



Similar goals, divergent motives. The enabling and constraining factors of Russia's capacity-based renewable energy support scheme



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ABSTRACT

In 2009, the Russian government set its first quantitative renewable energy target at 4.5% of the total electricity produced and consumed by 2020. In 2013, the Government launched its capacity-based renewable energy support scheme (CRESS), however, the [Ministry of Energy \(2016a\)](#) expects it will merely add 0.3% to the current 0.67% share of renewables ([Ministry of Energy, 2016c](#)). This raises the question what factors might explain this implementation gap.

On the basis of field research in Moscow, the article offers an in-depth policy analysis of resource-geographic, financial, institutional and ecologic enabling and constraining factors of Russia's CRESS between 2009 and 2015. To avoid the trap that policy intentions remain on paper, the entire policy cycle – from goal setting to implementation – has been covered.

The article concludes that wind energy, which would have contributed the lion's share of new renewable energy capacity, lags behind, jeopardizing the quantitative renewable energy target. The depreciation of the rouble decreased return on investment, and the local content requirement discouraged investors given the lack of Russian wind production facilities. Contrary to resource-geographic and financial expectations, solar projects have been commissioned more accurately, benefitting from access to major business groups and existing production facilities.

1. Introduction²

In 2009, Russia's energy strategy for the first time set the goal to achieve a 4.5% share of the total electricity produced and consumed from renewable sources by 2020 ([Russian Government, 2009a](#)). In 2013, the Russian government launched a capacity-based renewable energy support scheme (CRESS) in order to reach this quantitative target. However, the [Ministry of Energy \(2016a\)](#) expects that the scheme will merely add 0.3% by 2022 to the 0.67% share of renewables at the beginning of 2015 ([Ministry of Energy, 2016c](#)).

This gap between goals and results raises the question how the CRESS is being implemented. In particular, this article seeks to identify the enabling and constraining factors that help explain how the policy process takes shape.

To achieve this objective, the article first identifies four structural dimensions drawing on [Aalto et al. \(2014\)](#) social structurationist approach followed by a policy analysis that reveals enabling and

constraining factors of the CRESS within each dimension. The analysis does not restrict itself to renewable energy legislation and political discourse to avoid the trap that policy changes remain on paper. Instead, the four dimensions have been scrutinized throughout the entire policy cycle – from goal setting to implementation (up to 2015).

By analysing factual implementation, this article contributes to the regulatory ([Boute, 2011, 2012b, 2016](#)) and economic ([Vasileva et al., 2015](#)) literature on Russia's renewable energy policies. It also fills up the gap in the broader RES policy literature that until recently has mainly focused on import dependent countries ([Darmani et al., 2014; Kitzing et al., 2012; Lund, 2010](#)). Energy exporting countries such as Russia might have a different incentive structure given significant barriers such as low residential electricity prices ([Cooke, 2013: 79](#))³ and limited import dependence. A third contribution is to the literature on neopatrimonialism ([Bunce, 2002; Franke et al., 2009; Gel'man, 2015; Laruelle, 2012](#)), showing how pre-existing informal institutions penetrate into an emerging renewable energy industry.

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² Abbreviations. CRESS: Capacity-based Renewable Energy Support Scheme; RES: Renewable Energy Sources; LCR: Local Content Requirement; ATS: Administrator of the Trading System; LCOE: Levelized Cost of Electricity; UES: Unified Energy System

³ Electricity prices in the non-price zones tend to be higher than on the UES due to higher fuel and transportation costs.

The data about the commissioning of renewable energy projects originate from renewable energy companies. The annual tender results are provided by Russia's Administrator of the Trading System (ATS). These official statistics have been complemented and triangulated with legal documents, stakeholder interviews and conference proceedings in the Russian Federation during multiple research stays at the Russian Academy of Sciences in Moscow (2014–2015), as well as reports in Russia's main business oriented newspapers.

The remainder of the article is structured as follows. The next section reviews past research on enabling and constraining factors of renewable energy support schemes. Section 3 presents four dimensions of a social structurationist model that might explain the CRESS at each phase of the policy cycle. The subsequent section discusses the main characteristics of the capacity-based support scheme, whereupon the model is applied to the CRESS during each policy phase with the objective to reveal which factors enable and constrain Russia's support mechanism. The last section provides concluding remarks about the explanatory power of each dimension.

2. Literature review: enabling and constraining factors of renewable energy support schemes

Past research on enabling and constraining factors of renewable energy support schemes mainly deals with energy importing countries (Chang and Bruyninckx, 2011; Darmani et al., 2014). This is not surprising, since these countries seek to stimulate indigenous energy resources as a means to reduce import dependence (European Commission, 2014) and increase diversity of energy supply (Chalvatzis and Rubel, 2015; Valdés Lucas et al., 2016). Such studies mainly find explanations for different levels of support scheme implementation in 1) the resource-geographic basis such as the different levels of solar radiation and wind speed (Trypolska, 2012); 2) differing financial instruments such as feed-in tariffs and investment grants (Kitzing et al., 2012); 3) formal and informal institutional factors such as societal and political party actors pushing for 'greening' the fossil fuel dominated energy sector (Lund, 2010) and privileged energy companies with close links to the ruling elite (Schuman and Lin, 2012); 4) ecologic drivers such as the reduction of greenhouse gas emissions (Koljonen et al., 2009).

Exporting countries' incentives for developing a support scheme are, however, often overlooked. Empirically, this could be explained by the fact that support mechanisms of renewable energy sources (RES) in energy-endowed countries is of much more recent date and given their different incentive structure as a result of limited dependence on foreign energy suppliers (Atalay et al., 2016).

At the same time, energy-endowed countries face significant constraining factors, not in the least from institutional factors such as the enormous oil and gas lobby (Tynkkynen, 2013) and an important financial stake of political actors in the energy sector (Skryzhevskaya et al., 2015; Smeets, 2014a). Cheap domestic fuel prices financially constrain RES investments (Gupta et al., 2002; Wittmann, 2013) and international environmental agreements might threaten oil exports (Depledge, 2008).

What is surprising then, is how, given this lack of clear incentives and substantial barriers, exporting countries do develop a support mechanism for renewables. In order to reveal enabling and constraining factors, this research focuses on Russia as a case of a hydrocarbon exporting country with the world's largest proven natural gas and coal reserves and at the same time the third largest oil producer (2014), an extreme case in which genuine interest in renewables can be expected to be *a priori* very limited on the basis of import dependence and environmental concerns.

The literature offers some unidimensional analyses of Russia's emerging renewable energy policies. Within the resource-geographic dimension, the opportunity to use biomass and geothermal energy in Russia's inefficient district heating system has been explored (Boute,

2012a). Institutionally, regulatory analyses explain how the premium scheme (Boute, 2011), the CRESS (Boute, 2013b) and the retail market support scheme (Boute, 2016) have been designed. Financially, the (limited) impact the CRESS has on electricity prices (Vasileva et al., 2015) has been computed and its risk reduction effect has been scrutinized (Kozlova and Collan, 2016). Ecologically, environmental protection is not a top priority among Russian government agencies (Skryzhevskaya et al., 2015; Tynkkynen, 2014), and in particular in promoting RES (Boute, 2016: 1032). Actors that deal with these structural constraining and enabling factors extend from international actors that normatively explain why Russia should invest in renewables (International Finance Corporation, 2011), the limited pressure from international agreements because of the beneficial Kyoto base year and Russia's reluctance to accept binding international commitments (Korppoo, 2009; Korppoo and Kokorin, 2015); to what role regional authorities could play in promoting renewables (Boute, 2013a).

There is, however, no guarantee that these regulations and economic effects translate into the (timely) commissioning of renewable energy projects. To research the gap between initial goal setting and factual implementation, a multidimensional policy cycle approach might trace a larger spectrum of enabling and constraining factors and acknowledge for multidimensional interactions in shaping Russia's CRESS throughout the entire policy making process.

3. Four dimensions of a social structurationist model

Renewable energy support mechanisms might be studied from different angles. Some scholars structure their analysis on a single actor approach (Wüstenhagen and Menichetti, 2012), or focus on renewable technologies (Mondal et al., 2010; Obydenkova and Pearce, 2016; Pristupa and Mol, 2015), the economic feasibility of renewable energy (Recalde, 2010; Vasileva et al., 2015), and the ecologic drivers of renewable energy policy (Block et al., 2011). Other, more holistic approaches envisage structural drivers and barriers of renewable energy policy to energy-deficit countries (Darmani et al., 2014). Different from these fragmented and energy dependent country oriented models, the social structurationist model (Aalto et al., 2014) integrates both actors and structures in a single model which is open to energy-endowed states. The model is most appropriate since it similarly seeks to explain energy policy formation. The model conceptualizes the policy environment in terms of structural dimensions (resource-geographic; financial; institutional; ecologic) and subsequently identifies enabling and constraining factors within each dimension to explain energy policy formation. This study applies the model to domestic renewable energy policy of an energy-endowed country (Aalto, 2012) and extends it to policy implementation. Focusing on an emerging energy sector, rather than the established oil and gas sector, has the additional advantage to sharper distinguish pre-existing informal institutions and their influence on evolving policy practices. In what follows, each of the dimensions is discussed.

3.1. Resource-geographic dimension

The resource-geographic dimension deals with the material characteristics, as well as the means of production and technology used to extract, develop and transport them within a particular geographical environment (Aalto et al., 2014). With regard to the geographical distribution, it is expected that the support scheme will prioritize projects in regions with the highest renewable energy potential. As regards technology preference (wind, solar, hydro), priority is expected to be given to renewable technologies with the largest technical potential.

3.2. Financial dimension

The financial dimension comprises "all financial transactions,

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