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Promotion of Renewable Energy in the EU: Critical Assessment of Grid-Related Incentives

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Abstract

This paper criticizes measures that allow Member States of the European Union (EU) to provide priority treatment for electricity produced from renewable energy sources (RES) in terms of connection and access to the grid, and dispatch of electricity on the grid. It argues against the priority rules set out in the Renewable Energy Directive of 2009 and comes out in favour of grid operation neutrality. To arrive at this conclusion, this paper provides an overview of the nature of priority rules, reviews the distinct problems related to the application of priority rules, objectives of the implementation of Third Energy Package and available legal remedies for the protection of legitimate interests of electricity generators.

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The European Union (EU) has set a goal of increasing the share of renewable energy by 27% by 2030. In the electricity sector, besides measures promoting the use of renewable energy sources (RES) in the production stage, the Renewable Energy Directive of 2009 (RE Directive) stipulates measures that allow Member States to introduce priority connection, priority or guaranteed access to the electricity grid, and priority dispatch of renewable energy-sourced (RE-sourced) electricity.² This paper will address part of the technological bias problem that occurs in the technologically diverse electricity sector at the grid operation level. It will provide an overview of the effects of the EU's priority rules, and the problems related to the implementation of priority rules from the standpoint of policy-making and law.

1. PRIORITY RULES

Rules on priority dispatch of RE-sourced electricity emerged with the First Electricity Directive in 1996. Priority connection and access measures were introduced after the European Commission concluded the second (2003) and third (2009) packages of legislative proposals for the electricity and gas markets. These rules were expected to help new technologies and players enter the electricity markets. They were also intended to address market failures, such as dominance of vertically integrated utilities, inadequate infrastructure, and burdensome authorization procedures for planning, building and operation of grids, which existed at the Member State level.³

A. Priority rules in the RE Directive

The RE Directive imposes several grid-related measures. Member States have to ensure that transmission system operators (TSOs) and distribution system operators (DSOs) in their territories guarantee the transmission and distribution of electricity produced from RES.⁴ They must provide for either priority access or guaranteed access to the grid system for electricity produced from RES.⁵ They also need to ensure that, when dispatching electricity, TSOs give priority to electricity generators using RES.⁶

These requirements translate into four different priorities stipulated in the RE Directive that affect technical operation of the grid:

² Article 16(2) and 16(3) of the RE Directive.

³ See: European Commission, 2007, "Communication from the Commission to the Council and the European Parliament. Renewable Energy Road Map. Renewable Energies in the 21st Century: Building a More Sustainable Future." European Commission, 2006, "Communication from the Commission to the Council and the European Parliament Green Paper Follow-up Action Report on Progress in Renewable Electricity."; European Commission, 2013, "COMMUNICATION FROM THE COMMISSION. Delivering the Internal Electricity Market and Making the Most of Public Intervention."

⁴ Article 16.2(a) RE Directive.

⁵ Article 16.2(b) RE Directive.

⁶ Article 16.2(c) RE Directive.

- *Priority connection*⁷ requires Member States to grant a priority connection or reserved connection capacities to new RES generators;
- *Priority access*⁸ requires Member States to provide an assurance to connected generators of electricity from RES that they will be able to sell and transmit the electricity from RES in accordance with the connection procedures at all times, whenever the source becomes available;
- *Guaranteed access*⁹ requires Member States to provide an assurance that electricity sold will obtain access to the grid, allowing the use of a maximum amount of electricity from RE-electricity generators connected to the grid;
- *Priority dispatch*¹⁰ requires Member States to dispatch electricity from RES before dispatching electricity from other generating installations.

However, the text of the RE Directive includes the provision ‘insofar as the operation of the national electricity permits’. Therefore, it creates the impression that grid-related measures are supposed to ensure preference for RE-electricity generators, but *de facto* provides the freedom for Member States to decide whether to implement the grid-related incentives, or not. Thus priority rules for RE-electricity generators have been exercised rather freely by the Member States (*see* Section 1.B).

B. Priority rules in the national legislation

The extent to which priority measures are implemented varies widely. Most of the Member States have different connection charge regimes as well as different distribution cost regimes.¹¹ Most of them also apply non-discriminatory treatment for connection of RE-electricity generators, but give preferential access and dispatch to RE-electricity generators. Some Member States do give priority for connection and access, and dispatch of electricity on the grid. Others apply non-discriminatory treatment irrespective of the technology used for the generation of electricity.¹²

For instance, according to the Council of European Energy Regulators, France and Sweden do not give priority either for connecting or for dispatching of RE-sourced electricity. Belgium and Spain, in contrast, give priority for connection, access and dispatch for RE-electricity generators. The United Kingdom provides guaranteed access for electricity produced from all types of generators whereas Germany requires the grid operator to connect to the RE-

⁷ Recital (60) RE Directive

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ Art. 16 RE Directive;

¹¹ Council of European Energy Regulators, 2015, “Status Review of Renewable and Energy Efficiency Support Schemes in Europe in 2012 and 2013.” pp. 32–36.

¹² *Ibid.*

electricity generators first and to ensure the priority access to the RE electricity generators.¹³

These dissimilarities place the developers and the traders of RE-electricity in completely different positions in different Member States. Also, they undermine the incentive to locate RE-electricity production where the resource is optimal. Yet, these issues have been addressed in the European Commission reports,¹⁴ but so far the regulatory changes have not been proposed at the EU level.

C. Priority rules in the energy efficiency directive: further discussions?

The Energy Efficiency Directive (EE Directive)¹⁵ contains similar provisions to those of the RE Directive, addressing transmission, access to and dispatch of electricity on the grid. However, the regulatory framework stipulated under the EE Directive calls for debate on the principle of non-discrimination beyond the issues addressed in light of the RE Directive.

First, unlike the RE Directive, it allows priority for grid access to be given not only to RE-electricity generators, but also to some conventional combined heat and power (CHP) technologies. Second, it introduces the term 'variable renewable energy sources' and raises the question of discrimination between 'variable' and 'non-variable' RES. Yet, there is no legal definition of 'variable renewable energy sources' or 'non-variable renewable energy sources' provided at the EU level.¹⁶

2. NON-DISCRIMINATION AT GRID OPERATION LEVEL

This section outlines arguments against the grid-related incentives and in favour of non-discrimination against electricity generators. More specifically: section A highlights the problems arising from the application of priority rules; section B addresses the objective of transmission system operation and introduces less trade-restrictive policy options; section C discusses the conflicting nature of unbundling objectives and priority rules, as well as available legal remedies that are arguably sufficient to tackle the problems pertinent to RE connection and integration; section D outlines possible inconsistency of priority rules stipulated in the RE Directive with the WTO framework.

¹³ *Ibid*

¹⁴ See: European Commission, 2013, 'COMMUNICATION FROM THE COMMISSION. Delivering the Internal Electricity Market and Making the Most of Public Intervention'.

¹⁵ The Energy Efficiency Directive was introduced in 2012.

¹⁶ S. Reith, T. Kolbel, P. Schlagermann, 2012, *Legal Conditions for Grid Access*, GeoElec, p. 12-14.

A. Technical shortcomings

The literature identifies several distinct problems related to the use of the grid-related incentives that may curb the importation and exportation of electricity and adversely affect decisions to invest in other technologies. First, application of priority dispatch rules to RE-sourced electricity creates loop flows (unplanned power flows) limiting the cross-border transmission capacity that could be offered to the market and which could potentially block the international electricity trade flows 'by either increasing security margins at interconnectors or by execution of counteracting measures during their occurrence'.¹⁷ Second, when there is a surplus of renewable power, priority access to the grid may undermine the economics of conventional power technologies to the extent that they are no longer profitable.¹⁸ Third, an increase in RE production may induce a shutdown of certain thermal power plants. The start-up of a thermal power plant that has had to be shut down due to the increase of RE could release significant emissions, which may exceed the emission savings from the increased use of renewables.¹⁹

B. Objective of the transmission system operation and non-discrimination

The key task of the transmission system operator (TSO) is to match production with consumption at any given time. This task entails the central coordination of producers and - to some extent - large consumers. It is exercised with due regard to the use of interconnectors with other electricity systems.²⁰

From the standpoint of transmission operation, the elimination of obstacles related to RE connection and integration through introduction of priority rules is, arguably, excessive and unjustifiable: (i) some renewable electricity generating technologies are comparable with conventional electricity generating technologies; (ii) RE connection and integration can be facilitated with grid adaptation and market arrangements, (iii) implementation of priority rules may *de facto* be unnecessary. These three aspects are briefly dealt with below.

First, RE comprises a heterogeneous class of technologies, which can be variable and unpredictable over differing time scales, variable but predictable, constant or controllable.²¹ Therefore, some of the renewable electricity

¹⁷ The European Wind Energy Association, 2013, "EWEA Position Paper on Priority Dispatch of Wind Power. A Paper from the EWEA Large-Scale Integration Working Group." p. 13.

¹⁸ G. Wynn, "Europe's Wind and Solar Grid Challenge.", Reuters, 2013. Website: <http://www.businessspectator.com.au/article/2013/9/19/renewable-energy/europes-wind-and-solar-grid-challenge>. Accessed: 10/10/2014.

¹⁹ See: O. Rosnes, "Subsidies to Renewable Energy in Inflexible Power Markets."

²⁰ B. Barton, L. K. Barrera-Hernandez, A. R. Lucas, and A. Ronne, *Regulated Energy and Natural Resources*, Oxford University Press, 2006, p. 174.

²¹ Intergovernmental Panel on Climate Change, 2012, 'Renewable Energy Sources and Climate Change Mitigation', Cambridge University Press, p. 8

generating technologies can be controlled by the system operator similarly to the conventional electricity generation technologies. They may provide base load (e. g. nuclear, coal v. biomass, solar thermal with storage, hydropower)²², intermediate load (e. g. coal v. geothermal) or peak load power (e. g. gas turbines v. solar).²³ Thus, application of different grid access and dispatch rules to 'renewable' and 'non-renewable' electricity generators, which have similar ability to supply electricity, is unjustified from the system operation point of view. This is because the requirement to feed in electricity produced from a specific source is not associated with particular qualities of the electricity, but with outcomes experienced at the production stage.

Second, Member States of the EU implement priority rules without considering less trade-restrictive measures. The measures, which shall be undertaken to facilitate connection and integration of variable and non-variable RE sources have been discussed for years. In 2011, for instance, the European Network of Transmission System Operators for Electricity suggested to facilitate RES integration by encouraging market actors to balance the electricity they produce; by developing cross-border electricity balancing markets, etc.²⁴ In 2013, European Wind Energy Association proposed full implementation of flow-based capacity calculation methods; implicit allocation of transmission capacity, etc.²⁵ However, the EU has not yet considered substitution of priority rules with measures that ensure non-discrimination of different electricity generating technologies.

Third, implementation of the priority rules in the Member States may not necessarily tackle the problems pertinent to RE connection and integration. On one hand, RE connection and integration barriers vary greatly across states, from issues relating to connection costs and capacity limits to grid curtailment, inefficient administrative procedures and capacity speculations.²⁶ On the other, priority rules may be implemented by Member States irrespective of the nature of the problems that are pertinent to a particular electricity market. As a consequence, priority rules in the Member States not only do not necessarily tackle the problems pertinent to RE connection and integration, but at the same time unreasonably distort the electricity trade.

In addition to the above, the priority rules stipulated in the RE Directive do not place any safeguards that would avoid market concentration, prevent dominant undertakings from becoming (in)direct beneficiaries, or mitigate

²² The base load discrimination issues between renewable electricity and conventional electricity suppliers are not addressed in this paper, as this is not subject of analysis

²³ B. Harack, "How Can Renewables Deliver Dispatchable Power on Demand? ". Website: <http://www.visionofearth.org/industry/renewable-energy/renewable-energy-review/how-can-renewables-deliver-dispatchable-power-on-demand/>. Accessed: 10/10/2014.

²⁴ See: European Network of Transmission System Operators for Electricity, 2011, 'Developing Balancing Systems to Facilitate the Achievement of Renewable Energy Goals'

²⁵ See: The European Wind Energy Association, 2013, "EWEA Position Paper on Priority Dispatch of Wind Power. A Paper from the EWEA Large-Scale Integration Working Group." p. 3, 13-16.

²⁶ S. Reith, T. Kolbel, P. Schlagermann, Geolec, 2012 *Legal Conditions for Grid Access*, pp. 12-14.

other related problems, which could have detrimental effects on competition or the effective functioning of the related electricity market. This is important, as aggressive expansion of renewables (e. g. in Germany) may threaten cross-border electricity transmission systems security (e. g. in Poland, in Czech Republic)²⁷ as well as deviate competition in respective markets.

C. Unbundling objectives, priority rules and regulatory safeguards

One of the core objectives of the Third Energy Package (2009) was to unbundle the electricity transmission operation activities from the electricity generation and supply. This unbundling was, on one hand, designed to eliminate the dominance of the vertically integrated utilities, and on the other, to create an open and transparent market with non-discriminatory access to electricity networks.²⁸

The European Commission itself concluded that unbundling measures are sufficient to achieve their policy objectives. Therefore, as vertically integrated utilities have been considered to retain connection and integration of new RE-electricity generators, application of priority rules after implementation of the Third Energy Package goes against the nature and purpose of the Third Energy Package itself.

However, even assuming that the unbundling is not sufficient to ensure non-discriminatory access for new RE-electricity generators, the EU laws and regulations provide significant safeguards and legal remedies to new generators that are sufficient to defend their interests. The measures below may be invoked both, by renewable and conventional electricity generators:

- First, the Electricity Directive allows denial of access to the electricity grid only when the respective TSO lacks the necessary capacity. Even if access is denied, it must be duly substantiated by the respective TSO and based on objective and technically and economically justified criteria.²⁹ Therefore, if a generator is denied access on discriminatory grounds, it can defend its interests before the domestic courts and claim for damages.
- Next, the Electricity Directive requires Member States to establish independent regulatory authorities. These regulatory authorities are granted a right to intervene in the TSOs activities, if this is necessary.³⁰

²⁷ See: J. Lopatka, 'Czech grid acts to guard against German wind power surges', Reuters, 2013. Website: <http://uk.reuters.com/article/2013/04/17/czech-germany-grid-idUKL5N0D43LA20130417>. Accessed: 15/12/2014; G. Parkinson, 'Poland builds electronic wall to keep out German renewables', Reneweconomy, 2013. Website: <http://reneweconomy.com.au/2013/poland-builds-electronic-wall-to-keep-out-german-renewables-72084>. Accessed: 15/12/2014.

²⁸ See: European Commission, DG Energy, 2011, "The Entry into Force of the EU Third Energy Package".

²⁹ Article 32(2) of the Electricity Directive.

³⁰ The regulatory authorities of the EU Member States are assigned the tasks of market monitoring and market regulation. See: *Regulated Energy and Natural Resources*, Barry Barton, Lila K. Barrera-Hernandez, Alastair R. Lucas, and Anita Ronne, Oxford University Press, 2006, p. 180).

Therefore, if TSOs place discriminatory obstacles that prevent connection, access and dispatch of electricity on the grid, the national independent regulatory authorities may modify these rules and eliminate the barriers.³¹

- Finally, the competition rules established under the Treaty on the Functioning of the European Union restrict the TSOs from abusing their dominant position. Violation of the EU's competition rules may result in a fine of up to 10% of total annual income.³² The jurisprudence on third-party access demonstrates that competition laws may effectively prevent TSOs from abusing the dominant position.³³

D. Inconsistency with the WTO's framework

Rules on connection to the grid arguably fall outside the WTO framework, as construction and expansion of infrastructure is a national prerogative. However, grid access and dispatch rules are obviously subject to GATT application.

The nature of electricity and transmission system operation may lead to the conclusion that RE-electricity and conventional electricity are 'like'. This is provided that in some of the disputes the Panel concluded that 'it runs *de facto* counter to GATT obligations to regulate a product by applying criteria which are completely extraneous to that product'³⁴. In this regard, it must be reminded that the requirement to feed in electricity produced from a specific source is not associated with particular qualities of the electricity, but with outcomes experienced at the production stage. The nature of electricity does not allow its origin to be determined once it is fed into the electricity grid.

As a consequence, grid-related incentives may be acknowledged³⁵ to contravene the GATT³⁶ rules if it can be proven that priority rules adversely affect the electricity trade. More specifically such incentives may be in breach of: (i) the national treatment obligation³⁷, as only domestic undertakings may

³¹ Article 36(e) of the Electricity Directive.

³² See: K. Alexander, 2007, Third-party Access Rights in the Energy Sector: A Competition Law Perspective. *Utilities Law Review* 16(3), pp. 102-118.

³³ Article 102 of the Treaty on the Functioning of the European Union.

³⁴ See: Fitzgerald R., *Trade in Water in International Law – Bulk Fresh Water, Irrigation Subsidies and Virtual Water*, Ph.D. thesis, p. 157-158, 169. Also: Panel Reports (*US – Tuna Dolphin II, EC-Seal*). On the other hand, there is a policy space to argue that 'renewable' and 'non-renewable' electricity is not 'like', provided distinct characteristics of electricity (Howse, 2013). In any event, priority to renewable electricity over non-renewable electricity is subject to defense under Art. XX (b) and (g) of GATT. This paper does not examine application of Art. XX(b) or (g) of GATT.

³⁵ G. Marceau, "The WTO in the Emerging Energy Governance Debate.", the Graduate Institute Geneva, p. 3.

³⁶ General Agreement on Tariffs and Trade.

³⁷ Art. III:2 and Art. III:4 GATT.

benefit from the priority rules³⁸; (ii) the prohibition on quantitative restrictions, as the application of priority rules obviously reduces the electricity import and export volumes (both RE and conventional);³⁹ and (iii) transit obligations,⁴⁰ as loop flows may obstruct transit and access to the grid (both RE and conventional electricity generating undertakings).

Non-compliance with the WTO framework would require the EU to implement grid-related measures by taking a technologically neutral approach, opening up the offer of grid-related incentives to foreign undertakings. However, most of the WTO disputes so far have been related to the production of energy equipment, anti-dumping and countervailing duties, and local content requirements,⁴¹ rather than the trade in electricity as a product. Therefore, it is difficult to predict the outcome of such litigation if brought before the WTO dispute settlement bodies. In particular, provided that it is not clear if renewable and conventional electricity is to be treated as 'like', or not.

CONCLUSIONS

Instead of priority rules, the regulation of the connection to the grid and operation of the grid should be replaced with rules aiming to ensure neutrality across technologies through grid adaptation and market arrangements. There are several reasons that justify this approach. First, some conventional and renewable electricity generating technologies have similar technical characteristics in terms of ability to supply electricity. Second, the major obstacles to RE connection and integration are addressed through unbundling objectives, and through institutional control. Third, priority rules application arise shortcomings in the market (loop flows, unpredictability, etc.). Lastly, they are potentially against the WTO framework.

³⁸ Grid-related incentives at the Member State level are usually tied up with the RES targets set by the Member States of the EU and, inter alia, RE support schemes. These RE support schemes are usually restricted only to the use by domestic undertakings. In the most recent cases – *Essent and Ålands* – restrictions of the use of RE support schemes against foreign undertakings were justified under the climate change mitigation objective.

³⁹ Art. XI GATT.

⁴⁰ Art. V GATT.

⁴¹ T. Cottier, 2014, "Renewable Energy and WTO Law: More Policy Space or Enhanced Disciplines." RELP, p. 43.