RENEWABLE ENERGY POLICY AND DEVELOPMENT IN BULGARIA: STAKEHOLDER VIEWS AND EXPERIENCES

Draft Report

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Executive Summary

Renewable energy is becoming a valuable source of widely available, cleaner, and relatively inexpensive electricity. As a member of the European Union (EU), Bulgaria has adopted the Union's regulations designed to increase the share of renewable energy (RE) use in gross final energy consumption by the year 2020. The main policy tool for achieving this goal is a system of feed-in-tariffs with long-term power purchase agreements. The national renewable energy target for Bulgaria, set at 16% of gross domestic energy consumption from electricity, heating and cooling, and transportation, was accomplished six years earlier than mandated, in 2014. A dynamic boom in the development of wind and photovoltaic power (2011-2012), together with a relatively limited national experience in the design and implementation of RE policies has resulted in substantial discrepancy between policy achievements and practice. A closer look at the Bulgarian energy sector reveals that it faces some legal, institutional, and infrastructure-related problems. This study investigates the experiences and perceptions of stakeholders in Bulgaria's renewable energy sector, and summarizes the challenges affecting renewable energy development in the country. It finds that the sector suffers from a number of governance issues, including lack of regulatory consistency and transparency, political unpredictability, and an inadequate level of investment in the electric power grid, thus making it difficult to achieve institutional change and effective market-based governance in the energy sector. The results in this report are based on thirteen in-depth interviews with representatives from government, industry associations, renewable energy producers, and consultants in Bulgaria's energy sector.

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Introduction

Since 2007, European Union (EU) member states have been working toward a common policy goal to reduce their greenhouse gas emissions, increase production and use of renewable energy (RE), and increase energy efficiency by the year 2020. The 2009 European Renewable Energy Directive (2009/28/EC) established a 20% target for the overall share of energy from renewable sources in the EU's gross final energy consumption. The EU defines energy from renewable sources as that coming from "non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases" (2009/28/EC, Art. 2(a)).

Article 4 of the RE Directive mandates that member states develop and submit national renewable energy action plans (NREAPs), which detail how member states envisage implementing the Directive and reaching the 2020 targets . National renewable energy targets differ for each member state because they are calculated as the share of renewable consumption to gross final energy consumption, and take into consideration member states' different starting points, renewable energy potential, and economic performance (e.g., GDP per capita, economic growth forecasts). There is substantial variation in national targets, with a range as low as 10% for Malta and as high as 49% for Sweden (mean=21%; median=18%) (2009/28/EC, Annex I). Bulgaria's national target for the share of RE consumption was set at 16%, a figure that sits in the second quartile of EU national target values.

A rapid and poorly regulated growth in RE production in the period 2007-2012 led to the achievement of Bulgaria's RE target in 2012, ahead of the scheduled 2020 target year. This outcome – a boomerang effect in itself – motivated a series of measures that curbed investments in new RE installations, introduced uncertainty in the regulatory environment, and reduced the effectiveness of policy incentives for promoting RE development in the country. As of 2013, Bulgaria's Ministry of Economy and Energy has set restrictions on new renewable generation capacity; with contracted capacities put on hold and unlikely to become on-stream in the near future (Personal Interview; WB, 2013). The period 2012-2014 included a series of retroactive and discriminatory regulatory interventions, lawsuits, curtailment of solar and wind power production, and increasing uncertainty in the regulatory framework. This was combined with a growing public discontent and opposition to renewables, as well as spiraling debt and financial difficulties for the main utility, the National Electricity Company (NEK), and electricity distribution companies (EDCs). The boom in RE development led to a crisis in the energy sector, with wide-ranging political and socioeconomic ramifications.

This paper describes the experiences and perceptions of stakeholders in Bulgaria's RE sector by asking: *What are the challenges in the implementation of the EU 2009 Renewable Energy Directive in Bulgaria? What do we know about these challenges from the experiences of actors in Bulgaria's renewable energy sector?*

Overview of Feed-in-Tariffs (FITs)

The main policy tool for promoting the development of renewable energy in Bulgaria is a system of feed-in-tariffs (FITs) combined with a long-term purchase obligation, introduced first in 2007 with the Renewable and Alternative Energy Sources and Biofuels Act (RAESBA), and maintained later in the new 2011 Energy from Renewable Sources Act (ERSA). The FITs and purchase obligations apply to power purchase agreements (PPA) for projects implemented prior to meeting the policy target embedded in the National Renewable Energy Action Plan and in line with the 2009 EU Renewable Energy Directive. The system of FITs with PPAs applies to all energy for which a *certificate of origin* has been issued by the Sustainable Energy Development Agency (SEDA). All RE technologies are eligible for FITs, with payments specified in terms of minimum payment rates in ERSA (ERSA, art. 18 par. 1 item 6) and set every year at the end of June by the State Energy and Water Regulatory Commission (SEWRC) (ERSA, art. 32 par. 1)[1].

Feed-in tariffs (FITs) are energy policy mechanisms designed to encourage the rapid deployment of renewable electricity technologies, both in Bulgaria and elsewhere. Historically, FITs have been associated with a German model, in which the government mandates that utilities enter into long-term contracts with generators at specified rates, usually higher than the retail price of electricity. In the United States, where FITs are comparatively new, they are typically used in combination with one or more other incentives and are mandated to varying degrees in six states: California, Hawaii, Maine, Oregon, Vermont, and Washington (Couture and Cory, 2009). A few other states also have utilities with voluntary FITs. Interest is generally increasing in the United States, especially as evidence continues to show their effectiveness for promoting renewable energy development and job creation.[2]

A FIT is a performance-based rather than an investment-based incentive. In that respect it is more similar to production tax credits and the renewable energy credits of a renewable portfolio standards (RPS) market than to investment tax credits or other investment subsidies. To be effective for investors, FIT rates are set above the retail cost of electricity. *However, without additional controls, generous FIT levels can lead to more investment than initially intended.* One illustration is the Spanish experience, in which the government significantly reduced the tariff a year after its start, and suspended the FIT altogether in 2012, to contain costs to the government and other utility customers.

Some of the advantages of FITs center around their implementation, for instance, the rapid adoption of FITs has led to reduced negative environmental impact of electricity generation that is typical of conventional fuels. Also, the long-term contracts (typically 10-20 years) assure project owners of a stable long-term revenue stream, which in term can stabilize electricity rates. Examples from Germany and Spain have shown that well-designed FIT policies can positively

[1] Detailed information on the tariffs is further provided in Resolution No.C-13 by the SWERC.

[2] All state policies for RE promotion in the U.S. as of May 2013 are available here: http://www.eia.gov/electricity/policies/provider_programs.cfm

impact job creation and economic growth (Couture and Cory, 2009). However, these same country examples have also shown that there are challenges in designing and executing FIT policies. Because FITs are designed to offer stable revenue streams through long-term purchase contracts, they require that the high up-front costs be amortized over a long period of time. *Also, well-designed FIT policies require a significant up-front administrative commitment to design the policy and to establish FIT payments based on the levelized cost of renewable energy generation*. Detailed analyses on technology cost and resource quality are needed to ensure FIT payments are adequate to guarantee cost recovery without leading to windfall profits (Couture and Cory, 2009; Klein et al. 2008).

Experience from many countries shows that FIT policies, designed to include guaranteed grid interconnection, regardless of location on the grid, could lead to less-than-optimal project siting. Accordingly, if projects are sited far from load centers or transmission or distribution lines, interconnection costs increase. This puts upward pressure on policy costs. However, this challenge can be largely overcome if FIT policies encourage siting projects near load centers by creating an incentive—either a bonus or a higher price based on higher spot-market prices—or if the policies require developers to bear a portion, if not the entirety, of the costs of grid connection (Couture and Cory, 2009).

Due to changes in technology costs and market prices over time, FIT policies must be adjusted periodically to account for these changes. *Accurately accounting for changes in technology costs remains a challenge. Changing payment levels too often can be undesirable as well, as it creates investor uncertainty and increases overall market risk.* One way to resolve this issue is to adjust the policy through a tariff degression, where the FIT payments decline by a pre-determined percentage each year. This can be coupled with periodic policy adjustments that occur every several—three to four—years. To be successful, these adjustments require a detailed methodology to track market changes effectively from year to year. Ultimately, the challenge is to provide a flexible policy framework without jeopardizing investor confidence (Couture and Cory, 2009; Klein et al. 2008).

Many successful FIT policies base the prices offered to suppliers on the levelized cost of renewable energy generation to ensure a reasonable rate of return (Couture and Cory, 2009. Other *best practices* include:

- Offering long-term, must-take contracts
- Differentiating FIT prices by technology type, project size, and resource quality
- Including a design feature that incorporates an incremental decrease in the FIT prices over time to encourage innovation and accelerate the pace of deployment
- Incorporating the costs of the policy into the electricity rate base
- Minimizing transaction costs by providing streamlined administrative procedures.

Data and Interviews

We conducted 13 in-depth interviews between May and August 2014 with participants in the renewable energy sector in Bulgaria. These included representatives of government agencies, industry associations, producers, legal consultants, and journalists (Table 1). Interviews were conducted in Bulgarian at the main office of the respective organization, with the exception of two phone interviews with an industry association and one producer. All interviews were audio-recorded, transcribed, then translated, and analyzed. Interviews lasted between 1 and 2 ½ hours.

Table 1: List of key informants by type of organization

Government	Associations	Producers	Consultants/Media
Ministry of Economy and Energy	Bulgarian Photovoltaic Association	Alpiq	SeeNews
Sustainable Energy Development Agency	Bulgarian Wind Energy Association	AES	Institute for Energy Management
State Water and Energy Regulatory Commission	Association of the Producers of Ecological Energy	Eolica Ventos	Penkov-Markov & Partners

Additional data sources used to corroborate insights from the interviews included: EU directives, national laws and government documents, agency decisions, news articles, progress reports, and external reviews and reports (e.g. World Bank, European Commission).

Findings

A. Regulatory Framework

We asked interviewees to describe the regulatory and financial instruments supporting renewable energy development in Bulgaria, using the following questions:

- In your opinion, what are some of the most important financial and regulatory measures currently in place that encourage renewable energy development in Bulgaria?// *Кои според Вас са най-важните финансови и регулаторни инструменти в енергийният сектор, които спомагат към момента за насърчаване на развитието на възобновяемите енергийни източници (ВЕИ) в България?*
- In the recent past, did Bulgaria have other RE policy measures that no longer exist today? If so, why were they revoked? // *Имало ли е в близкото минало други законови норми в българското законодателство отнасящи се към ВЕИ, които са отменени? Ако да, какви са причините да бъдат отменени?*
- Would you like to see additional policies or incentives for promoting RE in Bulgaria? What are the main steps that can be taken to encourage greater renewable energy usage in

Bulgaria? // *Бихте ли желали да видите приемането на допълнителни мерки и програми свързани с насърчаването на ВЕИ в България? Какви са някои от основните стъпки които могат да се вземат с цел по-голямо насърчаване използването на ВЕИ в България?*

Key themes regarding the regulatory framework in Bulgaria's RE sector included:

- frequently changing legal framework
- regulatory uncertainty and unpredictability
- lack of transparency in agency decision making
- agency capacity, competency, and independence
- rapid turnover in agency leadership

The design of renewable energy policy instruments in Bulgaria was one of the key determinants of the observed boom and bust cycle in the sector. As a result, a series of corrective, regulatory amendments in RE policies were initiated by the state regulator that introduced investor risk and market uncertainty. The initially high level of feed-in-tariffs (FIT) combined with grid interconnection and long-term power purchase contracts acted as drivers of high investor interest and project development, particularly in photovoltaic-power sector in the 2011-2012 period. As one government agency representative explained:

"*Generally, …, the boom is where the preferential prices are, where the feed-in-tariffs are. So the provision of preferential prices – particularly as the price for two regulatory periods was going up – generated an enormous interest in the construction of RE projects in Bulgaria. And we ended up repeating the good and the bad experiences of many other European countries. With a good price structure, a lot of investors showed up, who in a short period of time completed a large number of projects, and this on the other hand created problems for the country's electricity system…..not only technical but also financial problems*." (G2)[3].

A similar position was shared by other stakeholders: "… *while the new 2011 Energy from Renewable Sources Act replaced the 2007 law, the preferential prices remained. The old law provided for obligatory and guaranteed grid interconnection, too. This led to a heightened level of interest [in renewables] at prices that were largely predictable…. The technology component in the price at the time could not be reduced by more than 5 percent annually, so the prices were predictable… and the long-term purchase agreements were longer under the old law than the new 2011 law… This created excessive interest." (G1)*

According to data from certificates of origin issued by the Sustainable Energy Development Agency (SEDA), a total of 7.3 million MWh of electricity from renewable sources was produced in Bulgaria in 2014 – an increase of 39% from 2012 levels (5.2 mill MWh in 2012) (SEDA, 2015).

[3] An abbreviation used in the coding of interviews. Letters denote the type of organization (e.g. producer, consultant), followed by the assigned interviewee number.

Interviewees commented on the reasons for, and implications of, corrective regulatory decisions, the cost of legal disputes, and other ramifications associated with a changing regulatory environment. They talked about **the lack of transparency, competency, and predictability in agency decision-making**. The following citations are illustrative:

"*The main thing is the unstable regulatory framework with the frequent legal act amendments. This creates unpredictability in the regulatory environment, but also uncertainty among investors. It drives them away. There is also a lack of transparency in agency decision-making, as [seen] with the approval of trading rules [rules for purchase of electricity from renewables] that are not based on any economic indicators but rather political factors*." (A5).

"*With the introduction of so many photovoltaic installations, the prices [preferential prices] became an unbearable burden for the state. When you combine this with an incompetent management, a lack of clear business strategy or a vision of how to get out of this situation, and a lack of flexible management of NEK's business relationships, everything started to sink down. Recognizing that they [NEK] are becoming nearly insolvent, they decided in September 2012 to introduce a grid access fee, based on a differential rate ranging from 2 to 39%.... In the meantime NEK was falling into an even greater financial debt. It is, indeed, a fact that the* ***energy system in the country is managed incompetently*** …" (P7).

A similar sentiment was shared by other stakeholders who emphasized the state's lack of qualifications and capacity to adequately address the issues in the energy sector: "…*it is arguable whether they [state authorities] have qualifications and capacity, [because] they cannot adopt even measures when they know the system is at a turning point… and if they do, these are typically short-lived and wrong measures. We are stuck in a vicious circle of wrong, short-term policy measures adopted by one government after another, after another…"* (C13).

A lack of capacity to implement and enforce existing legislation and to keep abreast with the changing legal rules are significant challenges for stakeholders in Bulgaria's RE sector. For government agencies, capacity (e.g. staff, resources) and financial expertise appear to be significant hurdles (Personal Interviews, 2014). As of mid-2014, on-site monitoring by SEDA had been limited due to the high volume of requests for certificates of origin by RE producers. A transition to an online system for issuing certificates of origin is hoped to free up staff time and enable the execution of the full, legally-mandated scope of SEDA activities.

Lawyers, economists, and engineers dominate the professional staff of the State Water and Energy Regulatory Commission (now The Water and Energy Regulatory Commission), but stakeholders perceive the need for more financial experts to support the Commission's work. Last, but not least, the Commission's leadership has experienced frequent changes and concerns are raised about the political independence of the Commission (Personal Interviews, 2014; WB, 2013).

B. Challenges and Opportunities

The experiences and challenges of stakeholders in Bulgaria's RE sector were elicited using the following questions.

- What are the barriers and challenges you have faced in the RE sector in Bulgaria, and how have you effectively addressed some of these challenges? What are some areas that your organization needs most help with? //*Какви са препядствията и предизвикателствата пред които сте били изправени във ВЕИ сектора в България, и как сте успели успешно да се справите с някои от тези предизвикателства? В кои обалсти има вашата организация най-голяма нужда от помощ?*
- What are some of the opportunities and successes you have had in the RE sector in Bulgaria?// *Кои са някои от успехите, които сте постигнали до момента във ВЕИ сектора?*

Major themes from the interviews and official document review included:

- The condition of the electric grid system
- The need for a competitive energy market
- Price of electricity
- Financial liabilities and imbalances in the energy sector
- Trust in government and perceptions of corruption
- Interpersonal trust
- Public distrust of renewables

First, the condition of the **electric grid system** was a key factor contributing to the challenges faced by stakeholders in Bulgaria's renewable energy sector. The outdated condition and insufficient capacity of the electric grid was cited as one of the major issues in the sector:

"*The major challenge was first the grid infrastructure. …When our wind farm started operation, it had operated at 85 MW/h, almost half of its capacity, which is 157 MW/h, because of the bottlenecks of the grid in Northeastern part of Bulgaria. Because they could not evacuate all the electricity generated and there wasn't enough consumption at certain periods of time. So that was the first challenge*." (P8).

In spring 2013, the Electricity System Operator (ESO) ordered the electricity distribution companies (EDCs) to limit the output of wind and PV power plants for specific dates and times. Some stakeholders described these procedures as non-transparent and illegal, and in violation of the statutory requirement (ERSA, 2011) for preferential purchase and distribution of electricity from renewables (Personal Interviews). The explanation offered by ESO for the temporary limits on solar and wind power production was the potential overload of the aging electric grid system.

Specifically, ESO cited the need to ensure the stability of the power grid (Novinite, 2013). Talking about this episode one government agency representative shared the following, however:

"*The lack of a fully developed **competitive market** creates these problems. There is no way the conventional system [thermal power plants] can continue to operate at 100%. So they will be forced to go on the market. But we cannot reduce their potential either just because now we have renewable energy sources. They [the thermal power plants] also have purchase power agreements – we cannot violate their agreements just because renewable energy producers have appeared" (G1).*

Second, growing **financial liabilities and budgetary imbalances** have prevented the National Electricity Company (NEK) and ESO from making much needed investments in the electric grid system. In September 2014, NEK reported a loss of BGN 425 million for the first nine months of 2014 (Novinite.com; 10/31/2014). Government officials explained the following when discussing the boom in renewables in the country:

"[This] *created financial problems as well, because the preferential prices have to be guaranteed by the state and this puts the pressure on taxpayers. In Bulgaria the **electricity prices** are regulated still. The State Commission for Water and Energy Regulation maintains a socially-acceptable level of prices for electricity – so generally these are not market prices" (G2).*

"*The preferential prices are higher than those for conventional energy sources, which leads to higher end-user electricity prices. There are also other costs associated with the electric grid system and its management. These costs must be passed onto and covered by the consumers, but this is not popular among them -- neither the industrial, nor the household electricity consumers"* (G1).

Other stakeholders insisted that: "*The electricity prices are purposefully kept very low for political and populist reasons. This is not based on an economic rationale and creates [financial] deficits in the energy system. The electricity prices do not reflect the true cost of production. This leads to a lack of resources for investment in and maintenance of the electric grid infrastructure.*" (A5)

Bulgaria's household electricity prices are the lowest among EU member states (EUR 0.07 per KWh), with an EU-28 average of EUR 0.13 per KWh and a high of EUR 0.20 per KWh in Ireland (Eurostat, 2014). However, measured in terms of purchasing power parity, Bulgarian consumers pay one of the highest electricity prices compared to consumers in other EU member states.

Third, the **socioeconomic conditions** in the country serve as important contextual factors, challenging the development of RE in Bulgaria. This is particularly true with regard to the aging population and the divergence of living standards in Bulgaria with those in the rest of the EU (WB, 2014). In 2010 the percentage of people living in poverty or in social exclusion was 49.1% (WB, 2014). The financial crisis in 2008 was particularly hard on the poorest households, whose real income decreased by nearly 13% in the period 2009-2010 (WB, 2013). Based on a conventional measure of energy poverty, defined as spending more than 10 percent of household resources

to cover energy needs, 61 % of Bulgarian households are considered energy poor (WB, 2013). Social assistance programs, such as guaranteed minimum income and heating allowances, have been ineffective at reaching those most in need, largely due to budget cutoffs since the early 2000. As explained by one interviewee:

"*Bulgaria is a relatively poor country and if you need to explain to the people - some of whom live in small villages and have a very limited budget and earnings, and are probably on social assistance – that they are going to pay for green energy in order for someone to carry out their investment, to get a fair return on the capital, and etcetera, that would be absolutely rejected*."(P8).

Other challenges to RE development in Bulgaria relate to the **lack of trust in government** and **perceptions of deep-rooted corruption**. According to data from Transparency International, Bulgaria has consistently received one of the lowest scores in the EU on the Corruption Perception Index (CPI), a measure of the perceived level of public sector corruption. In 2014, Bulgaria scored 43 on the CPI (where 100 is very clean and 0 is highly corrupt), along Greece, Romania, and Italy (Transparency International, 2015). In describing a recently completed new hydroelectric power plant, an interviewee shared the following:

"*Because the dam is situated low in the valley and the conditions of the existing road were inadequate they had to build a new road. The cost was covered by the investor. It happened to be very a very expensive road as the terrain was very rocky, raising the overall cost of the project. There has been a rumor of some sort of corruptive practices, politicians' names were involved, some had ostensibly taken commission fees, consultant fees, etc."* (G1).

Other stakeholders, too, shared this sentiment: "*The public's perception is that there is corruption in the energy sector, particularly between energy producers and political elites. These are findings from 2013 reports by the European Commission and the World Bank. The frequent leadership changes in NEK, the SWERC and ESO are other examples…" (A5).*

Against the backdrop of the political and socioeconomic issues described above, participants in the RE sector operate in a culture of **mistrust and skepticism**. Cultural norms and mental models appear to shape stakeholders' behavior: "*Actually, the Bulgarian mentality is one against popular support, against popular trust in government measures, and of course very disrupted consumer trust. So everybody has a feeling that somebody is lying to them, somebody is stealing from them their resources and that you actually don't get what you pay for. This is the general mentality*."(P11).

Consistent with this, we found that **public distrust against renewables** and discontent with the high electricity prices were barriers to much needed political will and reform in the energy sector. A majority of the population in the country is not willing to pay higher electricity prices, as explained by this interviewee: "*A dominant view among the public emerged that, renewables are the cause for the persistent growth in the cost of electricity, which to a large degree is untrue.*

There are other much more serious market and nonmarket global forces. But it is a fact that such a viewpoint is shared among the general population" (C12).

Institutions, understood as sets of rules, are important determinants of the observed outcomes in Bulgaria's energy sector. This is because institutions structure social interactions by way of defining the choices and actions of actors. Both formal institutions (e.g. constitution, state law, regulations) and informal institutions (e.g. social norms, shared strategies, and self-enforced codes of conduct) have played significant role in guiding the behavior and actions of participants in Bulgaria's renewable energy sector (Ostrom, 2005; North, 1990).

C. The Future of Renewable Energy Development in Bulgaria

Finally, interviewees were invited to discuss their views about the future of renewable energy in Bulgaria. The following questions were used:

- What is the future of renewable energy in Bulgaria?// *Какво е бъдещето на ВЕИ в България?*
- Where do you see the renewable energy sector in Bulgaria in 20 years (i.e. as a percent of electricity supply/consumption)? // *Къде виждате ВЕИ секторът в България след 20 години (т.е. като процент от произведена/консумирана електроенергия)?*
- What is your view regarding the long-term energy policy of Bulgaria? //*Какво е вашето становище относно дългосрочната политика на България в енергийния сектор?*
- In the long-term, what would the country benefit most from when it comes to renewable energy development? // *Какво би благоприятствало най-много в дългосрочен план за развитието на ВЕИ в България?*

Recurring themes pertaining to the future of renewable energy in Bulgaria included:

- The future is bright and we hope for the best
- A competitive, liberalized energy market is needed
- A long-term energy strategy and political will needed to revive the energy system
- Energy efficiency should be part of the future

Interviewees expressed beliefs that renewable energy will comprise a larger share of the country's energy production and consumption in the future, and that renewables will stand at about 20 % of the final gross national energy consumption – a level commensurate with the collective EU target for the year 2020. As one government agency representative summarized this: "*I am convinced that there will be a much greater volume of renewable energy capacity [in twenty years]. With or without our choice things are already moving in that direction. The needs of the economy are such that sooner or later we'll have to invest in renewable capacities*." (G2).

Overall, stakeholders had difficulty describing the specific parameters of the future of renewable energy in Bulgaria, and instead shared their beliefs and **hopes for the future**: "*Seeing what the future holds is very hard. We are faint-hearted and hopeful that someone, somehow will learn that the world is moving forward, naturally and logically, toward renewable energy use… and that we won't resort to populism and false explanations*" (P9).

"*I'd like to believe in the future and that very soon there will be a change … that very soon a new government, the public, and the media will create the political constellation necessary to bring about change. Because what appears expensive today will be the cheapest [source of energy] in the future*" (C13).

Most interviewees stressed the need for a **competitive, liberalized energy market** that could support the growth of renewables: "*We hope to see a more competitive market. The tendency is that these [RE] technologies will become more widespread, so perhaps a broader uptake of renewable energy technology in the economy and a gradual transition to a non-fossil fuel based economy.*" (A5). Others expressed the "*need for investment in energy dependence and the liberalization of the liberalization of the electricity market*" (C13). However, it was clear that the future of RE in Bulgaria was intricately tied to the need for a change in social attitudes and political ways of thinking. The pending need for cooperation and political will to revive the energy system were other common themes.

When considering the **long-term energy strategy** of the country, most participants identified the lack of such a strategy. The following responses are illustrative in this regard: "*The problem with the long-term energy strategy in Bulgaria is that there isn't such. It is based on a four-year, partisan mandate*" (P9); "*We don't have a strategy and instruments…[but] we're seeking support for consensus, logic, strategies, transparency, and measures reflecting the interests of future generations."* (C13).

When asked what the country would benefit most from when it comes to renewable energy development, stakeholders mentioned the **balancing market**, the need to reflect all direct and indirect costs in the **price of electricity**, the importance of upgrading and investing in the **electric grid**, as well as the importance of **energy efficiency** in Bulgaria. Energy efficiency is expected to become part of the scope and mission of a broad group of agencies, as it is a wide-reaching economic issue. "*Energy efficiency is the future of each and every economy*" (P9), one renewable energy producer shared. Others criticized the fact that very little is being done to stimulate energy efficiency in Bulgaria and in an economy that has traditionally been very energy-intensive: "*There aren't broad measures to incentivize energy efficiency [in Bulgaria]" (A5); "We need to not just talk the talk, but also walk the walk of energy efficiency…because politicians can trumpet as much as they want but very little is actually done about it.*"(C13).

Conclusion

This paper illustrates the importance of several key elements in the design and implementation of renewable energy policies. First, it is important to develop a long-term national strategy for RE development in line with socio-economic, political, and cultural realities. Second, there is a need for a long-term vision in the design and implementation of RE policy tools. The initial price setting of FITs is a critical decision, along with decisions about the period, within which FIT levels cannot be adjusted. Third, investments in the electricity grid infrastructure are critical to a well-functional energy system. Lastly, administrative capacity and public attitudes inevitably shape the implementation of renewable energy policy goals. In the case of Bulgaria, these goals have been largely driven by supranational institutions and priorities, and so national-level characteristics, such as organizational capacity, experience, public support, and infrastructure have been secondary considerations in the process of formulating and adopting FITs as a main RE policy tool.

Key challenges pertaining to the use of FITs in Bulgaria seem to center around: frequent changes in payment levels for the different types of eligible technologies; the introduction or elimination of incentives over a very short period of time; and, short deadlines for investors to gain advantage of incentives. These elements create investment instability and risk, which is translated into uncertainty about FIT rates and costs, which are ultimately pushed onto consumers. Until regulatory predictability and transparency in the energy sector are achieved, RE investors will likely not be attracted to the country and those who have already invested or initiated RE projects will find it costly to maintain them. As past experiences suggest, energy systems are shaped by politics and policy, available technologies, energy resources, and public values (Sabin, 2009). All of these should be considerations reflected in the long-term energy strategy of Bulgaria.

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