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The political economy of international green certificate markets ☆

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ABSTRACT

This paper analyzes the political economy of establishing bilateral trade in green certificate markets as one step towards harmonization of European green electricity support systems. We outline some of the economic principles of an integrated bilateral green certificates market, and then discuss a number of issues that are deemed to be critical for the effectiveness, stability and legitimacy of such a market. By drawing on some of the lessons of the fairly recent intentions to integrate a future green certificate market in Norway with the existing Swedish one, we highlight, exemplify and discuss some critical policy implementation and design issues. These include, for instance, the system's connection to climate policy targets, the role of other support schemes and the definition of what green electricity technologies should be included. Furthermore, the establishment of an international market presumes that the benefits of renewable power (e.g., its impacts on the environment, diversification of the power mix, self-sufficiency, etc.) are approached and valued from an international perspective rather than from a national one, thus implying lesser emphasis on, for instance, employment and regional development impacts. A bilateral green certificate system thus faces a number of important policy challenges, but at the same time it could provide important institutional learning effects that can be useful for future attempts aiming at achieving greater policy integration in the European renewable energy sector.

1. Introduction

An essential component of the European Union's energy policy is the promotion of renewable energy sources in its Member Countries, and in a recent communication the European Commission proposes a goal of a 20 percent share of renewable energy sources in the Union's total energy consumption by the year 2020 (European Commission, 2008a). For the electricity sector, the renewables (RES-E) Directive (2001/77/EC) plays a key role in this overall policy, and here several political ambitions are provided as arguments for an increased reliance on electricity produced by renewable energy sources. These include, first and foremost, improved security of supply in the Union, but also social cohesion, local employment and environmental protection are put forward as key arguments. The exploitation of renewable energy sources will also, it is argued, make it easier to fulfill the Union's Kyoto commitment more rapidly, but this constitutes essentially only a secondary goal of the Directive.

While the RES-E Directive outlines quantitative goals for the development of renewable electricity—hereafter referred to as green electricity—in each country until the year 2010, it also provides substantial freedom on the parts of national governments to select the policy instruments needed to fulfill these goals. This has left the European landscape of renewable energy policy with a wide array of different support systems and resulting price premiums to the producers of green electricity (e.g., Midttun and Koefoed, 2003; European Commission, 2005). The two most commonly used support systems are feed-in tariffs and green electricity certificates. While the former involves an obligation on the part of the electricity retailers to purchase whatever quantity of green electricity that is supplied at a given price (over and above the competitive electricity market price), the latter is typically an obligation for retailers to purchase eligible green electricity in an amount equal to a given share of their total electricity sale.[1] The two policy approaches mentioned above thus reflect a distinction between market price support and market volume support.

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[1] So far only Italy has opted for an upstream green certificate system, thus imposing the obligation on power generators or importers.

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From a European policy point of view the existing support system differentiation is by many analysts and policy-makers deemed unsustainable in a medium- to long-run perspective (e.g., Jansen et al., 2005). There are concerns that national solutions will create trade barriers and distort competition in the internal market. Most notably, The Electricity Market Directive (2003/54/EC) establishes common rules for the generation, transmission, distribution and supply of electricity within the internal market in electricity. Once this is implemented, substantial cross-border interactions will be present, thus, it is argued, making it difficult to sustain the use of differentiated support systems in the Union.[2] Several simulation studies also show that harmonized support levels—either in the form of feed-in tariffs or a green certificates system—can yield substantial cost savings (e.g., Voogt et al., 2001; Knutsson, 2002; del Rio, 2005; Huber et al., 2006; European Commission, 2008b).

During the last years, however, the EU policy on harmonized support schemes has changed. The RES-E Directive from 2001 opens up for the possibility of creating a common community framework for supporting green electricity, and a guarantee of origin is created in order to facilitate trade of green electricity (i.e. proof of the green nature of the electricity). Late in December 2005, however, the Commission decided to postpone the decision on such a EU-wide framework (European Commission, 2005). One reason was that it was considered too early to assess the pros and cons of different support schemes, not the least given the so far relatively short history of some of the support systems such as green certificates. Instead the Commission stressed the need to make the existing national systems more efficient, not the least by improving policy stability and speeding up permitting processes (Ibid.). In early 2008 the idea of future EU-wide support systems appears to have been abandoned, but the benefits of international transfers of renewable energy credits are still stressed:

> In conclusion, the Commission's preferred option is to create the regime enabling the transfer of [guarantees of origin] and to leave sufficient discretion to Member States in terms of the level and pace of their transferability. This would permit Member States to continue manage their support schemes in view of fostering renewable energy technology development within their national territory. At the same time there would be a partial market opening that allows Member States to take advantage of cheaper resources and achieve their targets in a more cost effective manner, (European Commission, 2008b, p. 13).

Thus, there exists a trade-off between pursing national benefits of green electricity promotion (e.g., industrial policy, employment, etc.) on the one hand and overall cost-effectiveness on the other hand, and the Commission leaves it in the hands of member states to judge what is best for them. Voluntary bilateral or multilateral cooperation between the European countries on green electricity support schemes is however encouraged, and some countries—e.g., Belgium and the Nordic countries—have already expressed interest in such schemes (e.g., Unger and Ahlgren, 2004; Verhaegen et al., 2007).

The above explanation suggests that the future evolution of integrated frameworks for the support of green electricity is likely to be characterized by a combination of top-down policy targets and bottom-up achievements by separate countries. Just as in the case of currency standards, a small group of countries may take the lead and a standardized approach is evolved by new Directives (European Commission, 2008a) and by example, and learning experiences are gained as the core group becomes more inclusive. As time lapses, more countries may join "in response to self-interest, persuasion, or perhaps subtle coercion," (Ellerman, 2000, p. 28). Thus, the geographic scope of international green certificate markets may differ but the above motivates a closer look at bilateral markets rather than EU-wide ones. Specifically, given the potential benefits of international co-ordination of energy policies, there exists a need to increase our knowledge of how disparate national support systems can be bilaterally integrated in ways that maintain both policy legitimacy and effectiveness.

So far, research in this field has had a rather strong focus on model simulation exercises that typically ignore the political economy aspects of such integration efforts (e.g., Unger and Ahlgren, 2004; Econ, 2004), and/or that address only the case of a completely harmonized European green certificate system (e.g., Huber et al., 2006; Voogt et al., 2001). Mozumder and Marathe (2004); del Rio (2005) and Morthorst and Jensen (2006) discuss a selected number of market behavior and policy issues; the last study also considering the case of harmonized feed-in tariffs.[3] In this paper, we add to this research agenda by (a) discussing a comprehensive set of policy issues that need to be acknowledged if a *bilateral* green certificates market is planned, including a number of issues that have not been well covered in the existing studies; and (b) explicitly considering the role of these issues in the empirical context of recent intentions to establish a common Swedish–Norwegian green certificate market.

The purpose of this paper is therefore to analyze the economics and politics of bilaterally integrating green certificate markets. We outline some of the economic principles of an integrated green certificates market, and then discuss a number of policy design issues that are deemed to be critical for the effectiveness, stability and legitimacy of an integrated market. The latter includes, for instance, problems related to the use of different definitions of renewable power sources, the existence of other public support (e.g., subsidies) for green electricity, the role of permitting processes as well as the interaction with existing national climate policies. An essential component of bilateral green certificate markets is also the fact that the consumers in one country may be obliged to pay for the development of (relatively cheap) green electricity in another country. From an economic point of view this would be an efficient outcome as it ensures a cost-effective introduction of green electricity, but it may also hamper the legitimacy of the integrated market (del Rio, 2005). Put differently, the establishment of an international market presumes that the benefits of green electricity (e.g., its impacts on the environment, the diversification of the power mix, and self-sufficiency, etc.) are approached and valued from an international perspective rather than from a national or local one. While the analysis in the paper is general in scope, we also draw from the lessons of the recent intentions to integrate a future green certificate market in Norway with the existing Swedish one (Swedish Energy Agency, 2005; Unger et al., 2006). This suggested scheme—and the discussions surrounding it—provides an interesting empirical material that can serve to highlight and exemplify some critical policy implementation and design issues and how they can be resolved in practice.

[2] To some extent one may question to what extent this is a legitimate concern. Clearly, if the transaction costs of trading across the border in the conventional electricity market are low it may become difficult and inefficient to maintain the use of different national support systems. Still, even today we have different systems for green electricity in well-integrated electricity markets. One example is the different support mechanisms for wind power in Norway and Sweden (Ek et al., 2008).

[3] Although most of the attention has been paid to the case of harmonized green certificate systems, some studies (e.g., Muñoz et al., 2007) also propose a framework for the harmonization of feed-in tariffs in Europe (see also Söderholm (2008) for a critical comment on this last study).