

National Policies for Renewable Electricity are an Obstacle to Market Integration in the European Union

By Thomas P. Tangerås*

Introduction

A cornerstone of energy policy in the European Union (EU) is to create a well-functioning internal market for electricity. Another fundamental objective is to transform the EU into an economy based upon a reliable and environmentally sustainable supply of energy.

To facilitate the transformation into a greener economy, the EU has imposed national targets for the renewable share of energy consumption, but delegates to the individual member states how to fulfil them (Directive 2009/28/EC). Electricity makes up a significant share of final energy consumption; the EU average is roughly 20 per cent. To achieve the renewable targets, many EU member states have thus implemented policies to promote the production of electricity from renewable energy sources, RES-E.

RES-E support mechanisms are now main drivers of investments in new generation capacity in many countries and thereby exercise a substantial influence over electricity prices. Price changes affect not only generation investment and consumption, but also the profitability of cross-border interconnections through the congestion rent network owners earn from buying electricity in one country and selling it more expensively in another. The cross-border interconnection capacity in turn determines the degree of market integration by restricting the volume of electricity trade between countries. Market integration, as measured by the volume of trade, and RES-E support mechanisms are therefore linked through the electricity market.

The Objectives of Increased RES-E Production and Market Integration are Mutually Inconsistent

A problem with implementing the desired EU energy policy is that the twin goals of increased RES-E production and market integration may oppose one another when implementation is decentralized to the individual member states.

Governments can choose between a host of instruments to promote investments in renewable electricity: green certificates (also known as renewable portfolio standards), feed-in tariffs, investment support and taxes on electricity production from non-renewable energy sources, to name a few. This menu of instruments leaves ample room for national policy makers to pursue additional objectives unrelated to the official goal of increasing renewable electricity production.

National policy makers can increase surplus in an electricity importing country by introducing certificates or feed-in-tariffs which serve to reduce the import price of electricity. A corresponding production tax on non-renewable electricity production increases the export price of electricity and thereby domestic surplus in an electricity exporting country. A unilateral pursuit of such domestic RES-E policies decreases cross-border price differences, with negative consequences for congestion rent, transmission investment and thereby market integration.¹

The Historical Adoption of RES-E Policies Among EU Member States

In light of the above arguments one might expect electricity importing countries to have been keener on renewable portfolio standards and feed-in-tariffs than electricity exporting countries and therefore introduced them at an earlier stage.

Table 1 partitions 27 EU member states (Croatia is not in the sample) into early adopters and late adopters depending on whether they introduced a RES-E policy prior to or later than 2002, the median year of enacting a RES-E policy in the sample. The table also characterizes the sample according to trade flows. A member state is defined an electricity importing (exporting) country if its average annual net import (export) volume of electricity was statistically significant at the 10% level over the period 1990-95. A balanced country had an average annual net trade insignificant from zero.²

	Import	Balanced	Export
Early adopters	GR, IT, LU, PT	AT, DE, DK, ES	FR
Late adopters	FI, GB, HU, LV, NL, RO, SK	BE, BG, CY, IE, MT, SE	CZ, EE, LT, PL, SI

The data seem consistent with the hypothesis of early adoption and trade flows. Four of the early adopters (Greece, Italy, Luxembourg and Portugal) were

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See footnotes at end of text.

net importers of electricity, whereas all net exporters except for one (France introduced a RES-E policy in 2001) were late adopters. Three of the early adopters, Denmark, Germany and Spain, were import countries on average, although not in a statistically significant sense. These findings should be interpreted with caution because they could have other explanations. Still, they are indicative that trade flows could have an impact on the adoption of RES-E policies.

What are the Policy Implications?

Governments can use RES-E schemes as substitute policies when trade agreements prevent them from using tariffs and export subsidies directly. Trade policy concerns speak in favour of prohibiting RES-E mechanisms. But environmental or other externalities, such as spill-over effects from R&D investments in renewable technologies, sometimes justify RES-E support policies on welfare economic grounds.

A possibility would be to coordinate investments at a centralized level. This would require of the central authority that it knew the distribution of costs and benefits of renewable electricity throughout the economy. More plausible is the assumption that a central planner would be incompletely informed about relevant aspects of the member states' economies. This renders some decentralization desirable.

A harmonization of and reduction in the number of policy instruments would reduce the risk of distortions under decentralized policy making by limiting the scope for pursuing ulterior motives. A particular promising strategy would be to follow the lead of Sweden and Norway and create an integrated market for green certificates. Trade in certificates increases efficiency by reallocating renewable investments to their most socially beneficial location.

Harmonization may be incapable of fully eliminating all distortions arising from decentralized policy making. If so, the observed differences in electricity prices across countries are likely to underestimate the marginal social benefit of cross-border interconnections. In this case, subsidies to transmission investment at the central level are one way of increasing market integration and efficiency.

Energy Policy in the EU Beyond 2020

The European Commission has recently presented its proposals for an energy policy posterior to 2020. It is now up to Parliament and the member states to reach an agreement. This process provides an opportunity to reassess the EU energy policy and possibly modify it along the lines discussed above.

A future harmonization may in fact be unavoidable. In a recent Opinion, Advocate-General Yves Bot at the European Court of Justice came to the conclusion that Article 3.3 of Directive 2009/28/EC is void insofar as it allows member states to limit producers' in other member states access to domestic RES-E mechanisms. This would represent a quantitative restriction on imports and thus be in violation of Article 34 of the EU Treaty. If the court accepts this Opinion, it will become impossible to uphold national support systems. One solution is an EU-wide mechanism which provides equal access to all producers of renewable electricity. A properly designed integrated support system would furthermore increase the efficiency of electricity supply in the EU.

Footnotes

¹ The EU seems to have recognized the potential for member countries to use national policies for trade policy reasons. Directive 2001/77/EC, which lays the foundation for RES-E policy in the EU, states that "the Commission shall evaluate ... mechanisms used in Member States according to which a producer of electricity ... receives direct or indirect support, and which could have the effect of restricting trade."

² The data on RES-E policy are from Jenner, S., Chan, G., Frankenberger, R. and Gabel, M. (2012) 'What drives states to support renewable energy?' *Energy Journal* 33 (2), 1-12. The trade flow data are from Eurostat.

Renewable Generation and Capacity Markets (continued from page 28)

Footnotes

¹ The nature of capacity markets has been well documented and summarized in the literature; see Symposium on 'Capacity Markets,' *Economics of Energy and Environmental Policy*, Vol. 2, Issue 2, September 2013.

² P. 55-56, *2013 Annual Report on Market Issues & Performance*, California ISO Department of Market Monitoring, April 2014.