frameworks of several selected Member States – Germany, Ireland, the Netherlands and the United Kingdom. This is aimed to give more information on the measures put in place by these MSs to create favourable legal and regulatory environment for the promotion of renewable energy. The selection of these MSs does not have any purpose other than random examples, although the rationale behind the choice is as follows:

Germany – renewable energy (RE) sources have rapidly increased in importance in recent years, especially for the production of electric power. The reason for the strong increase in the use of renewable energy sources in Germany is to be found mainly in political decisions. A public legal and economic framework was set up to give impetus to RE on the market. The German Federal government has massively subsidized renewable energy technologies for many years, more than any other industrial nation thus far (Wengenmayr and Buhrke. 2008.1,5,6).

Ireland – Before the recent financial crisis, Ireland experienced substantial economic growth accompanied by commensurate growth in energy demand which meant high energy import dependence. (Eurostat. 2009. 42). Irish RE sources are among the best in Europe and can make a significant positive impact on energy security, greenhouse gases and the

economy. With the right market conditions and government support measures significant exploitation of these renewable resources can occur (Danyel Reiche. 2005.192.)

The Netherlands – the country possesses extensive natural gas reserves and can provide most of its own domestic demand for energy. Gas has a high importance in the Netherlands. However, there has been a shift also in focus toward sustainable energy development, predominantly biomass and wind. The topic of renewable energies is an important part of Green Party and the Social Democratic Party, but the missing political stability is one of the biggest barriers for green electricity in the Netherlands. Changing political priorities ruins investors' confidence. (Danyel Reiche. 2005.231-236, 241).

The UK – the United Kingdom is one of the EU's major producers of oil and gas. The UK was among the first to initiate market openings, which started already in the 1980. Renewable energy is stressed in the new policy framework, especially wind, tidal, and biomass but renewable are still small in the energy system (Eurostat. 2009. 98-100).

These MSs differ in terms of the structure of their energy systems and support to RE development, but one common trend can be identified: the level of progress in developing RE is closely linked with the ability of the governments to establish effective legislative and regulatory frameworks and elaborate viable RE policies.

Finally, the research looks at the EU-Georgia cooperation and commitments in the RE area as well as the legislative and regulatory initiatives undertaken by Georgia to support the RE development. Some reports on the progress achieved are also revised.

The research intentionally focuses on the RE sources in the electricity sector as currently it carries greater importance and relevance to the Georgian context. Nevertheless, the significance of RE in transport, heating and cooling and energy efficiency should not be underestimated.

The concluding part of the thesis presents the key findings and observations.

Methodology

The research methodology will be primarily based on comparative method which gives a wider knowledge of the possible range of solutions to legal problems, broadens the perception of the operation of a legal rule by seeing how it originated and currently operates within different systems, in either similar or different socio-economic contexts, gives an opportunity to study the interaction of different disciplines, and to relate these to the formation and operation of legal rules, provides a forum for the cross-fertilisation of experience, ideas and cultures (Peter De Cruz, 1999. 19).

The research will employ descriptive comparative law method to analyse variations between the laws of two or more countries. The comparison in this case has no other aim than that of furnishing information, and it is no concern of the person undertaking it to ascertain what use will be made of the result of his investigations. The research will also attempt to partly resort to applied comparative research method the distinguishing feature of which is that it does not consist of a mere description of the differences between the concepts, rules and institutions of the laws under examination, but probes more deeply into the matter (H.C. Gutteridge. 1971. 8-9).

Hypothesis and research questions

Hypothesis

The Partnership and Cooperation Agreement, which entered into force in 1999 is the centerpiece of the EU-Georgia relations. The PCA is a major document outlining the main areas of cooperation between the two parties. Article 56 of the PCA defines the principles for cooperation in the energy sector and provides for the development of hydroelectric and other renewable energy resources. Furthermore, the European Neighbourhood Action Plan, which is a political document defining the strategic objectives of the cooperation and aims to fulfill

the PCA provisions provides for the enhancement of cooperation in the field of energy. Namely, it includes *developing an action plan for enhancing the use of renewable energy, adopting legislation addressing renewable energy, reinforcing the institutions dealing with renewable energy sources and implementing a set of measures in this area (4.6.2).*

Furthermore, the Presidential Decree of 14 June 2001 reaffirmed Georgia's aspiration towards integration with the European Union and the need to harmonize legislation. The Decree underscored the requirement for the Georgian legislative framework to fully correspond to the EU internal market standards.

In addition, during his speech at the EPP Group meeting in Brussels on 19 April, 2011 the State Minister of Georgia on European and Euro-Atlantic Integration declared that Georgia's goal was to establish Georgia as the first large-scale renewable energy exporter to rest of Europe (http://eu-integration.gov.ge/index.php?que=eng/publications/P_S_P).

Considering these two key priorities defined by the country, harmonization with the EU legislation and utilizing the potential of renewable energy as well as the priorities stipulated by the PCA and ENP in the field of renewable energy, it is interesting to see if the right and adequate legislative and regulatory framework has been put in place to achieve these goals. Although some measures have been implemented, more needs to be done to accelerate the process of harmonization in the field of renewable energy.

Research questions

The main question of the research can be formulated as follows:

Do the current legislative and regulatory initiatives of Georgia for the development of renewable energy, especially in the electricity sector ensure the required level of harmonization with the respective EU renewable energy legislation?

In order to draw the conclusion, the following issues will be addressed also:

- How the energy, especially renewable energy is reflected in the sources of primary and secondary law of the EU;
- How the selected MSs – Germany, Ireland, the Netherlands and the UK are promoting renewable energy, particularly in the electricity sector through their legislative and regulatory systems;
- How renewable energy is reflected in the cooperation documents between the EU and Georgia;
- How Georgia's current laws and regulations promote renewable energy, focusing on the electricity sector;
- Is the existing framework sufficient for achieving greater harmonization with the EU renewable energy *acquis.*

Aim and provisional statements

The importance of energy issue has been rising on the EU's agenda. Being defined as lifeblood of the European society, the well-being of the latter depend on safe, secure, sustainable and affordable energy (www.europa.eu Energy 2020). The EU Energy Policy has received a major impetus since 1985, and covers a variety of policy items including the environment and deregulation. The role of the Commission has also been strengthening, for instance in linking energy and environment policies and encouragement of environmentally friendly sources of energy. (Jane Haaland Matlary.1997.1,6,13).

The EU has a highly developed and institutionalized system of policy-making which involves legislation over a wide range of sectors (Ian Bartle.2005.4). The remit of the EU energy policy is narrower, addressing the internal market and environmental aspects of energy (Wallace, Pollack, Young. 2010. 359).

This has been the case not only regarding the processes within the EU but the external dimension of the EU's energy policy as well. The development of extended internal market

legislation has given the EU an external competence over the matters regulated by the internal legislation. As examples of the EU's attempts to "export" its values and the key elements of its energy security externally in the energy sector and especially in regard with linking environment and energy we can name the EU Community Treaty. The general objective of the Energy Community is to create a stable regulatory and market framework to inter alia improve the environmental situation in relation with energy supply in the region. Chapter VI of the Energy Community legal framework is dedicated to renewable energy sources and energy efficiency, and Article 35 entitles the Energy Community to adopt measures to foster development in these areas (Energy Community Legal Framework. 21. www.energy-community.org). The main instrument of the Energy Community Treaty is the implementation of key parts of the EU *acquis* including renewable energy. Currently, Georgia holds an observer status but confirms to be in the process of approving and submitting a formal application to become Contracting Party. Another example is the Energy Charter Treaty ratified Georgia in 1995 (Energy Charter. www.encharter.org). One of the four areas of the Treaty is the promotion of energy efficiency, and it attempts to minimize the environmental impact of energy production and use. In addition, most bilateral agreements between the EU and Third Countries contain provisions related to energy including Eastern Partnership (Christopher Jones. 2010. 579, 581, 584, 589, 592).

Against this background, it acquires growing importance that Georgia enhances its efforts to move its legal and regulatory environment in renewable energy closer to the European values, standards and requirements. In order to achieve this, deeper understanding of the EU renewable energy legislation as well as experiences of MSs will be required. The government has already initiated some measures and committed itself to continue working in this direction. This paper aims to provide additional information for raising awareness on this issue and contributing towards making renewable energy an integral part of the Georgian energy policy and law.

Statement on language

The technical nature of the subject matter and the fact that the thesis is written by a non-native English speaker should be taken into account when assessing the language of the thesis.

Limitation

The thesis has some limitations.

The key challenge during the research work has been the availability of literature and other sources of information on RE laws and regulations. Thorough search was carried out to overcome this obstacle, and most of the books used during the research were obtained from outside Georgia. Particularly difficult was to acquire comprehensive analytical information and assessments of the RE legislation and developments pertaining Georgia. Mostly, international organizations produced some reports in this regard. Among other things, this could be attributed to the insufficient awareness and interest in the scientific and NGO sectors. However, it should also be noted that the research did not employ sampling, questionnaires, interviews or other similar methods, and primarily focused on desk research.

Due to the limited scope, the thesis places greater emphasis on the electricity sector while reviewing RE laws and regulations. Although equally important, RE in transport, heating and cooling is covered to a lesser extent.

In addition, overviews of laws and regulations given in thesis are not presented in great detail because of the vast information involved and the specific purpose of the thesis.

Overview of the EU's energy *acquis*

General aspects

Before reviewing how the EU's primary and secondary legal sources reflect the issue of energy, specifically renewable energy perhaps it would be underline several core features of the Community law.

The Community law, in contrast to the law of most Member States, has a specific objective in mind. An internal market is a cornerstone. The overall objective is achieved by applying certain principles and methods. These are specific to Community law, and distinguish it from national or international legal system. Community law is principle-oriented, not rule oriented; function- and not system oriented. Certain principles have to be developed into legal rules. This can be achieved either by secondary law, or by detailed Court practice. Clearly, principles of Community law should not stand in fundamental contradiction with Member State law, and vice-versa. Community law is not a coherent and comprehensive legal order. It focuses its attention selection on legal problems that come within its competence. It has developed some general principles, but does not match Member State law in its aim for completeness. (Norbert Reich. 2005. 5-6).

However, there are some areas where the Community has developed principles and rules of its own: environmental law is among these. In its early stages, environmental law featured as a corollary of internal market law. But with time, it has become a policy of its own. Another cause for the particular role of Community environmental law stems from its merger with international law and policy – the reason is simple, pollution does not stop at borders (Norbert Reich. 2005. 5-6).

As already mentioned in the research, SEA was a crucial point in the development of the Internal Energy Market and a significant step towards creating a common EU energy policy. Although primarily concerned with the reinforcement of the internal market, the energy sector

was included subsequently. The E- and G-Directives and the Regulations (2003/54/EC, 2003/55/EC ND 122/2003 respectively) on access conditions to electricity and gas networks were at the center of the attempt to accelerate the transition to an internal market in energy. This significantly changed the legal architecture of the European energy scene attracting growing attention from outside Europe. The actions taken by individual MSs were essential requiring not only transposition but full and proper implementation of the secondary law. P 1-2. The Directives had two principal aims: bring about full liberalisation by 2007 and more uniformity and coordination of national regulation. Interestingly, the new measures had a greater emphasis upon security of supply including a universal service requirement in electricity provision and on environmental issues. However, mainly they focused on the issues such as ensuring the system of Third Party Access (TPA) based on published tariffs, strengthening of National Regulatory Authorities (NRAs), different forms of unbundling (legal, functional, and accounting, cross-border trade, consumer protection etc (Peter Cameron. 2005. 11 – 28).

In addition to the internal market and the liberalisation process, between 2001 and 2006 a number of legal instruments came into force affecting, among other issues, the promotion of renewable energies, emissions trading, and energy efficiency (Roggenkamp, Redgwell, Del Guayo, Ronne. 2007. Foreword. Andris Piebalgs). To start with, the systematic support for renewables-base electricity through non-binding Community legislation dates back at least to 1988. The 1996 Electricity Directive included non-binding rules, Articles 8(3) and 11(3) allowing MSs to require the system operator to give priority to generating installations using renewable energy sources when dispatching. However, this was merely an option to consider. Also, the Directive's provisions on public service obligations (Article 3) provided some scope for national obligations relating to renewable energy to be imposed. By 1997, new regulatory measures and reforms were evident in the RE area. This included feed-in tariffs, quota systems, green certificates etc. The EU adopted framework legislation for the promotion of electricity generation from renewable sources in 2001 and the promotion of biofuels in 2003. Community rules relating to REs and "distributed" generation were included in subsequent directives relating to the internal electricity market and energy efficiency. The Directive 2001/77/EC on the promotion of electricity from renewable energy sources in the internal electricity market established a basis for the Community framework in this regard. It did not

attempt to harmonise the many support mechanisms but left it to the discretion of MSs. It instituted many reporting requirements *inter alia* for identifying best practice and for monitoring. The Directive required MSs to take "appropriate steps" to encourage greater consumption of electricity from RE sources, set national indicative targets, to guarantee the transmission and distribution of such electricity, without prejudice to the maintenance and reliability of the grid, to adopt a legal framework or require TSOs and DSOs to publish standard rules on technical adaptations, to provide any new producer with detailed estimates of connection costs, to set and publish rules on the sharing of costs. Another important feature of the Directive was implementation of a system guaranteeing the origin of electricity produce from renewable energy sources, mutual recognition of the guarantee of origin by MSs and specifying their distinctively different nature from a certificate of origin. Besides, the Directive provided that MSs had to evaluate their existing legislative and regulatory frameworks in regard with authorization procedures to reduce regulatory and non-regulatory barriers for green energy (Roggenkamp, Redgwell, Del Guayo, Ronne. 2007.372-381).

With the rise of the energy security and environmental concerns both internationally and within the EU, the work in the area of renewable energy and energy efficiency intensified.

By 2007 European citizens listed climate change and energy dependence as their top security concerns, above international terrorism. Energy policy required multi-faceted reforms within Europe itself, the development of renewable energy sources, reform of the internal EU energy market, but the need for a foreign-policy reassessment also occupied a prominent place in a series of new European strategy papers (Richard Youngs. 2009. 2-3).

The Commission's "road map" of early 2007 acknowledged "a policy failure" and revealed that previous efforts in the field of renewable energy were neither systematic nor satisfactory. In March 2007, the Council endorsed more the higher targets for renewable energy, including a specific target for biofuels. (Roggenkamp, Redgwell, Del Guayo, Ronne. 2007. 382).

Among the key landmark developments in the EU energy policy undoubtedly was the inclusion of the energy chapter in the Treaty on European Union and the Treaty on The Functioning of The European Union (Title XXI). The Union's policy on energy recognized the spirit of solidarity between the Member States, and listed the promotion of energy efficiency

and energy saving and the development of new and renewable sources of energy among its aims. However, it was also underlined that the Commission's measure to achieve the set objectives did not affect a Member State's right to determine the conditions of exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply, without prejudice to Article 192 (2)(c) (Official Journal of the European Union. 2010.C83).

The secondary EU legislation specifically concerning renewable energy and being currently in force can be summarized as follows:

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;

Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport ;

Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market (DG ENER www.europa.eu).

It is noteworthy to mention here the Directive 2009/72/EC of The European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market of electricity and repealing Directive 2003/54/EC. The Directive underlines the importance of a well-functioning internal market in electricity tod provide producers with the appropriate incentives for investing in new power generation, including in electricity from renewable energy sources. It provides support for the promotion of infant technologies by Member States through tendering for new capacity, including renewable energy, on the basis of published criteria. Furthermore, the Directive defines "renewable energy sources" meaning renewable non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases). The Directive reaffirms the 20% target set for the share of energy from renewable sources in the Community's gross final consumption of energy in 2020. IT

provides for giving priority to dispatching electricity from renewable energy and combined heat and power. It also underlines the importance of removing barriers that might prevent access for new market entrants and of electricity from renewable energy sources (Official Journal of the European Union. 2009.L 211/55). Once again, this point to the fact that the internal market in the electricity sector has been expanding its ambit to fully embrace RE.

In addition, the increasing body of different documents, such as communications, impact assessments, strategy papers, progress reports, roadmaps etc, has created greater interaction and possibility for expansion in the area of energy including renewable energy.

For example:

Green Paper: A European Strategy for Sustainable, Competitive and Secure Energy 2006 - called for Europe to act urgently to develop comprehensive European energy policy, and identified six key areas. It called for a long-term commitment to develop and install renewable energy. Importantly, it also underlined the need to solidify “common regulatory space” around Europe assisting its neighbours to develop trade, transit and environmental rules as well as market harmonization and integration (Green Paper. EC. 2006).

Renewable Energy Road Map: Renewable Energies in the 21st Century: Building a More Sustainable Future – according to the document, it was unlikely to reach the target of 12% for the contribution of renewable in overall EU energy consumption by 2010. However, it proposed to establish a mandatory (legally binding) target of 20% for renewable energy’s share of energy consumption in the EU by 2020. It highlighted uneven progress made by MSs to meet the targets, and called for the strengthening and expansion of the EU regulatory framework. (Road Map. 2007).

Communication of the Commission: An Energy Policy for Europe – called for the provision of a credible long term vision of the future of renewable energy in the EU and underlined the need for setting ambitious binding 20% target for 2020 (Communication. 2007).

Impact Assessment: Package of Implementation Measures for the EU's Objectives on Climate Change and Renewable Energy for 2020 – the document identified the specific problem drivers related to renewable energy sources and provided a comprehensive analysis of the progress achieved as well as steps forward. (Commission. 2008).

Communication from the Commission to the Council and the European Parliament: The Renewable Energy Progress Report – the document saw the potential of renewable energy as a vehicle for combating climate change, improving security and reliability of energy supply and a welcome source of wealth and job creation. It stressed the need for a stronger legal framework and to accelerate the growth achieved by MSs in this area (Commission. 2009 http://eur-lex.europa.eu/).

Before moving to the analysis of the cornerstone of the EU's renewable energy legislation, the Directive on Renewable Energy of 2009, the research provides a brief overview of the concept of renewable energy and its key aspects.

The concept of renewables

Renewables can be one of the possible solutions to the various problems face by modern energy systems. Broadly speaking, they are fuels whose use today does not reduce the supply for tomorrow. It can include wind energy, solar energy, hydro-power, some forms of biomass, tidal and wave power and geothermal. The renewable energy technologies, especially in the electricity production vary as regards the level of maturity that they have attained thus far. Generally, renewable are cleaner and less environmentally damaging than fossil fuel. Due to these characteristics and their sustainable nature, renewable have public support which has been demonstrated by various public polls. However, it should be noted that together with these positive effects, renewable are not without flaws: usually, they are costly. Renewable sources of energy are not deprived of some degree of uneven distribution thus they can reduce but not eliminate the problem of access and availability of energy resources. Intermittent nature of some renewables, especially wind and solar can be an issue

requiring robust system adjustments to deal with such intermittency. What is also important to note is the possible environmental damage caused by big hydropower dams meaning that the big hydropower sometimes is not fully environmentally-friendly. Some people point out intrusive nature and visual and noise pollution associated with wind farms (Paul Komor.2004. 4-9).

One critical feature of renewable energy is that it will be difficult to develop it without implementing adequate policies to foster this process. Those policies should focus not on the question of whether renewable energy technologies work, but rather tackle the questions of costs, social value, and market efficiency. As regards electricity systems, most of them in the industrialized world used to be controlled by government and heavily regulated. The EU made a considerable effort to make its MSs to open-up their electricity markets, but this per se does not necessarily bring immediate benefits to renewable energy sources. There are some pros and cons, and in order to cushion unfavourable effects proper policies as well as legal and regulatory frameworks are required. (Paul Komor.2004. 11-15). It is also very important to point out that finding the optimal mix of policies for promoting renewable energy requires clear articulation of concrete goals that are aimed to be achieved. (Paul Komor.2004. 26).

When it comes to the promotion of renewable energy, one of the key elements of effective legal and regulatory systems could be incentives used for this purpose. As the scope of interest of this research is renewable energy in the electricity sector, the focus is placed on the incentives in this area. Although different countries resort to different kind of such initiatives, some common characteristics can be outlined. Firstly, they can be divided into operating support incentives and investment support (London Research International. 2008.5).

The first category includes:

Feed-in Tariffs: electricity generation incentive in the form of a fixed price and guaranteed buyer for renewable electricity. Normally, price levels and duration of FITs vary and are specific to the renewable technology employed.

Fixed and Variable Premiums: focused on the premium incentive or the green bonus scheme. In this case, generators sell their power on wholesale market without the network operator

purchase obligation. The premium system entitles generators to receive a supplementary amount or a “premium” which can be fixed or variable.

Tradable Green Certificates: for every MWh sold or supplied, one TGC is awarded to the relevant renewable electricity generator. This TGC can be further sold, though the market or directly.

Investment support: financial assistance mainly during initial capital investment in a renewable electricity generating project. It could be capital grant, tax reduction or exemption (London Research International. 2008.6).

Now we turn our attention to the milestone of the EU renewable energy legislation – the 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.

The Directive on Renewable Energy 2009

The review starts with introducing the definition of energy from renewable sources as defined by the Directive. The clarity in terms of definition is particularly important, considered that it has certain implications for statistical reporting. According to Article 2 point a) of the Directive, energy from renewable sources are: “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.” This definition stems from the renewable electricity Directive, but notably adds “aerothermal” and “hydrothermal” energy as well as replacing “wave” and “tidal” with “ocean” energy. The extension of the definition is related to the extension of the scope of the EU legislation to cover heat as well (Hodson, Jones, van Steen.2010.28-32). The next important, and perhaps the most striking feature of the directive is the introduction of the legally binding overall target for renewable energy by 2020 (Hodson, Jones, van Steen. 2010.69). However, arriving at such decision did not occur without extensive deliberations. The Directive imposes the mandatory 20% share of energy

from renewable sources in the Community's gross final consumption of energy and 10% share of energy from renewable sources in each Member State's transport energy consumption by 2020. (Directive 2009/28/EC. 2009). These targets meant proper calculation therefore it is not surprising that it raised the question of the accounting method to be used, particularly in the context of "primary" versus "final" energy consumption. The accounting methods were assessed by the Commission in the Impact Assessment in a detailed manner. The analysis concluded in favour of the option of accounting renewable energy in final energy justifying that such method would overweigh the disadvantages of other methods (Hodson, Jones, van Steen.2010.50-52). Furthermore, much debate took place about the sectoral targets versus an overall renewable energy target. The Council and the Parliament had differing views on this matter, the former favouring Member States to set their own target, while the latter expressed preference for setting separate binding sectoral target for electricity, transport and heating and cooling. During the negotiations, the target for renewable energy in transport was even more contentious. In this case, both the Parliament and the Council stated that the binding transport target would only be acceptable in combination with strong biofuel sustainability criteria. In the end, the only binding targets for Member States contained in the legislation were the overall share of renewable energy in 2020 and the 10% target for the transport sector. Although the secrtoral targets were left to the discretion of MSs to set, the Commission required specifying sectoral targets, including sectoral trajectories in the National Action Plans of Member States (Hodson, Jones, van Steen. 2010. 53-55).

Sharing the targets between Member States was also a challenging undertaking for which the Commission employed two possible scenarios: sharing the effort according to renewable energy potential and effort-sharing based on a flat rate/GDP per capita. After the careful assessment, the second method was preferred and used for defining the respective shares of Member States (for the Member States covered by this research, those targets are as follows: Germany 18%, Ireland 16%, the Netherlands 14% and the UK 15% meaning 12%, 13%, 12% and 14% increases respectively) (Hodson, Jones, van Steen. 2010.55-60).

The language of the Directive regarding the enforcement also strengthened. If the previous electricity Directive referred to "encouraging" the use of renewable energy, the new Directive explicitly spoke of Member States to "ensure" that this goal was achieved (Hodson, Jones, van Steen.2010.64).

Another core element of the new Directive was the requirement of developing and submitting National Action Plan for each Member State. These plans were particularly important for setting sectoral targets. The template for the plan was provided by the Directive, and covered a wide range of information to be submitted. The Directive also provided that the Commission "may issues a recommendation" in response to a national renewable energy plan, however there was no clear obligation on the Commission to communicate or make public its evaluation, nor did it prevent the Commission from taking infringement proceedings or other measures in relation to NREAPs (Hodson, Jones, van Steen.2010.65-68).

Thus, the obligation on Member States to introduce effectively designed measures to increase the share of renewable energy, as required by the Directive and the requirements related to the National Renewable Energy Action Plans will possibly allow more stringent enforcement of the Directive compared to the previous one (Hodson, Jones, van Steen. 2010.69).

The next innovative feature of the new Directive is the creation of voluntary cooperation mechanisms. This includes "statistical transfers" between Member States whereby one MS agrees to a "virtual" transfer of a certain quantity of renewable energy to the statistics of the other. In this case, the energy itself is not physically exchanged (Hodson, Jones, van Steen. 2010.85). Another cooperation mechanism introduced is "joint projects" between MSs, a variation of the flexibility offered by statistical transfers but in this case allowing industry – private operators to participate (Hodson, Jones, van Steen. 2010.87-88).The third mechanism is "joint support schemes", another form of potential cooperation between MSs by joining ht5eir support schemes (e.g. a common feed-in tariff or green certificate/obligation regime) (Hodson, Jones, van Steen.2010.91). The next interesting novelty introduced by the Directive in this area is "joint projects between Member States and third countries" thus creating a framework for the extension of cooperation to third countries (Hodson, Jones, van Steen. 2010.93). What is also important to mention in this context is that the Directive promotes the incorporation of the directive into the *acquis* of the energy Community treaty. In all the above mentioned processes, the Commission remains actively informed about the exchanges and other developments. Another innovative approach introduced by the Directive to foster transparency and exchange of information is the establishment of a "transparency platform"

(now can access at: http://ec.europa.eu/energy/renewables/transparency_platform) (Hodson, Jones, van Steen. 2010.100-104).

One more aspect of the significance of the Renewable Energy Directive is that it improves on the existing guarantee of origin regime by extending it to heating and cooling, standardizing the reporting information, outlawing double counting and addressing consumer concerns regarding support to extra renewable production capacity (Hodson, Jones, van Steen. 2010.113).

As another important side of the achievement of the renewable energy targets, appropriate enabling frameworks will be required. This touches upon a variety of issues including revision and simplification of administrative rules, provision of adequate information to all renewable energy actors at local, regional and national levels etc. For this reason, the Directive calls upon effective administrative reforms in MSs in permitting systems, building regulations, authorization and certification and licensing as well as implementation of training schemes for installers. If implemented, these provisions should facilitate a regulatory framework which removes non-market barriers and lowers costs for business and consumers alike (Hodson, Jones, van Steen. 2010.115-141).

The Directive pays particular attention to the importance of energy infrastructure for reaching the 2020 targets. The Renewable Energy Directive reinforces the requirements of the Renewable Electricity Directive especially as regards the development of electricity infrastructure (connection of new generating installations using renewable energy sources and their use as much as possible). It also covers the sharing and bearing of the costs of grid connections and reinforcements requiring those rules at national level to be regularly reviewed and published. As regards tariffs, the Directive calls upon the use of “non-discriminatory” and “realisable” tariffs. In overall, Article 16 of the Directive reinforces the provisions of the Renewable Electricity Directive thus creating important new requirements for Member States and energy infrastructure operators in this area (Hodson, Jones, van Steen. 2010.143-172).

The contents analysis will stop here as the renewable energy in transport and heating and cooling is not the primary interest of this research. Nevertheless, it would be interesting to see

what reaction has the Directive elicited so far and how its potential impact has been assessed.

The process of implementation of the Renewable Energy Directive has started, but the starting point in MS is uneven. Some are doing quite well, while others are stagnating and some even moving in the wrong directions. Sector-wise, electricity is doing better compared to the other sectors. Some progress has been achieved but much more is desired. Such diverging progress among Member States can be explained by the fact that some have been leading active renewable energy policies for a quite long period of time, but the goal of the Directive is to make every Member State to move and make efforts to meet the common goal. Although the submission of National Action Plans finished, much work remains to be done. Flexibility between MSs require more careful consideration, MSs will need additional efforts in regard with their indicative targets and indicative trajectories (Glachant, Ahne, de Hauteclocque.2011.128-129).

The support schemes operated by Member States also play a critical role. Those schemes are quite different ranging from feed-in schemes to quota obligations or green certificates. In the long term, harmonization would be good but at the current stage the Commission prefers to focus more on the convergences of those schemes rather than full harmonization. In addition, substantial investment will be needed (around 70 billion Euros per year) for financing the growth of renewable energy. Effective use of cooperation schemes is also considered important including cooperation with third countries (Glachant, Ahne, de Hauteclocque. 2011. 130-132).

The EU might have the best legal framework in the world developed for renewable energy but it might as well stay on paper if no effective implementation through viable legal and regulatory environment in Member States is created (Glachant, Ahne, de Hauteclocque. 2011 136-137).

What will happen next in the EU's renewable Energy sector? Considered that this is still "work in progress" it might be early to talk about the success or failure in meeting the set targets, however one thing is clear: the Commission will carefully monitor the process as continue focusing on this area but strong commitment from the Member States will also be decisive in

achieving considerable success. The Directive on Renewable Energy and the new legal framework is a solid basis making the progress towards 2020 but a lot will depend on whether Member States will fully implement their national plans (Glachant, Ahne, de Hauteclocque.2011.134).

Experiences of the Member States

It is obvious that Member States have created different approaches and national environments to promote renewable energy. Against this background, in the following section we take a closer look at how the selected Member States are dealing with renewable energy focusing on the electricity sector.

Germany:

RE is a key focus in Germany's energy and climate policy, and respective the ambitions run high in terms of increasing the share of renewables. The primary incentive scheme implemented nationally is the electricity sector is a feed-in tariff. The success of the German FIT system has given example to some other MSs to move in the same direction. Germany's renewable electricity sector is one of the most mature worldwide therefore institutional investors readily offer investment capital for renewable electricity generation projects. Government also provides dedicated funds for some RE technologies (London Research International. 2008. 32-34).

A central condition for the market success of renewable energy in the electricity is the Renewable Energy Sources Act – EEG. The initial growth of for instance wind energy was due to opening of the electricity market and the availability of high feed-in tariffs in combination with soft loans. The EEG provides long-term security for investors and operators. The amended EEG of 2004 improved the conditions further introducing a more complicated

tariff system differentiating better among various sources and technologies (Danyel Reiche. 2005.155).

The Government remains committed to fostering renewable energy development. The country is perceived to meet its target, however some challenges exist. The complete restructuring of the electricity system will require adaptation of the physical infrastructure as well as introduction of new regulations to account for much more volatile and decentralized supply of electricity in the future (Green European Foundation 2010.48).

Renewable Energy Resources Act adopted in 2000 (revised in 2009) is the central piece of legislation in the German electricity sector. It guarantees immediate and priority connection to generators of electricity from renewable energy and obligates grid operators to purchase, transmit and distribute such electricity. For this, it sets technology-specific, feed-in tariffs, and defines how the costs for network optimization should be assigned. The ordinance on sustainability of biomass-based electricity was also issued for the electricity sector. In addition, the German government included several initiatives to promote renewable energy in its National Action Plan, specifically the energy market law establishing a framework for the development of the electricity network and the law for the development of power lines (Green European Foundation.2010.47).

The decisive factor for the success of German renewable electricity is and will continue to be the government's persistent commitment to promote the development of renewable energy in the electricity sector above and beyond 2020. A set of comprehensive measures including new laws and regulations are planned to be elaborated and introduced to achieve this goal (Green European Foundation.2010.48-49). Several studies confirm the feasibility of the government's plans for renewable energy in the electricity sector (Green European Foundation.2010.50).

One of the recent landmark decision made by the German government in the energy sector solidifies its determination to support renewable energy development. In May 2011, the government announced its plans to phase out all nuclear reactors by 2022 and expand the use of renewable resources (http://www.nytimes.com/2011/05/31/world/europe/31germany.html).

The long term commitment of the German policy-makers will be the main determinant of the future success of the country's renewable energy setting an example for the others.

Ireland:

Irish renewable energy sources are among the best in Europe, especially wind energy resources. With the right market conditions and government support measures the exploitation of those sources can be significantly enhanced (Danyel Reiche. 2005.192).

In 2006, the government introduced a feed-in tariff system called the Renewable Energy Feed-in Tariff which replace previously existing tender scheme, the Alternative Energy Requirement. As regards the incentive support initiatives, the government has a number of programmes to promote investment in RE. This includes a capital grants programme as well as a series of tax incentives (London Research International. 2008.42).

National policy to promote renewable energy technologies is handled centrally by Government. Sustainable Energy Ireland is the country's national energy agency tasked with assisting the development of sustainable energy (Dorte Fouquet and Christopher Jones. 2011.1).

The Electricity Regulation Act of 1999 which preceded the Directive 2001/77/EC includes legal provisions necessary to permit and support the development of the renewable energy sector. Detailed rules applicable to the renewable energy sector are found in decisions/publications of competent authorities (Dorte Fouquet and Christopher Jones. 2011.5,10).

National support programmes in the electricity market have focused on wind-powered plants, small-scale hydro and biomass. The Irish electricity market is increasingly liberalized, and typical prices are set by market payers in the open market. Ireland encourages commercial scale renewable energy projects across several technologies producing electricity. A tax relief measure and the renewable feed-in tariff have been introduced to assist project developers (Dorte Fouquet and Christopher Jones. 2011.8,11,18).

Ireland was the last EU country to use tendering as the main scheme to promote renewable energy development. After six rounds of the Alternative Energy Requirement tender, the government announced about the change for a feed-in tariff system in 2005. New project for electricity from renewable energy can apply for the Renewable Energy Feed-in Tariff from 2006 onwards for over 15 years. Ireland will commit substantial efforts to develop its wind and ocean power potential. In Ireland there is no real voluntary market for renewable electricity (Energy Country Profiles.2008.75-76).

According to the Government's White Paper, the Renewable Energy Feed-in Tariff remains the key policy instrument for supporting electricity from renewable energy including hydro, onshore wind and biomass (Energy Country Profiles.2009.124 2009).

According to the National Renewable Energy Action Plan, the development of renewable energy is the key element of the Irish energy policy. The Irish government's commitment to speed up the process is reflected in its energy policy documents. It should be specifically pointed out that the government recognizes the significant contribution not only of large scale generation but highlights the importance of creating a robust framework to support the development of vibrant microgeneration sector as a key component of building societal acceptance of energy infrastructure and ownership of national targets. It is also highlighted that the microgeneration sector has the potential to generate employment and ensure the participation of a wider community (National Renewable Energy Action Plan.Ireland.5-6).

The Netherlands:

The Dutch power market underwent gradual liberalization and has been fully open since 2004 (EUROSTAT.2009.74). The Electricity Act 1998 created the framework for the liberalization of the market *inter alia* established the Dutch electricity regulator, NMA. Legislation concerning renewable energy is not bundled into one act and relatively few regulations deal with the matter explicitly. The Electricity Act also includes provisions on the supply of renewable electricity, in particular certification of renewable electricity (Dorte Fouquet and Christopher Jones. 2011.15-16). Three policy documents were produced in 2008 in the energy sector in

the Netherlands. Renewable energy has been identified as an important aspect in all of them (Dorte Fouquet and Christopher Jones. 2011.4).

Institutionally, the main administrative responsibility for energy policy lies with the Ministry of Economic Affairs which has a renewable energy unit within its structure (Danyel Reiche. 2005.234).

The main incentive system for renewable electricity development in the Netherlands is the Stimulation of Sustainable Energy, a variable premium introduced in 2008 (London Research International. 2008.56).

The country needs to focus on the improvement of planning permission to give greater incentive to the development of renewable energy sources. Besides, an integral government-backed long-term vision or roadmap of the electricity sector is lacking, and this coupled with unstable and frequently changing financial incentives might lead to uncertainty in the market resulting in the postponement of investments (Green European Foundation. 2010. 60-61). But the high level of environmental consciousness and public awareness in the Netherlands could be a precondition for further success in developing renewable energy contributing to the creation of higher demand for green electricity (Danyel Reiche. 2005.243).

It is also worthy to note that the green market in the Netherlands started in 1995, and green sales grew quickly so that by 2000, about 3.5 percent of Dutch households were resorting to green electricity for their home use (Paul Komor.2004.109).

Concurrent restructuring of the electricity market had its effect on green electricity also, and the important feature was that residential consumers were given electricity choice- but for green product only (Paul Komor.2004.109). This caused abundant innovative marketing offers for green electricity, and at one point some Dutch green suppliers stopped marketing because they could not fully meet the demand for green electricity (Paul Komor.2004.110).

There were reasons for the successful take off of the Dutch green electricity market, green electricity costing same as fossil-based electricity, the green market opened first thus creating completion ahead, Dutch companies used creative marketing techniques to promote green

electricity and the Dutch government adopted aggressive policies to support renewable electricity (Paul Komor.2004.110).

However, there were certain constraints such as local planning permits, insufficient generation of new green electricity etc (Paul Komor.2004.114). But much will depend on the stability and consistency of policy initiatives to promote renewable energy resources for the Dutch green electricity to succeed.

The UK:

The main legislation in the UK that provided a wide definition for RES was the Utilities Act of 2000, and the competent authorities were left with the decision on eligible resources for Renewables Obligation (Danyel Reiche. 2005.295).

The UK was among the first to initiate market opening which started already in the 1980 (EUROSTAT.2005.99). Most of the policy support initiatives for renewable energy have concentrated on electricity (Dorte Fouquet and Christopher Jones.2011.2).

The UK's energy policy publication of 2003, Energy White Paper was seen to contain some potentially conflicting goals such as promoting competition, on one hand and promoting new, more expensive and riskier renewable technologies, on the other hand. However, the government claimed it would manage to balance the goals to complement them (Dorte Fouquet and Christopher Jones.2011.4).

The UK uses a tradable green certificate scheme, the Renewables Obligation, as its primary renewable electricity support mechanism. If a supplier is short of the required Renewable Obligation quota he can pay the regulator a buyout price. This system was criticized for its disproportionate support for established technologies with low generation costs over emerging renewable electricity generating technologies. In order to rectify this, the Government proposed to introduce "banding" of the Renewables Obligation. In addition, the Government utilizes different investment support incentives for the development of renewable

energy. Such incentives include targeted financing programmes, special lease offers, particularly for offshore wind farms etc (London Research International.2008. 82-83).

In April 2010, feed-in tariffs were introduced for small scale renewable generation (up to 5 MW). This is aimed to help the development of small scale renewable projects which could not be guaranteed under the Renewables Obligations. The tariff will differ by type and scale (Dorte Fouquet and Christopher Jones.2011.17).

Another challenge faced in the process of renewable energy development is planning arrangements and access to transmission networks. The permission has been particularly problematic due to the complicated process. Offshore wind is anticipated to play increasingly important role in the renewable energy picture of the UK, but this will require adequate development of the grid capacity (Dorte Fouquet and Christopher Jones.2011.19-20).

The UK has rich renewable energy resources, however the country has not done well in ensuring that enabling, or supporting, system requirements are in place, for instance, to provide access to networks, improve planning, or encourage investment. Renewable energies require more than subsidies to develop (Dorte Fouquet and Christopher Jones.2011.1). Perhaps, the new shift in the policy approach and greater focus on differentiating between renewable energy sources could lead to greater progress in utilizing the renewable potential effectively.

It is particularly interesting for the Georgian context to dwell on the example of the UK's experience in developing the renewable market as the UK was among the pioneers to open its electricity market. The opening process started in 1980s with the Electricity Act of 1989 dividing the UK's electricity system for sale and continued with full scale opening. (Paul Komor.2004.72).

However, green electricity products in the UK have not gained great popularity. At first glance, all the necessary components were there: robustly competitive electricity market switching possibilities, new green providers as market entrants, aggressive national renewable goal and policies to promote renewables, enough renewable resources to supply the electricity market. Nevertheless, these did not prove sufficient for the renewable market to prosper (Paul Komor.2004.82).

One of reasons for this was the privatization process heavily focused on price and cost reduction as the main outcome of the economically efficient market as result of opening. Besides, the government efforts to educate consumers about the choice depicted price as the main determinant for choosing a supplier (Paul Komor.2004.85). This, of course was not conducive to making decisions in favour of green electricity by customers. Had other variables such as greenness of supply, power quality, price, dependability of supply etc introduced in combination, it would have helped more green electricity retailers to compete more successfully (Paul Komor.2004.86).

Another reasons was the lack of motivation among default providers as a) coming from the monopolistic market, their mindset did not prove to be market-oriented enough b) some of them considered green market too small for substantial investment c) some of them had concerns over insufficient green electricity to support a large green market (Paul Komor.2004.86-87).

The third reason was “policy chaos” in green electricity with three major policy initiatives, the Climate Change Levy, the New Electricity Trading Arrangements, and the Renewable Obligation. These pro-renewable policies struggled to bring the desired effect causing more problems by increasing uncertainty, which led to increased perceived risk meaning reduced investment and market activity (Paul Komor.2004.87).

Analysing the above mentioned, one conclusion can be drawn: relatively slow start of the UK’s green electricity market was primarily due to the lack of smart marketing from the private sector and the policy instability from the government (Paul Komor.2004.90).

EU-Georgia cooperation in renewable energy

The collapse of the Soviet Union, a major shift in the state of affairs in the EU’s immediate vicinity significantly changed the prospects and mode of the EU’s relationships with its newly emerged neighbours. Among other things, it meant elaborating new policy instruments for

engagement with those states which, to a greater or lesser extent, shaped the future of both the EU and its new partners.

In the history of the EU-Georgia cooperation, the opening chapter was the Partnership and Cooperation Agreement (PCA) signed in 1999, and is the prime document to regulate bilateral relations between the two entities. Title VI of PCA, Economic Cooperation outlines the areas of such cooperation Article 45 (3) specifically referring to the cooperation in the energy and environmental protection areas. Furthermore, Article 56 dedicated to Energy defines the main principles for the energy cooperation being market economy and the European Energy Charter. The specific areas that are listed in the Article 56 comprise *inter alia* improvement of energy supply, including security of supply in an economic and environmentally sound manner, promotion of energy saving and energy efficiency and implementation of Energy Charter Protocol on Energy Efficiency and related environmental aspects and **development of hydroelectric and other renewable energy resources** (Official Journal of the European Communities. 1999. www.eeas.europa.eu). As we see, the development of renewable energy sources has been a part of the EU-Georgia cooperation framework from the very origins of this cooperation.

European Neighbourhood Policy County Paper for Georgia produced in 2005, when this policy instrument of the EU was extended to Georgia, provides for continuation of the cooperation in the energy sector reaffirming Georgia's wish to increase, beyond hydropower, the use of renewable energy sources (notably biomass, geothermal but also wind and solar) (ENP. Country Report Georgia. The development of ENP Action Plan was the next step in the process to define a joint agenda for political and economic reforms by setting short- and mid-term priorities. The ENP AP again defines energy as one of the areas of strategic cooperation. Energy efficiency and the use of renewable energy sources comes under the sectoral heading of energy and includes the following measures: take steps to develop a plan, including a financial plan for improving energy efficiency and enhancing the use of renewable energy; adopt legislation addressing energy efficiency and renewable energy; reinforce the institutions dealing with energy efficiency and renewable energy sources; implement a set of measures in this area. This meant that from that moment onwards, Georgia's progress in

renewable energy development would be measured against those targets (EU/Georgia Action Plan.2006. www.eeas.europa.eu).

The next milestone in the EU-Georgia cooperation, the Eastern Partnership, also contains a chapter on the energy security. And this does not come as a surprise, because the document was signed in 2008 when the energy security issue was high on the agenda of both parties. Namely, the EaP strove to accelerate the harmonization of partners' energy policies and legislation with the EU practice and *acquies,* inter alia, in the area of electricity, gas, oil, renewables and energy efficiency. In addition, the flagship initiatives propose by the EaP included energy efficiency and renewable energy sources as well (Eastern Partnership. 2008. www.eeas.europa.eu).

Going further, the European Neighbourhood Partnership Instrument Country Strategy Paper for Georgia reaffirms the EU intends to continue cooperation with Georgia within the timeframe of 2007-2013. The support will include, among other things, for promoting new or renewable energy in particular at local level and harmonizing the energy-related legal/regulatory framework with that of the EU (Country Strategy Paper. www. ec.europa.eu).

Besides, there are Cooperation Reports produced by the EU Delegation to Georgia. The Cooperation Report 2003 for Georgia is silent on the renewable energy per se, although does contain some information on the support regarding the development of hydro potential (EC Delegation. 2003. www.eeas.europa.eu). Similar Cooperation Report for 2007 states that the growing internal energy consumption would force the Georgian authorities to develop local, resources (oil, gas, renewable including hydropower) (EC Delegation. 2005. www.eeas.europa.eu).

Such explicit inclusion of the renewable energy issue in all main cooperation documents between the EU and Georgia is indicative of at least the EU's interest to enhance this cooperation area. However, it is equally interesting to see if Georgia has responded with the similar enthusiasm and if the adequate legal and regulatory environment has been created.

For this, let's firstly take a look at the Commission's reports on the progress made by Georgia in meeting its commitments vis-à-vis the EU.

Progress Report for Georgia on the implementation of the European Neighbourhood Policy 2007: the report underlines the energy strategy document "Main Directions of State Policy in the Power Sector" adopted by the Parliament in 2007. The main objective of the Strategy is to satisfy electricity demand by *inter alia* relying on the hydropower potential. Other elements of the strategy concern the electricity market opening and the promotion of energy efficiency and the use of renewable energy sources. Importantly, that year amended the regulations on the wholesale electricity market, thereby giving priority to small scale power plants. The Law on Electricity and Gas was amended to promote the use of energy sources including small hydro. Import/export licenses in the energy sector were abolished; construction and rehabilitation network and power plants, including hydro continued as well as the privatization of hydro plants and distribution. The country was granted an observer status to the Energy Community. However, in conclusion the report states that considerable efforts are need to enhance the use of renewable energy resources (Progress Report Georgia 2007. EC.2008 www. ec.europa.eu).

Progress Report for Georgia on the implementation of the European Neighbourhood Policy 2008: refers to the work started by the regulator to develop a new electricity tariff methodology and measures to promote the use of renewable energy sources. In addition, the significance of the State Programme for Renewable Energy 2008 adopted by the Government in 2008 is also acknowledged. The report underlines the preparations started towards a law on energy efficiency and renewable energy, but in the same paragraphs emphasizes the need to enhance efforts for making greater progress on the use of the renewable energy sources, as stipulated by the Action Plan (Progress Report Georgia 2008. EC.2009. www. ec.europa.eu).

Progress Report for Georgia on the implementation of the European Neighbourhood Policy 2009: gives information on the country's continued efforts in rehabilitation of existing and construction of new hydro plants as well as strengthening of electricity network. Adoption of legislation in the energy sector is also noted to converge with the EU's internal energy market rules. As the report says, Georgia continued developing small hydro plants based on its 2008 state programme on renewable energy. But, the report points out that no progress was achieved in relation to the development of the draft law on the energy efficiency and

renewable energy. A draft building code did not advance. And again, the need for enhanced efforts was underlined to progress the use of renewable energy sources, pursuant to the Action Plan (Progress Report Georgia 2009. EC.2010. www. ec.europa.eu).

Country Report for Georgia on the implementation of the European Neighbourhood Policy 2010: the document reports on the study initiated by Georgia for becoming a member of the European Energy Community. Additional amendments were made to the Law on Electricity and Gas with regard to third party access and reserved capacity. The large scale investment programme for the rehabilitation and construction of hydro plants and networks continued. As an important development in 2010 in the energy sector, the report highlights the EU-supported conference on Covenant of Mayor conducted in Tbilisi in 2010 with the aim to promote energy efficiency and the use of renewable energy at the local level (Country Report Georgia 2010. EC.2011. www. ec.europa.eu).

Report on the Implementation of the European Neighbourhood Policy in 2010. Eastern Partnership: reporting on the platform 3 Energy security, the document states that the platform allowed the establishment of a dialogue between stakeholders on renewable energy. Support available under the INOGATE programme and the role of municipalities, including in the context of the Covenant of Mayors is also mentioned. Furthermore, the document reports on the flagship initiative launched as part of the Regional Electricity Markets, Energy Efficiency and Renewable Energy Sources (Report on Eastern Partnership in 2010.EC. 2011. www. ec.europa.eu).

Now, with this information in hand, it is interesting to analyse how these developments and initiatives have related to the substance of the Georgian laws and regulations to promote the use of renewable energy resources.

With this in mind, the next section will provide an overview of the pertinent Georgian laws having impact on the renewable energy sector, will briefly speak about the regulatory and policy outlines and highlight some independent reports on the progress and issues in the RE area in Georgia.

Renewable energy in Georgia – laws and regulations

This discussion is premised on the fact that the Georgian energy system has undergone dramatic changes during the last 10 years. A range of sweeping reforms have been implemented to turn the command economy dominant sector into the one based on the principles of market economy. The transition process is still ongoing, but considerable success has been already achieved in certain areas. The transformation was particularly impressive in the electricity sector where the point of departure was the virtually insolvent sector with grossly malfunctioning grid.

Institutionally, the following actors constitute the core of the current structure of the industry:

- Ministry of Energy and Natural Resources of Georgia (MoENRG): the main policy maker in the industry. It is worthy to note that the Law on Electricity and Gas of Georgia removed the previously existing "entrepreneurial" function from the Ministry which was a major conceptual move from the heavy control mode of operation. According to the mission statement of MoENRG, development of hydro resources to fully meet the internal demand and the alternative sources of energy are listed among the priority areas (www.minenergy.gov.ge);

Structurally, MoE has legal, energy, investment, international relations and other departments. While legal department is looking at the legal aspects of energy industry and supports legislative restructuring and development, investment department is charged with attracting investments in the sector and revision of various investment proposals. Some of the key functions of the departments for international relations and energy are particularly relevant here, namely the former dealing with integration with the EU in the energy sector and environmental aspects of different projects, and latter tasked with elaborating recommendations for effective use of renewable and alternative energy sources.

- Georgian National Energy and Water Supply Regulatory Commission (GNEWSRC): an independent regulator tasked to regulate the energy sector including licensing, tariff setting, arbitrating disputes between the sector entities etc. In regard with renewable energy, the statute mandates GNEWSRC to promote the development and use of hydro and other renewable, alternative resources (www.gnerc.org);
- Electric System Commercial Operator (ESCO): as defined by the Electricity Market Rules, ESCO is tasked with purchase and selling of balancing power, trade of guaranteed capacity, monitoring of wholesale metering etc. Most pertinent to renewable energy, ESCO is tasked to facilitate construction of new power plants through securing contracts with those newly built generators and/or small power plants whose power is subject to full or partial obligatory purchase as defined by the Law (www.esco.ge).

In the electricity sector, there is also a system operator (transmission and dispatch) as well as generators, distribution companies and direct customers.

Notably, in 2006 the Georgian electricity market moved to the system of bilateral contracts for electricity trade, and the eligible customers of the market are entitled to buy and sell power through direct contracts.

Although some aspects of promoting renewable energy is reflected in the above mentioned functions of the respective agencies, currently there is no dedicated agency in Georgia established to deal exclusively with renewable energy issues (however, some plans to set up such agency might be under consideration).

As regards the legal framework, the core pieces of legislation concerning the electricity sector are:

- The Law of Georgia on Electricity and Natural Gas of 1997: the aim of the Law is *inter alia* to facilitate the primary use of local hydro, other renewable, alternative sources.

It is important to note that the amendment to include this particular provision in the Law was made on 1 September 2006 meaning that the Energy Law as adopted in 1997 did not envisage such preferential treatment of local hydro, renewable and alternative sources.

In addition, the Law defines the concept of “Deregulation” which entitles small generation plants to operate without requiring licensing and tariff setting.

From the point of view of renewable energy, it is also interesting to note that the Law gives the definition of “small power stations” meaning a power station with maximum installed capacity of 13 MW. This provision was added to the Law in 2008.

Among other functions, the Law tasks the Ministry to create and develop legislative and normative framework in the sphere of energy and to facilitate expansion of the exploration of energy resources, prioritize the use of renewable (alternative) energy sources and promote measures aimed at energy efficiency. Furthermore, it entitles the Ministry take decision on full deregulation or partial deregulation in accordance with the priorities of the state policy on energy.

In the context of promoting new generation capacity, another important amendment was made to the Law in 2008. Namely, a new provision was added obliging ESCO to sign direct power purchase agreement with the new generate on the conditions agreed upon between the Government, ESCO and the generator. In case of deregulation, the price for power purchase is defined by agreement signed between the Government, ESCO and the generator.

This provision has particular relevance for renewable energy considered that under promotion of new construction primarily implies hydro generation including small hydro.

Besides, the Law entitles any entity to export and import electricity and allows small generators to sell electricity to eligible (qualified) as well as retail customers.

And finally, another amendment of 2008 deregulates all power plants constructed after 1 August 2008 (Law On Electricity and Gas of Georgia. www.minenergy.gov.ge).

The Electricity Market Rules for the Georgian electricity sector were approved by Order 77 of 30 August 2006 of the Minister of Energy. The introduction of the rules was a landmark event for the developing electricity market as they aimed to set a level playing field for the market players. Basically, these rules are in line with the already described principles enshrined in the Law. Specifically, the market rules also oblige ESCO to secure an agreement with those newly constructed power plants whose generation is subject to full or partial obligatory purchase pursuant to the legislation in effect. One interesting observation is that this provision is dates back to 2007 while the similar amendment to the Law dated of 2008. This points to the importance of the market and its evolvement for the development of viable legal and regulatory frameworks.

The market rules also contain a provision which allows signatories of power purchase agreement to fully pay for the volume of generated electricity defined by the contract despite the actual fact of utilizing this electricity by the buyer under this contract.

Article XI[1] of the document is dedicated to deregulated power stations and provides detailed rules for the purchase and pricing of their generation.

There are other normative acts that could be mentioned here. For instance, Order 30 of 25 April 2007of the Minister of Energy deregulating small power plants; Order 46 of 13 August 2010 of the Minister of Energy amending the market rules and a) defining small power plants as eligible to participate in the wholesale trade of electricity and b) defining electricity produced by newly constructed power plant and subject to obligatory purchase by ESCO as balancing power; Order 92 of 28 October 2008 of the Minister of Energy deregulating all power plants constructed after 1 August 2008.

Policy-wise, two documents are important to be mentioned in the given research:

In June 2006, the Parliament of Georgia adopted the “Main Directions of the State Policy in the Energy Sector”. According to this document, the main priority of the state energy policy is maximum utilization of internal energy resources and diversification of imports. As a long term objective, the policy strives to gradually meet the internal demand through the country’s own hydro potential. This, among other things, implies construction of new plants and development of efficient energy sector model. The policy places particular emphasis on the

promotion of hydro energy through the construction of small, medium and large hydro generation. What is particularly interesting for our analysis is that the state policy document underlines Georgia's strong potential and favourable natural conditions to substantially develop alternative sources of energy. It also underscores the need to attract investment and reduce bureaucratic barriers. Gradual liberalization and deregulation of the electricity market is also identified as one of the key priorities. The document specifically mentions deregulation of small hydros (10 MW) at the initial stage.

The policy also refers to the need of legal/regulatory harmonization to create a regional market, simplification of certification and licensing, and the possibility of setting long-term fixed tariffs.

As regards alternative energy sources, the policy document mentions it in the context of construction of new generation capacities and with the view that the traditional and alternative energy sources will ultimately become equally utilized.

However, it should be noted that the policy document raised some concerns among independent experts. Specifically, the development of alternative energy sources to the ambitious set by the policy would require investment support and a well balanced stimulating state policy. In this context, putting non-traditional and traditional energy sources on equal footage would a priori place non-traditional sources in a more disadvantageous position. It should be noted that this shortcoming of the policy was later partly addresses by the introduction of the obligatory purchase clause and long term tariff setting (Georgia's Energy Policy, Overview of Main Directions.2007.Transparency International Georgia).

The next important document associated with renewable energy is the Resolution 107 of the Government of Georgia of 18 April 2008. The Resolution lays down the details of the state programme "Renewable Energy 2008" and covers the rules to ensure construction of renewable energy sources in Georgia. Te aim of the programme is to promote building new sources of renewable energy in Georgia through attracting investment. The key components of the programme include a) Memorandum of Understanding between the Government, ESCO and the interested party for such an investment b) obligation on the investor to sell full output of the power plant to meet internal energy demand only during 3 winter months defined

by the Memorandum for the first 10 years from the commissioning of the power plant; c) during the first 10 years of the operation of the power plant the electricity generated during the 3 agreed winter months can be sold freely, at the discretion of the seller, either to any customer in Georgia at the deregulated tariff or to ESCO based on the preliminary signed guaranteed power purchase agreement at the tariff defined by the legislation. However, this rule does not apply to power plants of 100 MW or above and power plant cascades of 100 MW and above. The programme envisages very active role of the Ministry throughout the process. The required standard forms for applying for the programme as well as the list of potential hydro plants for investment are available on the Ministry's website.

The administrative requirements for building new power plants normally involve building permit, land purchase or lease agreement, water permit (intake and outlet), environmental impact assessment and generation license (no license required for hydro plants with less than 13 MW installed capacity, and all plants built after 1 August 2008 are deregulated). The Government offers "Buy-Operate-Own" principle to new projects as well as free of charge connection to grid, ensures third party access and gives some priority for utilizing 500 kV Georgia-Turkey interconnection.

The Government of Georgia assesses the country's hydro potential as very substantial out of which only 18% is used currently. There are round 300 potential locations for new hydro power development with estimated 4,000 MW installed capacity. However, it seems that the choice of prioritizing in this case is more conditioned by the desire to attract higher volumes of investment rather than the commitment to develop renewable energy (Georgian Energy System www.minenergy.gov.ge).

As regards the commitment undertaken by the country vis-à-vis the EU to promote renewable energy, the Government perceives the above mentioned efforts as a contributing factor in addition to some work initiated by the Regulator to create favourable environment for the use of renewable energy and to some preparatory work to produce draft Law on Energy Efficiency and Renewables (Georgian Energy System www.minenergy.gov.ge).

Besides, the reports on Georgia's progress on the implementation of ENP AP produced by the Georgian Government refer to the issue of renewable energy. For example, the report for

2010 specifically mentions the Georgia Energy Conference held in Brussels in 2010 which was aimed to demonstrate Georgia's potential, especially in renewable energy (Progress report. 2010.).

In addition, ENP implementation action plans for the energy sector continue to include the work in the area of renewable energy, for instance measures aimed at improving the existing regulatory and legislative framework for renewable energy, enhancing cooperation with different institutions in this regard etc (MoENRG work plan for ENP AP. 2010,2011.www.minenergy.gov.ge).

However, this is the effort and opinion taken by the state authorities. It is equally interesting to see how these processes have been viewed by independent experts and civil society.

Some concerns have been voiced. Small hydro plants can play a significant role, especially in remote rural areas. But for this to materialize technical support, appropriate financing schemes as well as convincing policies are required. The market-based approach and strong state support for privatization and deregulation is an important strategy but if not properly balanced small scale actors such as small hydro generates might find difficult to compete (Outcome Evaluation. Country Program Action Plan. Access to sustainable energy. UNDP.2008. 5,28).

Similarly, deregulation alone was not considered sufficient for attracting substantial investment. Deregulation can turn into reregulation without clearly articulated legal and regulatory support framework. It is important for legislative framework to be complete, and the lack of clarity on the simplification of the authorization procedures for non-hydro renewable energy or new hydro plants over 100 MW were also underlined (Julia Weller. Pierce Atwood LLP. Presentation in Batumi. July 2008).

In addition to the abovementioned, some other key shortcomings of the legal and institutional framework for renewable energy in Georgia were also identified. Those included the absence of special legislation devoted to the development of renewable energy sources, the lacking clarity in legislation for other types of RE than hydro, the missing consistent and clear definition of what constitutes renewable energy, the lacking State Strategy and Action Plan for RA, the lack of clear policy measures and financial support mechanisms, the need for clear

principles for setting long term tariffs, the need for strong implementing institutions and information campaigns (Rural Energy Programe. Renewable Energy Potential in Georgia and the Policy Options for its Utilization. Winrock International. 2008).

There is a view that awareness regarding sustainable energy i.e. renewable energy (other than hydro energy) is low at all levels (Outcome Evaluation. Country Program Action Plan. Access to sustainable energy. UNDP.2008.3). Review of some reports of the Georgian civil society regarding Georgia's progress towards meeting its commitments vis-à-vis the EU is a good demonstration: the information contained in those reports on the area of RE is either the lack of quality reports on the situation in RE by local civil society was identified as one of the challenges.

Conclusion and recommendations

The last decade has witnessed mounting concerns over the issue of energy security. In the modern world influenced by globalization and increasing interdependence, it is a major challenge for any country to deal with this problem in isolation. Another burning issue dominating the international agenda is climate change, and the link between climate change and energy security has reshaped policies of many countries.

The EU has been at the forefront of the battle for improving environmental conditions. On the other side, the EU's growing dependence on imported energy has highlighted the urgency for coming up with a comprehensive strategy for sustainable development and energy security in the long term prospective.

The EU's energy strategy is a complex approach incorporating the different facets of the energy and environmental dimension. Therefore, it is no surprise that development of renewable energy sources is an integral part of this picture.

During the recent year, the EU has laid strong foundation for renewable energy through creating legal frameworks conducive to the attainment of higher progress in RE. Directive on Renewable Energy 2009 is truly a breakthrough setting ambitious targets for 2020 and substantially enhancing the legal and regulatory environment for the achievement of those targets.

The research attempted to provide an in-sight into the changes and innovations brought about the new Directive. Although time will be needed for actual results to materialize, it is without doubt that the Directive will significantly impact the legal and regulatory frameworks for REs in Member States. Although it is true that the Directive introduced legally binding targets, much will depend on Member States to advance this sector.

Apart from the binding targets, the Directive brought about different initiatives ranging from National Action Plans, Transparency Platform and cooperation mechanisms to improved grid access and simplified administrative procedures. Building on the principles of the existing *acquis* in the energy sector, the RE Directive aims to contribute towards constructing more sophisticated and coherent legal and regulatory environment for the development of RE.

As confirmed by the research, despite the EU's attempts to attain higher level of convergence in this area the progress achieved by Member States varies. The detailed implementation plans and mechanisms are left to the discretion of Member States; their success in creating viable and comprehensive legal and regulatory frameworks in their respective countries has been proportionate to the success in promoting renewable energy. The research presented the concrete examples of several MSs to demonstrate this, focusing on the electricity sector as the most advanced in this respect. Although the mechanisms and policies used by MSs for fostering the use of renewable energy sources vary, sharing of best practice and success stories will contribute to the convergence of those policies and practices.

Renewable energy has been an integral part of the EU-Georgia relationships included in the main cooperation documents. As the EU becomes more active in promoting renewable energy through its legislation, more attention it will pay to "exporting" of its principles to the partner countries.

However, so far Georgia has made insufficient progress in supporting renewable energy sources. There could be different reasons: the lack of capacity, the diverging priorities (GFSIS. EU Policy: Ongoing Issues. 2007.In Georgian 71) and other. Whatever the cause, Georgia will need to intensify its efforts in the given cooperation area to move closer towards the integration with the EU.

Although some positive developments have taken place in the energy sector, and especially electricity in Georgia during the last years, some aspects of the sector advanced more than the others. Renewable energy is not among the leaders yet and more efforts need to be put in place.

Georgia has introduced some measures to improve its legal and regulatory environment to benefit renewable energy. These include guaranteed power purchase for newly built hydro plants, free of charge access to the grid, simplified licensing and permit procedures for new and small hydro generation, deregulation and the concept of fixed long term tariffs; but all of these measure need to be well balanced ensure consistent and sustainable development of renewable energy sources. Thus commensurate and thorough legal and regulatory framework is vital. The boost of investment in hydro generation should not take place at the expense of other renewable sources.

Some more concrete observations can be made:

- For successful promotion of new technologies, such as renewable energy maximum clarity in legislation is crucial. Existence of the dedicated renewable energy directives in the EU is a good example bringing in-depth understanding of the key notions and principles and living no room for confusion and misunderstanding. This is lacking in the case of Georgia

- The example of the Netherlands presented in the given research proved once again that frequently changing rules and regulations, even if caused by objective reasons do not contribute to enhanced investor confidence. Although the recent changes to the Georgian law was born out of the good intention, it would be better to introduce a

complete set of measures to give greater sense of stability to investors, especially if the investment support is an important part of state policy as is in the case of Georgia

- It is important to ensure that the functions, roles and responsibilities of all actors, including state structures are clearly defined in the legislation as in the case of the EU *acquis*. Particular attention should be given to this when elaborating the respective legislation in Georgia

- Renewable energy cannot prosper without supporting incentives. The EU Directive 2009 outlines several possibilities in this regard. Although Georgia has taken some concrete promoting steps (guaranteed power purchase, grid access, long term tariffs etc), more efforts could be taken to accelerate the process

- Liberalization and deregulation do not automatically promote renewable energy. These new technologies need support to achieve the level of maturity to compete at the open market. This is well demonstrated by the example of the EU, and can be an important factor to reflect upon in the Georgian context

- Excessively burdensome licensing and authorization procedures have been detrimental to the success of renewable energy development in Europe. That is why the EU Directive specifically called upon simplification of those procedures. It should be note that Georgia ash taken some steps to address this problem, but it is important to ensure that those rules are clear and that all renewables benefit
- Technical limitation of the grid has been identified as an issue for the advanced European networks. For Georgia, who does not yet possess state-of-the-art infrastructure this could be even a bigger problem. Although, on the other hand, the "work in progress" can be a good opportunity to take into account the renewable energy requirements for the future grid planning

- The experiences of European countries have shown that the overall development of renewable energy is difficult to ensure without the inclusion of different renewable energy sources. Although for Georgia the top priority is the development of hydro potential, a more comprehensive approach could bring about a higher degree of advancement for the whole sector.

Although Georgia has made some effort to incentivize the renewable energy development through creating better legal and regulatory environment (for instance, introduction of obligatory power purchase agreement for newly built hydro plants, the concept of long-term tariffs, free-of-charge connection to the grid), significant work remains to be done to deliver on the commitments undertaken vis-à-vis the EU in this area. Considering Georgia's aspiration to harmonize with the European standards, embrace its values and principles and become reliable energy partner for Europe, the ability to implement the necessary reforms in the field of renewable energy will play a significant role taking into account the EU's increasing attention to this issue. Progress in this area will also be important for Georgia to establish itself as a fully-fledged member of the European energy community. It is true that making a green market work is a tricky business (Paul Komor. 2004.83), but it is not a mission impossible. The concrete examples of the countries presented in the research once again underline the direct link between effective state policies and viability of renewable energy as well as well-developed legal and regulatory frameworks and long-term government commitment. The latter is particularly important for ensuring much needed investor confidence and adequate investment for fostering development of renewable energy. Therefore, when refining its policies and legal and regulatory frameworks Georgia needs to take into account the EU targets and the spirit of the EU's legislation for renewable energy. What is needed is clearly articulated legal and regulatory rules defining the roles and responsibilities of all actors and providing long-term stability and commitment. Renewable energy market will need help through various initiatives to develop. Currently, the main focus in Georgia is on the electricity sector and electricity from hydro resources. Georgia has vast hydro resources but certain possible environmental impacts of large scale hydro plants need to be taken into account when planning development of such plants. As shown by the

European example, a more comprehensive approach would be desired to promote the development not only hydro potential but other renewable energy sources of the country.

Hopefully, the near future will bring new legislative and regulatory initiatives in the spirit of the EU renewable energy acquis to bring further progress into this sphere in Georgia.

Annexes

ANNEX 1 – Summary of Member States' Progress in Developing Renewable Energy

ANNEX 2 – List of hydro plants with construction date from 2008

ANNEX 3 – List of potential renewable energy sources

ANNEX 4 - Example of an investment project for a hydro plant developed by the Ministry of Energy

ANNEX 5 - Expected reduction of CO2 as result of construction of new hydro plants

SUMMARY OF MEMBER STATES' PROGRESS IN DEVELOPING RENEWABLE ENERGY

	Electricity				Transport (biofuels)			
	2006 share (%)	2010 target (%)	recent growth	progress made	2007 share (%)	2010 target (%)	recent growth	progress made
Austria	61.6	78.1	😐	☹	4.2	5.75	☺	☺
Belgium	3.9	6	☺	😐	1.1	5.75	☺	☹
Bulgaria	6.8	11	😐	☹	4.8[1]	5.75	☺	☺
Cyprus	0.0	6	☹	☹	0 (2005)	5.75	☹	☹
Czech Rep.	4.1	8	😐	☹	0.5	2.5	😐	☹
Denmark	25.9	29	☹	☺	0.1	5.75	😐	☹
Estonia	1.5	5.1	😐	☹	0.1	5.75	😐	☹
Finland	26.5	31.5	☹	☹	0.1 (2006)	5.75	😐	☹
France	14.3	21	😐	☹	3.6	7.0	☺	😐
Germany	12.6	12.5	☺	☺	7.4	5.75	☺	☺
Greece	8.8	20.1	☺	☹	1.2	5.75	☺	☹
Hungary	3.7	3.6	☺	☺	0.2	5.75	😐	☹
Ireland	8.6	13.2	☺	😐	0.6	5.75	😐	☹
Italy	18.3	22.5	☺	😐	0.5	5.75	☹	☹
Latvia	40.4	49.3	☹	☹	0.1	5.75	☹	☹
Lithuania	3.9	7	😐	☹	4.4	5.75	☺	☺
Luxemburg	3.7	5.7	😐	😐	1.5	5.75	☺	😐
Malta	0.0	5	☹	☹	1.1	1.25	😐	☺
Netherlands	7.9	9	☺	☺	2.0	5.75	☺	😐
Poland	3.1	7.5	😐	☹	0.7	5.75	😐	☹
Portugal	31.2	39	☺	☹	2.5	5.75	☺	😐

Romania	28.1	33	☹	☹	0.8	5.75	😐	☹
Slovakia	16.0	31	☺	☹	2.5	5.75	☺	😐
Slovenia	28.3	33.6	☹	☹	0.8	3.5	😐	☹
Spain	19.1	29.4	😐	☹	1.1	5.75	😐	☹
Sweden	52.3	60.0	😐	😐	4.0	5.75	☺	😐
UK	4.6	10	😐	☹	0.8	5.0	😐	☹
EU	15.72	21	☺	😐	2.6	5.75	☺	😐

Source: Eurostat 2006: share of energy from renewable sources as a percentage of final energy consumption with normalised hydro generation (including consumption of the energy branch for electricity and heat generation and distribution losses).

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