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# Can We Trust Electricity Prices?

**The Case for Improving the Quality of  
Europe's Market Monitoring**

Author

**Sarah Key-Bright**

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## Acronyms

<b>ACER</b>	Agency for the Cooperation of Energy Regulators	<b>ISO-NE</b>	ISO New England
<b>AER</b>	Australia Energy Regulator	<b>MMR</b>	Market Monitoring Report
<b>CEER</b>	Council of European Energy Regulators	<b>MMUs</b>	Market Monitoring Units
<b>ERCOT</b>	Electric Reliability Council of Texas	<b>MS</b>	Member States
<b>FERC</b>	Federal Energy Regulatory Commission	<b>MSP</b>	Market Surveillance Panel
<b>IEM</b>	Internal Energy Market	<b>NRA</b>	National Regulatory Authority
<b>IESO</b>	Independent Electricity System Operator	<b>NYISO</b>	New York Power Market
<b>IMM</b>	Independent Market Monitors	<b>REMIT</b>	Regulation on Wholesale Energy Market Integrity and Transparency

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## Executive Summary

One of the essential components of competitive wholesale electricity markets is *market monitoring*—the process by which producers and consumers can be assured that power markets are functioning effectively and that power market prices have been set due to costs, values, and system conditions, as opposed to through the exercise of market power, strategic withholding, or manipulation. This policy brief discusses the existing EU framework for electricity market monitoring and includes comparison to global best practice. *Market monitoring* involves *market surveillance* to prevent and address any wrongdoing, as well as market performance assessment to examine and improve the economically efficient functioning of the internal energy market, including efficient price formation, and achievement of EU Energy Union goals. This paper concludes that the EU’s market monitoring framework could be much improved and should be reviewed. The market design initiative, which includes review of the Electricity Directive, the Agency for Cooperation of Energy Regulators (ACER) regulation and other relevant legislation, provides an opportunity to make improvements to the existing framework. An appropriate next step would be to undertake a multi-stakeholder process to review the options. Questions that should be addressed as part of this review process can be found in the concluding section of this paper.

***Most stakeholders agree that system-reflective pricing should be an outcome of the EU’s market design initiative and is key to consumer engagement.***

The results of the European Commission’s market design consultation<sup>1</sup> revealed that the majority of stakeholders are very supportive of further market integration and wholesale electricity prices that reflect temporal and locational resource conditions. Effective scarcity and surplus pricing is necessary to ensure investment in not only the quantity of resources needed to ensure security of supply, but also in the needed capabilities of the resource mix. Price variability in wholesale prices is critical to the business case

for flexibility services, including demand response, interconnection, and storage, which are necessary to cost-effectively integrate variable renewable energy generation. These flexible resources in turn bring multiple benefits to participating consumers and wider society, including a dampening effect on extreme prices, either positive or negative, as well as lower average prices.

***In Europe today, however, politicians and regulators do not trust prices, and rightly so.***

Prices in most European power markets are far from reflecting the real-time state of the power system. This is largely because of regulatory interventions made to protect electricity consumers from high prices out of fear that dominant market players will abuse their market power and hold consumers to ransom. This is a valid concern for several reasons: the market share of the largest electricity producer was greater than 50 percent in 15 countries of the EU28 in 2013;<sup>2</sup> cross-border trade is not yet reaching its full potential in many regions, including the failure so far to complete the coupling of balancing markets; and also energy demand, particularly in the residential sector, is not yet very responsive.<sup>3</sup> Such price controls can include price caps in wholesale electricity markets and controls on retail prices. For example, around half of EU countries are still regulating household electricity prices.

Price controls can lead to further interventions, which can vary widely across Europe (e.g., capacity remuneration mechanisms) and can have distorting impacts on the functioning of the internal energy market

- 1 See the preliminary results of the European Commission’s market design consultation: <https://ec.europa.eu/energy/en/consultations/public-consultation-new-energy-market-design>
- 2 European Commission. (2015). *EU Energy in Figures: Statistical Pocketbook 2015*. Luxembourg: Publications Office of the European Union.
- 3 Smart Energy Demand Coalition. (2015). *Mapping Demand Response in Europe Today—2015*. Brussels: SEDC.

(IEM). Higher-quality market performance assessment with effective feedback into decision-making could make an important contribution to addressing this problem.

Some Member States in Europe such as the UK and Germany, however, are taking steps to sharpen price signals. Such efforts can easily come up against resistance and criticism, as already happened in the UK at the end of 2015.<sup>4</sup> Political sensitivity to high prices will likely increase as the Energy Union goals of engaging the energy consumer and revealing the value of flexibility moves energy reforms towards increased exposure of consumers to time-varying prices.

***High quality market monitoring is crucial to establishing stakeholders' confidence in prices and markets but the quality of EU market monitoring falls considerably short relative to global best practice. The quality of data analysis and communications must be dramatically improved, requiring better access to data and more resources.***

Stakeholders need access to timely, independent expert analysis on market participant behaviour, the functioning of the markets, resulting prices, mitigating actions and enforcement. Without this, stakeholders are more likely to voice opinions and concerns that may be incorrect, incomplete, lack understanding of power markets and that could lead to sub-optimal outcomes or unnecessary interventions. High quality and timely data analysis makes it much easier for regulators or system operators to implement actions with confidence and in a timely manner. Market monitors must therefore have access to the data they need but at present, ACER's access to necessary data is constrained. The Annex of this paper provides a detailed comparison of the quality of data analysis and reporting/communications of different market monitors around the world and reveals the potential for improvement at the EU-level.

It is not within the scope of the policy brief to identify which metrics and data are missing from existing EU-level reports and assessments. An obvious data gap, however, relates to the participation of the demand side in electricity markets. A thorough review should be undertaken.

***The quality of investigations and enforcement must be improved.***

The follow up of cases identified by ACER and enforcement is currently inadequate, and this appears to be for several reasons: in some cases the national regulatory authority (NRA) does not yet have adequate powers; in others the NRA does not have adequate

capability or capacity; penalties applied by NRAs are diverse and inadequate; and/or the NRA/Member State is unwilling to act. The Commission must clearly ensure implementation of existing legislation to be sure that NRAs have the needed powers. In addition, other measures that could improve the quality of investigations and enforcement should be considered, including the strengthening of ACER's role in investigations and right to initiate investigations.

***The market monitoring activities of ACER are severely under-resourced. Economising on the quality of market monitoring, investigation and enforcement is a false economy and consumers can end up paying dearly for it.***

Currently, ACER's resources (and likely those of some Member State NRAs), are clearly inadequate for the duties it is supposed to undertake let alone the improvements that this paper suggests are needed. Experience from other jurisdictions along with evidence available, albeit limited, from implementing the Regulation on Wholesale Energy Market Integrity and Transparency (REMIT), illustrates that the value of effective market monitoring far exceeds the costs to put it in place. Compromising on the quality of market surveillance and market performance assessment, investigation and enforcement, is surely a false economy and unfair to consumers.

***The EU's market monitoring framework needs to be consolidated and integrated.***

There are interactions between market surveillance and market performance assessment as market structure and market design can influence market participant behaviour. While the data needs and activities for market surveillance and assessment of market performance are different, it is necessary to integrate the two functions within a single market monitoring authority with effective internal institutional structures that enable integrated teamwork. At present, in Europe, these functions are institutionally separated, even within ACER, with requirements set out in different laws.

***Effective market monitoring requires effective governance and a degree of independence.***

Market monitoring includes assessment of the structure and design of the market, the management

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4 Gosden, E. (2015, November 24). MPs Demand Ofgem Investigation Over Power Market Abuse Fears. *The Telegraph*.

of the network/system, analyses of Member State energy policies and impacts on the IEM and progress with implementation and enforcement. These fundamental elements are in the hands of regulators and system operators. If market monitors are to issue recommendations on these activities, it is necessary that they be independent, to an appropriate extent, of the actors responsible for these activities. Several structural options to secure the needed degree of independence are possible. It is also necessary that the governance structure of the market monitoring framework makes clear who is responsible for what.

### ***A regional approach is needed.***

Regional power market integration can bring both efficiency and environmental gains, and increased cross-border trade is a high-level European goal. The need to carry out market monitoring and investigations at regional or EU level will become increasingly necessary

with growth in the volumes of cross-border trade. This need will be driven by further market integration, particularly with the coupling of balancing markets. Furthermore, any harmonisation of energy policies or interventions are more likely to be achieved at the regional level first, rather than at the EU level.

### **Introduction**

This policy brief explains the crucial role that effective market monitoring plays in liberalised power markets. As it is beyond the scope of this paper to provide a comprehensive assessment, the purpose of this paper is to initiate discussion on whether the current market monitoring framework in Europe is adequate for the needs of key stakeholders today and in the future. The brief concludes that the framework could and should be improved and recommends some areas that should be assessed along with some options to be considered under the European Commission's market design initiative.

# 1. What is Market Monitoring?

Following liberalisation of power markets in a number of jurisdictions around the world, market monitors have been established in order to oversee the conduct of market participants and to ensure these markets function effectively. At the time of liberalisation, many national markets were dominated by large, vertically integrated, state-owned utilities. Thus, the market power of these companies has required special attention during the process of liberalisation. The most recent data show that the market share of the largest electricity producer is greater than 50 percent in around half the countries of the EU.

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Market monitoring is needed to ensure market players behave appropriately and do not abuse their market power. The electricity sector has particular characteristics that create opportunities for the exercise of market power, manipulation or gaming. Most importantly, the physical system must be balanced in real time, and system operators employ multiple procedures to assure power quality and reliable service. In addition, demand-side participation in the markets is an important aspect as energy demand—in the absence of significant market design reforms<sup>5</sup>—is historically inelastic. To cite another example, transmission constraints can lead to a local concentration of market power.

To be credible, a market monitoring mechanism needs to be independent, technically competent, transparent, have the capacity and the latitude to properly scrutinise market data in a timely manner and have the resources and communications skills to effectively explain findings to all stakeholders, including the general public. Market monitors must also have the capability to respond swiftly, as things can go very wrong very quickly in real-time power markets, as in the case of California in 2001-2002.<sup>6</sup> Invest-

tigations and enforcement are also important functions of market monitoring, though not necessarily carried out by the same organisations conducting the monitoring itself. Market monitoring arrangements in organised power markets vary considerably from jurisdiction to jurisdiction. In general, market monitoring mechanisms have the purpose<sup>7</sup> of:

- Detecting and preventing excessive deviations of prices from competitive levels—important for consumer protection and EU global competitiveness;
- Imposing constraints on dominant companies;
- Supporting decisions on mergers and behavioural remedies;
- Guiding decisions or reforms relating to market design (market rules and regulation) and market structure.

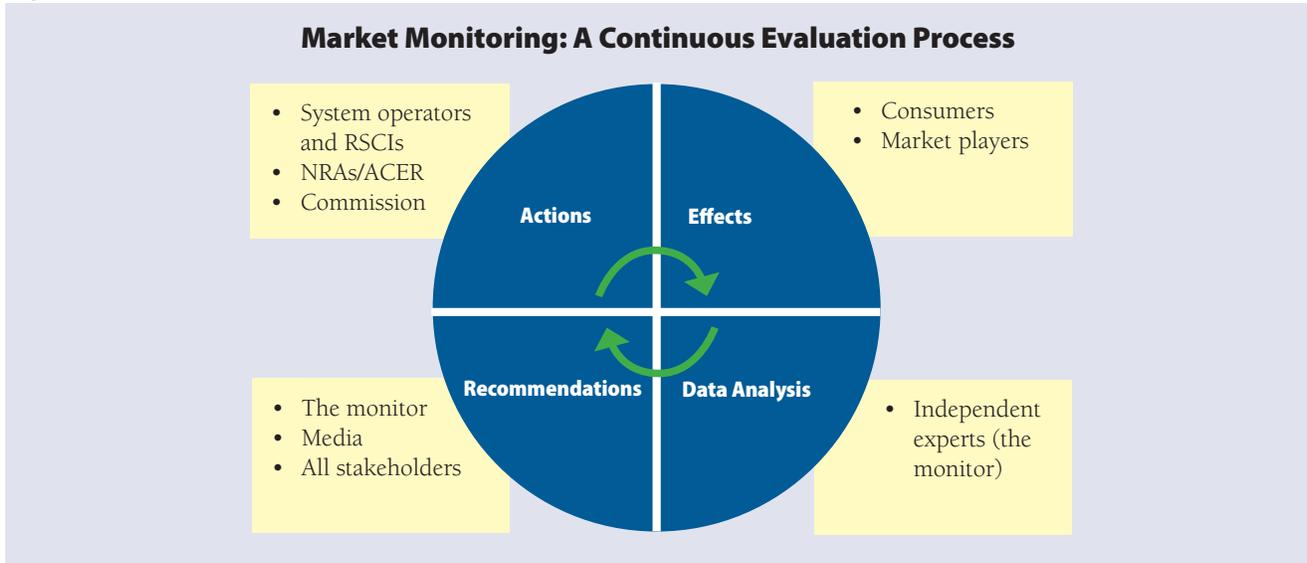
**To be credible, a market monitoring mechanism needs to be independent, technically competent, transparent, have the capacity and the latitude to properly scrutinise market data in a timely manner and have the resources and communications skills to effectively explain findings to all stakeholders, including the general public.**

5 See: Baker, P., & Hogan, M. (2016). *The Market Design Initiative: Enabling Demand-Side Markets*. Montpelier, VT: The Regulatory Assistance Project. Retrieved from <http://www.raponline.org/document/download/id/8055>

6 See the US Energy Information Administration for an overview. Retrieved from <http://www.eia.gov/electricity/policies/legislation/california/subsequentevents.html>

7 Newbery, D., Green, R., Neuhoff, K., & Twomey, P. (2005). A review of the monitoring of market power: The possible roles of transmission system operators in monitoring for market power issues in congested transmission systems. *Journal of Energy Literature*, 11(2), 3-54.

Figure 1



Globally, as illustrated by the examples in the Annex, there exists considerable variation in market monitoring arrangements with respect to governance, capacities and capabilities to monitor and analyse data, powers to address wrongdoing and the extent to which monitors are proactive as opposed to reactive. However, market monitoring should be a continuous evaluative process in order to effectively prevent wrongdoing and to improve functioning of the markets over time. With this in mind and given the experience of market monitors operating around the world today, the key functions of an effective market monitoring mechanism should include the following (summarised in Figure 1):

- Analysis of market data on a continuous basis to identify problems relating to the functioning of the market, compliance and behaviour of market participants that need scrutiny.
- Investigate problems identified through data screening/analysis or reported by stakeholders.
- High quality investigations, effective enforcement and mitigating actions.
- Evaluate market performance, as regards economic efficiency and efficient price formation and provide recommendations for improvements.
- Report on the results of the analyses and investigations in a timely manner.

**Market monitoring can be split into two categories: market surveillance to identify and address wrongdoing; and market performance assessment to examine and improve the economically efficient functioning of the market, including efficient price formation. There are interactions between these two categories, as market structure and market design can influence market participant behaviour.**

Market monitoring can be split into two categories: *market surveillance* to identify and address wrongdoing; and *market performance assessment* to examine and improve the economically efficient functioning of the market, including efficient price formation. There are interactions between these two categories, as market structure and market design can influence market participant behaviour. Monitoring can be based on empirical data and numerical simulations and should be performed both ex-ante and ex-post. Examples of detection techniques and mitigation systems according to these categories are set out in Table 1. Most, if not all, market monitoring mechanisms carry out ex-post evaluations, whereby data are analysed after the event, for example, as part of an annual review or following

a stakeholder’s complaint or request for investigation. Not all markets, however, benefit from ex-ante market monitoring whereby the market monitor is more proactive in seeking out the potential for inappropriate behaviour and preventing such behaviour, or in analysing how market structure and market design does or could influence this.

A forward-looking process can help seek out market design or market structure flaws before they become serious market failures. As advised by Wolak (2004),<sup>8</sup> it

8 Quoted in Newbery, D., et al. (2005).

is extremely hard to undo the wealth transfers caused by high prices after the event and much better to prevent them occurring in the first place. A proactive approach to market monitoring is more likely to prevent inappropriate behaviour of market participants, avoid costs to consumers and increase confidence of all stakeholders.

For example, some market monitors mitigate inappropriate behaviour in real time having identified

anomalous bid submissions. This is perhaps easier to conduct in a market where energy resources are centrally dispatched, compared with the European market where dispatch is generally decentralised or self-dispatched. Where real-time monitoring is not possible, however, the need for timely and responsive ex-post analysis increases.

**Table 1**

**Examples of Categories of Power Detection Techniques and Mitigation Systems<sup>9</sup>**

	Ex-Ante	Ex-Post
<b>Long Term</b>	Detection techniques: simulation models of strategic behaviour; structural indices.	Detection techniques: competitive benchmark analysis based on historical costs; comparison of market bids with profit maximising bids.
	Mitigation options: merger rulings; testing prospective reforms to market design	Mitigation options: reforms to market design (based on lessons learned); litigation cases.
<b>Short Term</b>	Detection techniques: bid screens-comparing bids to reference bids; some use of structural indices such as pivotal supplier indicator and congestion indicators.	Detection techniques: forced outage analysis and audits; residual demand and demand response analysis.
	Mitigation options: spot market bid mitigation	Mitigation options: penalties; short-term price calculations.

<sup>9</sup> Adapted from Newbery, D., et al. (2005).

## 2. The Case for Effective Power Market Monitoring

Results of the European Commission's market design consultation<sup>10</sup> revealed that the majority of stakeholders are very supportive of further market integration and wholesale electricity prices that reflect temporal and locational resource scarcity. More integrated markets enable greater competition, higher asset utilization and therefore lower prices for consumers. Markets that establish fully effective scarcity pricing can be effective in attracting investment at a reasonable cost as and when necessary to meet customer demand or recognised security of supply standards, as has been demonstrated in actual markets in various jurisdictions. Effective scarcity and surplus pricing is necessary to ensure investment in not only the quantity of resources needed to ensure security of supply, but also in the mix of resource capabilities needed to do so at the lowest reasonable cost. Prices that reflect temporal scarcity and surplus and locational constraints reveal the value of flexibility and therefore create demand for flexible resources.

Price variability in wholesale prices that fully reflects surplus and scarcity of energy in wholesale energy markets is, therefore, critical to the business case for flexibility services, including demand response, interconnection and storage. These in turn bring multiple benefits to participating consumers and wider

society, including a dampening effect on extreme price variability, positive and negative, and lower average prices. These responsive resources are also needed to help cost-effectively balance power systems that will increasingly rely on variable renewable resources in order to decarbonise Europe's power supply mix.

At present, however, prices in most European power markets are far from reflecting the real-time state of the power system. This is largely because of regulatory interventions to protect electricity consumers from high prices out of fear that dominant market players will abuse their market power and hold consumers to ransom. This is a valid concern given that: 1) the market share of the largest electricity producer was greater than 50 percent in 15 countries of the EU28 in 2013,<sup>11</sup> 2) cross-border trade is not yet reaching its full potential in many regions including the failure so far to complete the coupling of balancing markets, and 3) energy demand, particularly in the residential sector, is not yet very responsive.<sup>12</sup> Such price controls can include price caps in wholesale electricity markets and controls on retail prices. For example, around half of EU countries are still regulating household electricity prices.<sup>13</sup>

Member States in Europe, such as the UK and Germany, are taking steps to sharpen price signals,<sup>14</sup> and this is the case in other jurisdictions around the world

10 See European Commission (undated). *First Results of Market Design Consultation*. Retrieved from <https://ec.europa.eu/energy/sites/ener/files/documents/First%20Results%20of%20Market%20Design%20Consultation.pdf>

11 European Commission. (2015). *EU Energy in Figures: Statistical Pocketbook 2015*. Retrieved from [https://ec.europa.eu/energy/sites/ener/files/documents/PocketBook\\_ENERGY\\_2015%20PDF%20final.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/PocketBook_ENERGY_2015%20PDF%20final.pdf)

12 Smart Energy Demand Coalition. (2015). *Mapping Demand Response in Europe Today, 2015*. Retrieved from <http://www.smartenergydemand.eu/?p=6533>

13 Agency for the Cooperation of Energy Regulators & Council of European Energy Regulators. (2015). *Annual*

*Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2014*. Retrieved from [http://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/ACER\\_Market\\_Monitoring\\_Report\\_2015.pdf](http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER_Market_Monitoring_Report_2015.pdf). The report states that 14 Member States regulated electricity prices for the residential sector in December, 2014, and 9 Member States did so for industry. (p 88)

14 Germany and neighbouring countries have committed to ban price caps (see <https://www.cleanenergywire.org/news/germany-neighbours-agree-ban-price-caps-power-market>), while the UK has strengthened price signals in its balancing market through its 'cash out' reforms (see <https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/cash-out-arrangements>).

too.<sup>15</sup> Such efforts, however, could easily come up against resistance and criticism if stakeholders lack confidence that price variability, involving higher prices than usual, will deliver benefits for consumers and wider society. Furthermore, particularly high prices typically attract media attention. For example, as a result of reforms to the UKs electricity balancing market, prices rose significantly in November 2015 when balancing reserves were short. National politicians reacted strongly to these high prices and called for the UK national regulatory authority (NRA), Ofgem, to investigate.<sup>16</sup> Political sensitivity to high prices will likely increase as the Energy Union goals of engaging the energy consumer and revealing the value of flexibility moves energy reforms towards increased exposure of consumers to time-varying prices.

If stakeholders are to have confidence in wholesale power markets, it is crucial that they have ready access to timely, independent expert analysis on the functioning of the markets and resulting prices. Without such timely and independent professional analysis, non-experts are more likely to voice opinions and concerns that may be incorrect, incomplete, lack understanding of power markets and that could lead to sub-optimal outcomes or unnecessary interventions.

**If stakeholders are to have confidence in wholesale power markets, it is crucial that they have ready access to timely, independent expert analysis on the functioning of the markets and resulting prices. Without such timely and independent professional analysis, non-experts are more likely to voice opinions and concerns that may be incorrect, incomplete, lack understanding of power markets and that could lead to sub-optimal outcomes or unnecessary interventions.**

Investors, consumers and their service providers will also be influenced by whether or not they believe the markets are functioning effectively. This is particularly the case for new entrants or small market actors, as they will be less inclined to invest if they believe incumbents can manipulate the market to their detriment. If the business case for demand-side flexibility is to emerge, consumers and their service providers really need to believe that the temporal value of distributed resources will be accurately revealed in market prices, and that the variability of prices will be permitted to increase in frequency and intensity as the need for new investment grows. Without this there will be insufficient liquidity

in the long-term contracts market because suppliers will see little reason to actively manage their risk exposure in order to protect themselves and their customers against increasing price volatility.

In the absence of effective market monitoring it is hard to break the spiral of price interventions in wholesale power markets (see Figure 2), where one intervention, such as a price control, can lead to another, such as a capacity remuneration mechanism to replace ‘missing money’, and where considerable inter-dependency between interventions can result. This makes it impossible to realise the full benefits of competitive

15 In some countries, for a transitory period (particularly while demand response becomes established in markets so that energy consumers can easily express their willingness to pay), administrative interventions are being applied to the wholesale markets with the purpose of managing price variability to ensure prices better reflect the availability of energy supply and state of the power system. Such interventions have the added advantage of protecting consumers, as simply lifting price caps when the market is not yet fully competitive and well-functioning could leave consumers unacceptably exposed. There exists experience with such interventions in jurisdictions such as PJM and ERCOT where, for example, reserve shortage

pricing has been introduced. See Hogan, W. W. (2013). *Electricity Scarcity Pricing with an Operating Reserve Demand Curve*. Presented at the 2013 Austin Electricity Conference, Austin, TX. Retrieved from [https://www.mcombs.utexas.edu/~media/Files/MSB/Centers/EMIC/Events/Conferences/AEC-Presentations-2013/WilliamHogan\\_AEC2013.pdf](https://www.mcombs.utexas.edu/~media/Files/MSB/Centers/EMIC/Events/Conferences/AEC-Presentations-2013/WilliamHogan_AEC2013.pdf)

16 Gosden, E. (2015, November 24). MPs demand Ofgem investigation over power market abuse fears. *The Telegraph*. Retrieved from <http://www.telegraph.co.uk/finance/news-bysector/energy/12015093/MPs-demand-Ofgem-investigation-over-power-market-abuse-fears.html>

Figure 2



markets. Such interventions will always be supported by stakeholders—including politicians, regulators, consumers and investors—if they cannot be confident that the markets are functioning as they should. Such interventions, however, typically cost energy consumers more compared with the alternative of well-functioning competitive markets. These interventions also vary widely across Europe and can have distorting impacts on the functioning of the internal energy market (IEM). Higher quality market performance assessment with effective feedback into decision-making could make an important contribution to addressing this problem.

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### 3. Europe's Wholesale Power Market Monitoring Framework

The legal basis for the monitoring of Europe's single electricity market is set down in several different European laws (see Annex 1 for detail). These laws separate market surveillance to prevent and address wrongdoing from market monitoring to assess and improve market performance.

As set out in Recital 61 of Directive 72/2009 concerning common rules for the internal market in electricity, the European Commission has the role of observing and monitoring the internal market in electricity and its short-, medium- and long-term evolution. Specific monitoring duties are conferred on NRAs by this Directive and include, among other things: monitoring of the level of transparency, including of wholesale prices, and ensuring compliance of electricity undertakings with transparency obligations; and monitoring the level and effectiveness of market opening and competition at wholesale and retail levels, including on electricity exchanges, any relevant cases to the appropriate competition authorities.

Regulation 713/2009 (on establishing the Agency for the Cooperation of Energy Regulators [ACER]) requires ACER to monitor the internal market in electricity, in particular the retail prices of electricity, access to the network including access of electricity produced from renewable energy sources and compliance with the consumer rights laid down in Directive 2009/72/EC. Findings are to be made public in an annual report, including identified barriers to completing the internal market, and ACER can submit an opinion to the European Parliament and Commission on recommendations for overcoming these barriers.

Regulation 714/2009 (on conditions for access to the network for cross-border exchanges in electricity) requires ACER to monitor and analyse the implementation of the Network Codes and their Guidelines including their effect on market integration, effective competition and the efficient functioning of the market. Conclusions must be reported to the

Commission.

The REMIT regulation,<sup>17</sup> adopted in 2011, is the EU's sector-specific wholesale market surveillance framework intended to detect and prevent market abuse, manipulation and trading based on insider information. REMIT is a collaborative framework, with ACER responsible for the collection of market data and for maintaining high-level market surveillance, automatically screening and analysing data in order to detect anomalies. ACER's monitoring experts will then alert NRAs to suspected cases for further investigation. ACER's market surveillance information system can be used to support investigations carried out by the NRAs in coordination with the Agency and with other NRAs as necessary. NRAs, however, are responsible for enforcement (see Figure 3). NRAs are required to cooperate with ACER at regional level and can choose to conduct additional or complementary monitoring.

REMIT is an important complement to the European Commission's work relating to antitrust, mergers and acquisitions, and implementation of competition rules in order to ensure competitive markets.<sup>18</sup>

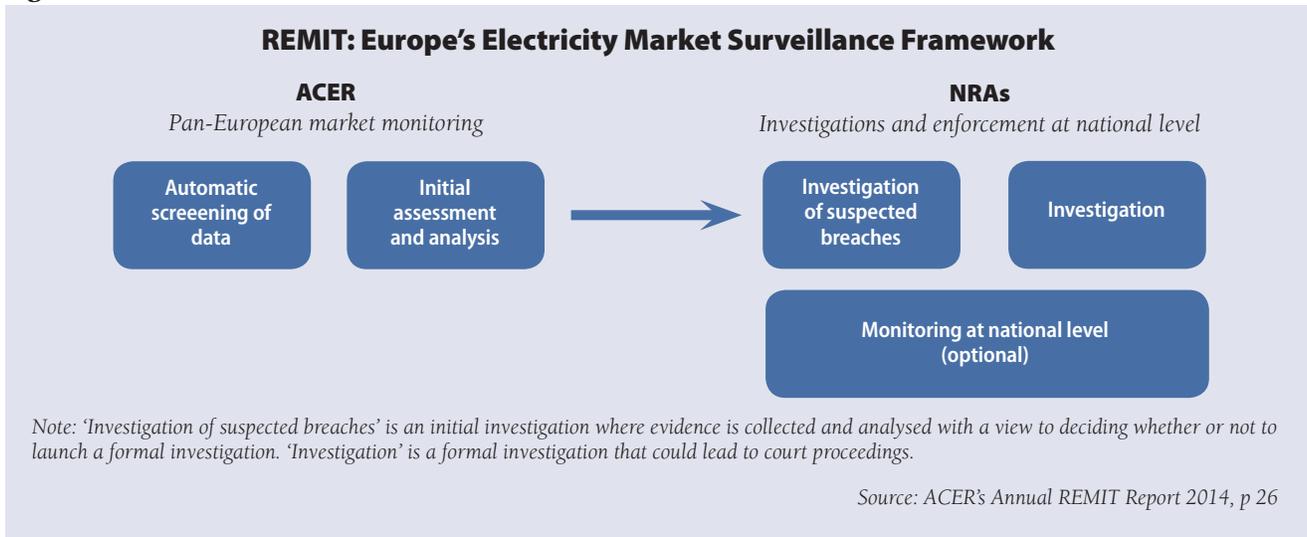
Some reports under the REMIT regulation are to be publicly available and at least an annual report is required. In addition to reporting on REMIT-related activities, reports can include assessment of the operation and transparency of different categories of market places and ways of trading. Following consultation with interested stakeholders, ACER can issue recommendations to the Commission on: market rules, standards and procedures which could improve market integrity and the functioning of the internal market;

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17 Regulation (EU) 1227/2011 on wholesale energy market integrity and transparency, December 2011.

18 See European Commission web page: [http://ec.europa.eu/competition/sectors/energy/electricity/electricity\\_en.html](http://ec.europa.eu/competition/sectors/energy/electricity/electricity_en.html)

Figure 3



minimum requirements for organised markets that could contribute to enhanced market transparency; and records of transactions, including orders to trade, which it considers are necessary to effectively and efficiently

monitor wholesale energy markets. All recommendations should be made available to the European Parliament, the Council and the Commission and to the public.

## 4. EU Market Monitoring: Identified Issues

### A. Inadequate Resources Are Allocated to Market Monitoring in Europe

The director of ACER has publicly stated<sup>19</sup> that ACER does not have adequate resources to implement particularly crucial aspects of REMIT, such as market surveillance and data analysis. A detailed direct comparison with the United States—involving analysis of the resources required by the Federal Energy Regulatory Commission (FERC) to carry out similar tasks—suggests that ACER’s human resources would need to triple from 15 staff members to 45.<sup>20</sup> It should be noted that FERC has powers of enforcement and relies heavily on the Market Monitoring Units (MMUs) for analysis and support of investigations (such as Potomac and Monitoring Analytics; see Annex 1), whereas ACER carries out screening and data analysis in-house, relying on NRAs for enforcement.

Since its inception, ACER has been allocated insufficient human resources to properly implement REMIT and the Agency is not permitted to collect fees from market participants to cover the shortfall. ACER has called for permission to introduce a fee mechanism applied to market participants, as is permitted in other regulated sectors.

In order to set up the necessary systems, register

**“It would be most unfortunate if the effectiveness of wholesale energy market monitoring, which is an integral part of the Energy Union strategy, were jeopardised by a lack of resources, especially given that, also based on the US experience, the benefits of market integrity and transparency are likely to be significantly greater than any resource costs involved in effective monitoring.”**

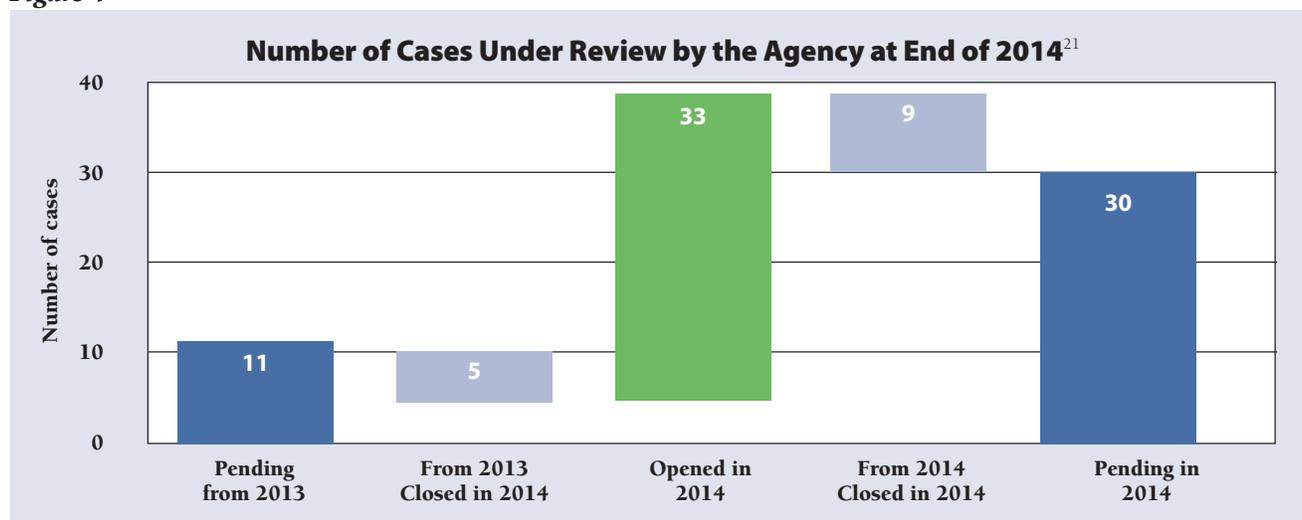
— ACER Director Alberto Potoschnig

reporting entities, centralise the registration of market participants, collect data and be fully operational by the required deadline of July 2016, ACER has had to scale back other important activities. This included implementation of Article 7(3) of the REMIT regulation, which provides for ACER to propose recommendations to the European Commission as regards market rules, standards and procedures that could improve market integrity and the functioning of the internal market, as well as minimum requirements that improve market transparency. Given that the European Commission is to propose market design reforms at the end of 2016, this is a missed opportunity for ACER to provide a highly valuable substantive contribution.

19 “It would be most unfortunate if the effectiveness of wholesale energy market monitoring, which is an integral part of the Energy Union strategy, were jeopardised by a lack of resources, especially given that, also based on the US experience, the benefits of market integrity and transparency are likely to be significantly greater than any resource costs involved in effective monitoring.” ACER Director Alberto Potoschnig in the Foreword, p 4: ACER, Market Monitoring Department. (2015) ACER’s Annual Report on its Activities Under Regulation (EU) No 1227/2011 on Wholesale Energy Market Integrity and Transparency (REMIT) in 2014. Retrieved from [http://www.acer.europa.eu/official\\_documents/acts\\_of\\_the\\_agency/publication/remit%20annual%20report%202015.pdf](http://www.acer.europa.eu/official_documents/acts_of_the_agency/publication/remit%20annual%20report%202015.pdf)

20 ACER’s Annual REMIT Report 2014, p 243: “On the basis of a detailed analysis of the tasks assigned to it by REMIT and of a comparison with the resources devoted to similar tasks in the Federal Energy Regulatory Commission in the US, ACER has estimated that it requires 45 staff members to effectively implement REMIT and a quest for additional resources has been included in the Agency draft budget every year since 2013. So far, however, no additional human resources were allocated to the Agency, after the first assignment of 15 staff members in 2012-2013.”

Figure 4



## B. Enforcement by NRAs Needs More Support

Initial statistics<sup>22</sup> reveal that many more cases are being identified than are being closed. For example, in 2014, 11 cases were pending from 2013 and 33 new cases were identified, but of the total 44 cases just 14 were closed (see Figure 4). Meanwhile, with adequate interrogation of data, it could be expected that the number of cases will likely grow in the near term. However, with effective surveillance and enforcement the growing trend can be contained and eventually reversed.

Statistics from 2014 show that some cases could not be sanctioned because NRAs had not been provided by their Governments with the necessary enforcement and sanctioning powers as required to be in place by end of June 2013 in accordance with REMIT's A13(1).<sup>23</sup> The Commission, with responsibility and authority to ensure implementation of the Regulation, should therefore take action to ensure the transposition of REMIT at the national level.

According to Article 18 of the REMIT regulation, “Member States shall lay down the rules on penalties applicable to infringements of this Regulation and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, dissuasive and proportionate, reflecting the nature, duration and seriousness of the infringement, the damage caused to consumers and the potential gains from trading on the basis of inside information and market manipulation.”

At the end of 2015, ACER reported in its quarterly REMIT newsletter that the first economic sanctions had been applied. The Spanish NRA (CNMC) fined the Spanish energy group, Iberdrola, 25 million euros for manipulating prices over three weeks at the end of

2013 from three hydroelectric plants which together account for half of Spain's hydroelectric capacity. In Estonia, the country's Competition Authority fined the Estonian Transmission System Operator 10,000 euros for not informing the market of maintenance work on an interconnection between Estonia and Finland that would disrupt supply for a longer period than expected.

ACER is concerned that penalties applied by NRAs are potentially diverse. There is also a high risk that penalties could be too weak to be effective; for example, in some countries the maximum fine for REMIT breaches is below 50,000 Euro while in others it can reach 10% of company turnover.<sup>24</sup> ACER points out that while Directive 2014/57/EU on criminal sanctions for market abuse in financial markets establishes minimum rules for criminal sanctions, a similar harmonisation of penalties under REMIT does not apply though Recital 31 of the REMIT regulation and encourages the Commission to consider this<sup>25</sup> but follow up has been lacking.

According to the FACUA Consumers in Action group,<sup>26</sup> the regulator fined Iberdrola 25 million euros

21 ACER's Annual REMIT Report 2014, p 46.

22 ACER's Annual REMIT Report 2014.

23 Effective implementation of Article 35(4) of EU Directive 2003/54/EC regarding establishment of national regulatory authorities is also relevant.

24 Personal communication with ACER.

25 ACER's Annual REMIT Report 2014, p 63.

26 FACUA. (2015) FACUA finds ridiculous the fine imposed to Iberdrola for manipulating the price of electricity. [Press release]. Retrieved from [http://www.facua.org/es/noticia\\_int.php?idioma=1&Id=9851](http://www.facua.org/es/noticia_int.php?idioma=1&Id=9851)

largely based on the 21.5 million euros profit that the company had made due to the manipulation. But the impact on the whole demand was estimated to be 105 million euros due to infra-marginal rent paid to other generators as the manipulation caused clearing prices to rise by 7 euros per MWh. After the event, the Spanish Government intervened in order to control prices by setting an average increase in electricity of 2.3 percent for the first quarter of 2014. This case demonstrates why proactive market monitoring using ex-ante techniques for analysis and mitigation is so valuable. It also illustrates why under-resourcing Europe's market monitoring capability is a false economy. Also consider that this is one case. Consumers may have paid dearly for previous undetected events, not just in Spain but across the whole of Europe. Without effective market monitoring and enforcement, future cases may slip through the net or be ineffectively addressed.

In accordance with Directive 72/2009/EC, NRAs have duties to monitor the level of transparency in markets and effectiveness of market opening and competition at wholesale and retail levels as well as compliance of electricity undertakings with transparency obligations. REMIT, introduced in 2011, considerably strengthened market surveillance duties of NRAs, particularly as regards enforcement and regional cooperation through ACER. If they choose to, NRAs can monitor trading activities and complement the data monitoring and analysis activities of ACER. Typically, many Member States have added energy markets to their “competition office” functions—an office that is responsible for checking on the state of competition in all competitive markets in the economy. Such offices, however, tend to lack the specialized expertise needed to understand and monitor electricity markets. To date, monitoring in Member States has generally been ex-post, reacting to obvious problems identified by stakeholders, while reporting tends to be occasional. (See, for example, the difficulties faced by Ofgem to handle a case raised by a whistle-blower in 2012, when Article 18 of REMIT had not yet been implemented at national level.<sup>27</sup>) REMIT has therefore provided Member States with an important market surveillance service, by collecting, screening and analysing data and identifying cases for investigation.

**According to the FACUA Consumers in Action group, the regulator fined Iberdrola 25 million euros largely based on the 21.5 million euros profit that the company had made due to the manipulation. But the impact on the whole demand was estimated to be 105 million euros due to infra-marginal rent paid to other generators as the manipulation caused clearing prices to rise by 7 euros per MWh. After the event, the Spanish Government intervened in order to control prices by setting an average increase in electricity of 2.3% for the first quarter of 2014.**

While MS should be obliged to investigate cases and enforce breaches of law, NRAs cannot be expected to operate regionally and, may not have the capacity and capability to do so.

Investigations, particularly involving large companies and cross-border trading, can be extremely resource intensive. Box 2 provides the example of FERC's investigation into a company called Constellation, which involved FERC's submission of 99 data requests, the review of more than 90,000 documents (more than 0.5 million pages) and rebuilding of the company's trading book of more than 2 million trades. This should not deter an enforcement authority from undertaking an investigation, however, as market participants should be in no doubt that such investigations can and will be carried out. This realization in itself is a strong deterrent for market participants. Indeed, knowledge that market monitoring or enforcement are ineffective is more likely to encourage inappropriate behaviour.

Many NRAs may simply not be able to undertake such resource-intensive and complex investigations. Indeed, the capacity and capability of NRAs varies widely across Europe.<sup>28</sup> Thus, there is a strong case in favour of ACER providing stronger ‘operational’ support to NRA investigations in response to an NRA request, or perhaps it should be possible for the NRA to fully delegate the investigation task to ACER. For investigations involving cross-border activities or effects in more than one national

27 For more information see: <https://www.ofgem.gov.uk/press-releases/ofgem-statement-allegations-gas-market-manipulation>

28 See: Glachant, J.-M., Khalfallah, H., Perez, Y., Rioux, V., & Saguan, M. (2012). *Implementing Incentive Regulation and Regulatory Alignment with Resource Bounded Regulators*.

Working Paper, EUI RSCAS 2012/31. Retrieved from <http://cadmus.eui.eu/handle/1814/22734>, and Glachant, J.-M. (2014). *An EU-wide survey of energy regulators' performance*. EUI RSCAS. Retrieved from [http://cadmus.eui.eu/bitstream/handle/1814/34757/2014\\_RR\\_GlachantPwC\\_digital.pdf?sequence=1&isAllowed=y](http://cadmus.eui.eu/bitstream/handle/1814/34757/2014_RR_GlachantPwC_digital.pdf?sequence=1&isAllowed=y)

market, ACER could be given the right to investigate on the basis that the investigation is necessary to ensure the proper functioning of the IEM. Such investigations would be overseen by ACER's director, whose decisions could be subject to appeal.

ACER's right to initiate investigations might also need to be extended to situations where NRAs decide not to investigate and enforce a breach despite evidence that might exist to suggest they should act. The alternative or complement to this would be to strengthen existing legislation to ensure procedures are in place to enable judicial review of NRA decisions, including decisions not to act. Both of these options are especially relevant where the parties affected by a suspected market abuse extend into other Member States. At present, the possibility for review of NRA decisions is provided for in Article 37(16)-(17) of the Electricity Directive 2009/72/EC. Under Section 16, decisions by the NRA must be fully reasoned and justified to allow for judicial review. Under Section 17, however, Member States are only required to ensure "suitable mechanisms exist" so that "a party affected by a decision [of an NRA] has a right of appeal to a body independent of the parties involved and of any government." The Commission's Interpretive Guidance suggests that "it must be possible to introduce legal

actions against the NRA decisions, but section 17 doesn't go so far as to explicitly state this.

### C. The Quality of Data, Data Analysis and Communications Should Be Improved

High quality and timely data analysis makes it much easier for regulators or system operators to implement actions with confidence and in a timely manner. Comparison of different market monitors in Annex 2 reveals considerable variability in the quality of data analysis and reporting. Quality market performance evaluation along with timely explanations of price anomalies and reporting on mitigating actions taken to address wrongdoing will be critical to ensuring stakeholder confidence.

#### Quality of Data and Data Analysis

Key to effective market monitoring—whether market surveillance or market performance assessment—is use of appropriate metrics and data, access to this data when needed and the capacity and capability to analyse the data effectively.

As regards access to data, ACER has stated in its annual Market Monitoring Report and its Bridge 2025

#### Box 1

##### US FERC Investigation: The Case of Constellation Manipulating Trades in NYISO

In January 2008, having received an anonymous tip-off regarding un-economic power flows in and out of the New York power market (NYISO), FERC initiated an investigation into the trading behaviour of a company called Constellation. The investigation involved FERC's submission of 99 data requests, the review of more than 90,000 documents (more than 0.5 million pages) and the holding of 17 days of depositions. In addition, the FERC rebuilt the company's trading book (of more than 2 million trades) and had NYISO re-run the market to isolate the impact.

Constellation had used actual and virtual transactions to manipulate the NYISO market and several manipulative behaviours were identified, including:

- Actions that alter fundamental economic relationships among products
  - Importing higher cost electricity into New York to lower prices at a given point/region
  - Exporting lower cost electricity to increase prices

- High market concentrations during trading windows
  - Taking large virtual positions that account for up to 80 percent of the market
- Ignoring competitive market feedback within discrete periods of time
  - Submitting bids for virtual supply and demand prices to ensure being cleared
  - Bidding the same amount into the market repeatedly in spite of growing losses

In 2012 a settlement was reached involving a civil penalty of \$135 million and disgorgement of unjust profits of \$110 million. As a consequence of the investigation, the monitoring of virtual trading was strengthened.

*Source: FERC. (2015). FERC market oversight and monitoring. Presentation by FERC at the Energy Working Party of the Council of the European Union, Brussels.*

strategy document that it is not getting access to all the information it needs from national regulatory authorities, transmission system operators—and their European networks—and other market stakeholders. The market monitor should have the powers to define and access the information it needs or a mechanism needs to be in place to grant permission in a timely manner. Ability to request information directly from energy companies (any kind, including non-transactional data) would be the only way to ensure adequate monitoring.

It is not within the scope of this briefing paper to identify which metrics and data are missing from existing EU-level reports and assessments. A thorough review, however, should be undertaken to ensure effective market surveillance and market performance assessment such that EU energy consumers can fully reap the benefits of competitive markets. An obvious example of a data gap relates to the participation of the demand side in markets, including contribution to efficient price formation. This is a critical area to assess if the spiral of interventions, illustrated in Figure 2, is to be broken (see also Box 2). Market monitoring reports from jurisdictions outside the EU, such as Australia and the United States, illustrate how demand response can be assessed and incorporated in reports. The PJM market monitor provides an entire chapter on demand response in every quarterly report (see Annex 2). To cite another example, the annual ACER/CEER market monitoring report illustrates how diverse tax policies, subsidies and charges currently are in retail electricity prices across Europe. This diversity can negatively impact the functioning of the internal energy market and the way such charges are structured can have widely varying effects on consumer behaviour that may or may not be aligned with EU energy policy. Adequate data and analysis would provide essential input to decision-making related to addressing these challenges.

### **Integrating Market Surveillance and Market Performance Assessment**

While the data needs and activities for market surveillance and assessment of market performance are different, it is necessary to integrate the two functions within a single market monitoring authority. At present, in Europe, these functions are institutionally separated with requirements set out in different laws (see Annex 1). While market surveillance and market performance assessment are carried out in the same building by ACER, and while the REMIT Regulation (for market surveillance) provides for REMIT Article 7(3) reports to be combined with the market monitoring reports of

Regulation 713/2009, ACER's market monitoring functions and activities could be better integrated. Such integration is particularly necessary given recent and continuing experience in Europe with widely differing interventions or energy policies having negative impacts on the functioning of the internal energy market, e.g., capacity remuneration mechanisms, renewable support schemes and congestion management. For capacity remuneration mechanisms, the situation in Europe has now reached the point where a formal sector competition inquiry is necessary. This might well have been avoided had higher quality market monitoring been in place with recommendations feeding back into decision-making processes in a timely manner.

An example of best practice for integrated assessments that combine market surveillance analysis with market performance assessments is provided by the PJM market monitor, where analysts work together detailing their integrated assessments every quarter. These reports include assessments of compliance with market rules, the potential of market participants to exercise undue market power, the behaviour of market participants that is consistent with attempts to exercise market power, actual and potential market design flaws or market structural problems and the market performance that results from the interaction of market structure with participant behaviour. In the United States, FERC draws heavily from these reports in undertaking its enforcement activities and for its issuance of “high-level state of the markets” reports.

Regulators of organised markets will usually report on their enforcement activities in reports that are separate from the detailed reports containing market monitoring (surveillance and market performance) analysis. FERC and the Australian Energy Regulator (AER) both do this. This is also the case for Europe, as ACER issues an annual report on its REMIT-related activities that provides a detailed review of cases identified and how they have been followed up, or not, by the NRAs responsible

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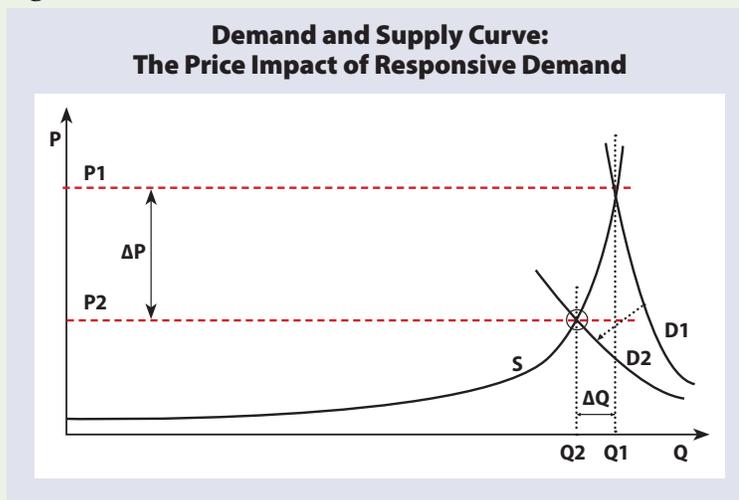
Box 2

**Better Price Formation: Exposing the Value of Flexibility and Reliability, Enabling Demand Response Contribution and Achieving Lower Average Prices**

Prices are formed or revealed when the supply and demand curves cross as shown in Figure 4 (prices P1 and P2); this is referred to as price formation. If the value of flexibility and reliability are to be revealed in energy and balancing markets, then prices must reflect the real-time state of the system. In a high RES power system, prices can expect to vary considerably and often depending on whether RES is available or not. If energy demand and storage can respond to the availability or unavailability of RES, then this can contribute to price formation. For example, in Figure 4, the price would move from P1 toward P2 if energy demand decreases in times of RES scarcity, and the price could also move from near zero toward P2 if energy demand increases in times of high RES availability. Demand response and storage can therefore have a dampening effect on price extremes. In a high-RES power system with well-functioning and competitive markets, and effective participation of the demand side, prices would be highly variable but not extreme.

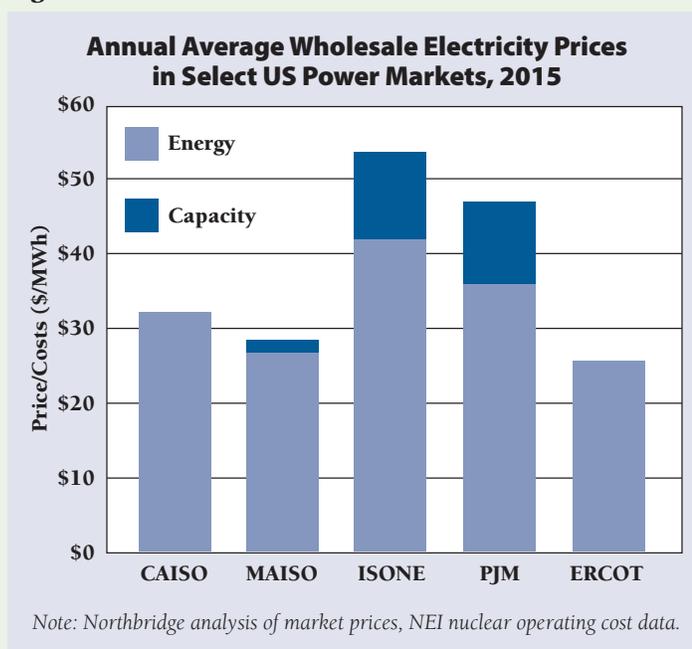
If prices become more variable, better reflecting the state of the system and the availability of RES and reserves, then this does not necessarily mean higher average prices. Indeed, the purpose of liberalised power markets and the internal energy market is to achieve lower average prices for consumers and improved competitiveness for the EU through greater competition and trading through integrated markets. For example, compared to the PJM and ISO-NE markets of the United States, where capacity mechanisms exist in both markets, prices in the ERCOT energy-only market are more volatile, with peak prices that are higher and reached more frequently compared with the peak prices of the ISO-NE and PJM markets<sup>29</sup>. Figure 5, however, reveals that average prices in the ISO-NE and PJM

Figure 5



markets are higher than those of the ERCOT market, even without the revenue stream of the capacity market (dark blue). While it is likely several factors contribute to this, it nonetheless suggests that ERCOT is supporting sufficient and more flexible investment at lower overall cost to consumers.

Figure 6



29 Newell, S., Spees, K., Pfeifenberger, J., Mudge, R., DeLucia, M., & Carlton, R. (2012). *ERCOT Investment Incentives and Resource Adequacy*. The Brattle Group. Retrieved from <http://www.ercot.com/content/news/presentations/2012/Brattle%20ERCOT%20Resource%20Adequacy%20Review%20-%202012-06-01.pdf>

for enforcement. ACER also issues a quarterly REMIT newsletter, largely intended for stakeholders involved in implementing REMIT, which among other things provides updates on progress with implementation of REMIT and information or guidance for market participants, e.g., registration, data reporting matters.

### **Effective and Timely Communication with Stakeholders**

Effective market monitoring requires effective communication with stakeholders. To achieve this, the results of analyses must be communicated in a timely manner and in an easily understandable format. The detail and frequency of communications should depend on the purpose of the communications. For example, if the purpose is to give stakeholders confidence in markets, price anomalies need to be readily explained and stakeholders need to know that mitigating measures have been or will be implemented promptly. Prompt communications and action can prevent politically driven knee-jerk regulatory or policy reforms to protect consumers that could harm the longer-term functioning of the market. As previously mentioned, a proactive approach and use of ex-ante detection and mitigating techniques are more likely to prevent inappropriate behaviour of market participants.

It is perhaps easier for market monitors, such as those monitoring US markets, to act in or close to real-time as US markets tend to be centrally dispatched, unlike European markets which tend to be decentralized and self-dispatched. In some US markets, bids can be analysed and rejected in real time. If exceptional pricing anomalies do occur, an effective market monitor would typically respond immediately to enquiries from system operators, regulators, politicians or the media. If bids cannot be analysed and anomalies mitigated in real time, then prompt ex-post analysis and communication is crucial. Australia provides a good example of timely ex-post communication, as reports are issued whenever prices exceed \$5000/MWh and market performance reports are issued weekly. The ERCOT market monitor issues monthly market data reports. Quarterly market monitoring reports are issued for the PJM and ISO-NE markets, and in Canada such reports are issued every six months. In all these jurisdictions, more detailed reports are issued once a year (see Annex 2 for details).

ACER issues an annual market monitoring report, in collaboration with CEER (the representative body of the NRAs). The most recent report, covering 329 pages, provides analysis of the wholesale and retail electricity markets and also covers gas markets. ACER does not

issue interim reports; due to insufficient resources, it would not be in a position to do this. The Commission (DG ENER), however, issues quarterly reports on EU electricity market data, though these reports are absent of analysis. Data included in the DG ENER reports relate to energy demand, electricity volumes and prices and international comparison. It would seem more efficient to house EU-level monitoring capability in one institution. Furthermore, as in other jurisdictions, more frequent and more comprehensive reporting to stakeholders would be appropriate, including timely explanations of anomalies.

### **D. Reforms to Governance Arrangements Would Provide European Energy Consumers with a More Cost-Efficient and Higher Quality Market Monitoring Service**

#### **Independence**

International experience suggests that the independence of market monitors is necessary to ensure unbiased, and therefore effective, market monitoring. Independent market monitoring reduces the risk of analysis being distorted to favour one stakeholder over another. Furthermore, it is not just the behaviour of market actors that must be scrutinised. It is also necessary to monitor the actions of system operators and their regulators as the actions of these actors significantly impact market performance. If hosting or managing the market monitor, these particular stakeholders are more likely to be able to block or constrain the market monitor's activities. It is therefore challenging for a market monitoring unit to function effectively if it is managed by or hosted by the regulator or system operator.

In the United States during the last 15 or so years, there has been a move away from in-house Market Monitoring Units (MMUs) conducted by the system/transmission operator towards the setup of Independent Market Monitors (IMM) with services provided by a private company. For example, Potomac Economics, founded 2001, serves as the market monitor for the Midcontinent ISO, ERCOT, the New York ISO, and ISO New England markets as well as the Regional Greenhouse Gas Initiative carbon market. Another IMM, Monitoring Analytics, was established in 2008 by spinning off the MMU of the PJM Interconnection. Monitoring Analytics is also the independent market monitor for the carbon market being created between California, Quebec and the Pacific Northwest. The PJM spin out was a consequence of a FERC hearing in 2007, in which the in-house MMU

complained of unacceptable interference in its market monitoring operations. The settlement, mediated by FERC, resulted in the spinoff of Monitoring Analytics.

Several structural options to secure the needed degree of independence are possible. One option could be the set-up of independent regional market monitors, while another could be to make adjustments to the internal institutional arrangements within ACER. An alternative that sits between these two extremes might be to transfer some of the data analysis function, currently housed in ACER, to the private sector through competitive procurement. Nonetheless that would require an adequate risk assessment analysis and appropriate controls. ACER could be tasked with overseeing the quality of service and would indeed need to work closely with any service provider (and affected NRAs) to conduct effective investigations and to improve implementation and functioning of the IEM.

ACER, however, needs to retain and indeed further develop some expert capacity and capability in-house, in order to conduct quality investigations and in order to provide adequate oversight. Given ACER's limited resources and given that the quality of the EU's market monitoring is relatively poor compared to global best practice, there would not be much resource, if any, to transfer from ACER at present. Indeed, a key conclusion of this paper is that the quality of data, data analysis and communications must dramatically improve, which would require a significant increase in resources. Some MS do undertake market monitoring that is complementary to ACER's work, but this is discretionary. Where such effort exists, it could make sense to transfer this to regional level.

Reforms to increase the independence of the market monitor would also require development of structures and processes to ensure adequate accountability, transparency and visibility. Roles and responsibilities of different parties must also be well defined, so it is clear who is responsible for what.

### **Sufficient Powers to Properly Carry Out Duties**

While ACER has been assigned extensive monitoring responsibilities, ACER has stated that it does not have the corresponding powers to define and obtain the necessary information from National Regulatory Authorities, Transmission System Operators—and their European Networks—and other market stakeholders. In its Bridge to 2025 conclusions paper,<sup>30</sup> ACER proposes that it be given stronger powers in order to be able to carry out its monitoring tasks effectively (e.g., for enforcement of Article 8 on data collection and Article 15

regarding obligations of persons professionally arranging transactions [REMIT regulation]). On p. 33 (point 5.3), ACER proposes the following:

*It is recommended that the EC considers proposing new legislation such that the Agency be given adequate powers to fulfil effectively the important monitoring responsibilities assigned to it, including, in particular, in respect of information gathering. In this respect it would also be essential to involve and coordinate these functions with those of the concerned NRAs in a way that safeguards complementarity of action at national and EU levels, and ensures full and effective enforcement.*

The issue is clearly a key concern for ACER as it was also mentioned in the Foreword of the 2015 ACER/CEER market monitoring report.

### **A Regional Approach?**

As European power markets become more integrated with greater volumes of cross-border trade, and particularly as progress is made toward fully coupling balancing markets, and given that many market actors operate in different Member States, market surveillance and investigations conducted at the regional or EU levels become increasingly necessary. Any harmonisation of energy policies or interventions are more likely to be achieved at the regional level first. Furthermore, there will be economic efficiency gains to be realised by strengthening Europe's market monitoring capacity and capability at the regional or EU levels, compared with the alternative of strengthening the capacity and capability at the Member State level.

### **E. What Is the Price Tag for Effective Market Monitoring?**

While energy consumers inevitably pay for market monitoring and enforcement services, inappropriate behaviour by market participants and poor market structure and market design can cost consumers multiples more. For example, actions that have the

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30 ACER. (2014). *Energy Regulation: A Bridge to 2025 Conclusions Paper: Recommendation of the Agency to the regulatory response to the future challenges emerging from developments in the internal energy market*. Retrieved from [http://www.acer.europa.eu/official\\_documents/acts\\_of\\_the\\_agency/sd052005/supporting%20document%20to%20acer%20recommendation%2005-2014%20-%20energy%20regulation%20a%20bridge%20to%202025%20conclusions%20paper.pdf](http://www.acer.europa.eu/official_documents/acts_of_the_agency/sd052005/supporting%20document%20to%20acer%20recommendation%2005-2014%20-%20energy%20regulation%20a%20bridge%20to%202025%20conclusions%20paper.pdf). (This conclusions paper is attached to the Recommendation of ACER No 05/2014.)

effect of raising the clearing price provide benefits for all cleared energy resources for the scheduling interval, through increased infra-marginal rent, as all generators in the bid stack are paid the same clearing price no matter what their original bid. These undeserved benefits for generators are costs for consumers. As mentioned earlier, the Iberdrola case of market manipulation cost consumers 105 million euros and only 25 million euros were recovered. This is just one case that was successfully identified and enforced. Many previous events may have been undetected and, without effective market monitoring, more events may slip through the net.

As mentioned previously, ACER has suggested it would need around 45 staff members in order to carry out its market monitoring activities effectively. Given the arguments for improvements mentioned in this paper, this number is probably a minimum. Perhaps the cost for an effective EU market monitoring capability would be 10 million, 15 million, 20 million euros or more per annum. These numbers, however, are a small fraction of total market turnover, and much smaller even than the 105

million euros that Iberdrola's market manipulation cost energy consumers in one single event.

Improvements to market structure and market design also have much potential to lower clearing prices which would be highly beneficial to consumers and the EU's competitiveness. Generators currently complain that low clearing prices harm their profits and ability to invest, particularly while decarbonisation of the power mix is in progress, so threatening security of supply. Reasoning and evidence provided by industry are, however, strongly contested by other experts, including the Regulatory Assistance Project.<sup>31</sup> From the consumers' perspective it is therefore crucial to have the market monitoring expertise and capacity in place in order to provide evidence to EU debates and decision-making on market design and energy policies.

Failing to provide market monitoring mechanisms with the human and financial resources it needs is a false economy. The costs could be covered through fees charged to market participants registered in the system.

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31 See: Hogan, M. (2016, April 6). Why the EU's electricity market redesign misses the mark. *Energypost*. Retrieved from <http://www.energypost.eu/eus-electricity-market-redesign-misses-mark/>; and Buck, M., Hogan, M., & Redl, C. (2015). *The Market Design Initiative and Path Dependency*:

*Smart retirement of old, high-carbon, inflexible capacity as a prerequisite for a successful market design*. Montpelier, VT: The Regulatory Assistance Project. Retrieved from <http://www.raponline.org/document/download/id/7885>

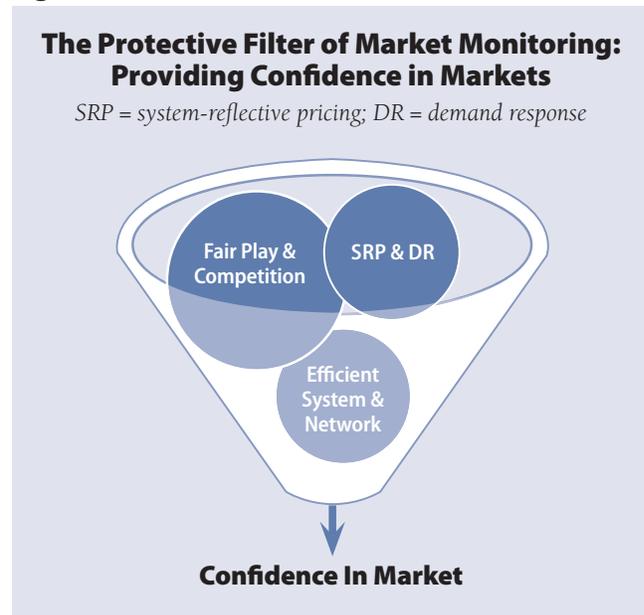
## 5. Conclusions and Recommendations

This paper argues that the EU's current market monitoring arrangements do not appear fit for purpose in a future where the European power market will be highly integrated, competitive and increasingly reliant on variable renewable generation. As market integration progresses, with greater cross-border trade and system-reflective pricing, the need for effective market monitoring increases. REMIT is a needed step in the right direction but limited scope, lack of resources and an inadequate institutional framework restrict its potential and compromise its effectiveness.

Energy prices that accurately reflect scarcity and surplus in real time are key to the business case for flexible generation, demand response and storage, and thus a means to delivering renewable electricity and achieving a cost effective energy transition. But politicians, investors and consumers are unlikely to have sufficient faith in wholesale electricity markets to sustain support for such prices over time without high quality independent data analysis and reporting that assures them that the market is doing what it is supposed to do and that market participants are behaving appropriately. Stakeholders must also have confidence that enforcement mechanisms will work. If implementation of the market structure and design needs improving, then they should be able to trust that the regulator has the information and tools it needs to fix it. All this requires adequate human and financial resources and an improved institutional and regulatory framework.

Without effective energy market pricing, it is difficult to see any end to the multiple, overlapping, out-of-market interventions that threaten to undermine the IEM. Thus, market monitoring provides continuous surveillance and evaluation, like a protective screen or filter, crucial for well-informed decision making, cost efficiency and ensuring stakeholder confidence in markets and resulting prices (see Figure 6).

**Figure 7**



At present, ACER's current resources (and likely those of some Member State NRAs) are clearly inadequate for the duties it is supposed to undertake. Experience in other jurisdictions, as well as limited REMIT evidence relating to the high costs that a single event of market wrongdoing can impose on consumers, suggests that the value of adequate market monitoring far exceeds the costs to put it in place. Compromising on the quality of market surveillance and market performance assessment, investigation and enforcement is surely a false economy and unfair to consumers.

The market design initiative, which includes review of the Electricity Directive, the ACER Regulation and other relevant legislation, provides an opportunity to make improvements to the existing framework. An appropriate next step would be to undertake a multi-stakeholder process to review the options to improve the EU's market monitoring framework.

The scope of this process should consider the following questions:

**1. Is the quality of electricity market monitoring adequate across Europe? If not, to what extent must arrangements be improved?**

- a. Are the information needs of different stakeholders, particularly energy consumers, politicians and investors, adequately met? Can stakeholders be confident in the markets?
- b. Where and why does the current framework fall short compared with global best practice? How can best practice be promoted and what minimum requirements need to be in place with respect to quality of market surveillance, market performance assessment, investigation and enforcement?

For example:

- Monitoring of markets in all timescales
- Use of appropriate ex-ante and ex-post monitoring and mitigation techniques
- Integrated analyses (surveillance and market performance)
- Transparent, timely and understandable communications with stakeholders and media
- Analyses—of appropriate frequency and depth—of key factors that make markets more vulnerable to manipulation:
  - Demand response and storage
  - Congestion and network operation/use
  - Dominance of incumbents and participation of new entrants
- Harmonised minimum rules for penalties and criminal sanctions that could be applied at EU level
- A clear process and arrangements that provide for continuous feedback to actors that need to take action (e.g., the Commission, ACER, regulators, ENTSO-E, system operators, power exchanges) and arrangements that enable or facilitate their timely action

- c. Is the quality of investigations and enforcement adequate? How could this be improved?

The follow-up of identified cases and enforcement is currently inadequate, and this appears to be for several reasons:

- the NRA does not yet have adequate powers (though required by Directive 2003/54/EC);
- the NRA does not have adequate capability or capacity;
- the NRA/MS is unwilling (e.g., national interest in large incumbent);
- penalties applied by NRAs are diverse and

inadequate.

The Commission must clearly ensure implementation of existing legislation to be sure that NRAs have the needed powers. In addition, other measures that could improve enforcement should be considered. Key questions to consider include:

- i. To what extent can or should ACER assist NRAs with conducting investigations? Should it be possible for NRAs to delegate the task of conducting of an investigation to ACER?
- ii. Should an MS or NRA choose not to investigate a case, despite strong evidence of a breach, should legislation be strengthened to ensure procedures are in place to enable judicial review of NRA decisions? And/or should ACER could have the right to initiate investigations in such instances?
- iii. For cases involving cross-border trade or issues, should ACER have the right to initiate investigations?
- d. How should market monitoring arrangements evolve as market integration and decarbonisation of the electricity sector progresses? What provisions would efficiently enable this? For example:
  - Market coupling has increased cross-border trading and, with the completion of balancing market coupling, regional markets will exist. As market integration advances, the need for EU-wide and/or regional services increases, as does the need for regulatory oversight of the regional bodies providing these services. A case can be made for strengthening regional market monitoring, as set out in this paper.
- e. What resources are required to deliver effective market monitoring and enforcement and how should these resources be allocated? What are the cost efficiency opportunities? How should EU market monitoring be funded; e.g., fees charged to market participants registering in the system? Can cost efficiencies be obtained, for example:
  - Through the conducting of market surveillance and market performance assessment over a larger geographic area e.g. by regional power market;
  - By appropriately reducing or removing overlaps and/or pool resources between the Commission, Eurostat, ACER, TSOs/RSCIs, NRAs and Member States' competition/financial authorities for data analysis, investigation and enforcement;
  - Through competitive tender of services (e.g., private companies could compete for contracts to provide independent market monitoring services to ACER)?

**2. What governance arrangements are appropriate for an effective and politically acceptable market monitoring system? Are current arrangements adequate for now and the future?**

Market monitoring includes assessment of the structure and design of the market, the management of the network/system, analyses of MS energy policies and impacts on the IEM and progress with implementation and enforcement. These fundamental elements are in the hands of regulators and system operators. If market monitors are to issue recommendations on these activities, it is necessary that they be independent, to an appropriate extent, of the actors responsible for these activities. Several structural options to secure the needed degree of independence are possible. It is also necessary that the governance structure of the market monitoring framework makes clear who is responsible for what.

- a. Are governance arrangements of the EU's market monitoring framework appropriate? What governance improvements would appropriately and effectively ensure that market monitoring recommendations issued are sufficiently independent of the entities that would be required to act on them?
- b. Regional bodies or service providers carrying out market monitoring services require regulatory oversight if they are to function effectively and provide cost efficient and high quality services. What should these arrangements of oversight look like if such bodies or service providers would exist?
- c. Are roles and responsibilities of actors involved in market monitoring (i.e., surveillance and market performance assessment) sufficiently well defined?

# Annex 1

## Legislation Relevant to Monitoring of Europe's Electricity Markets

### **Directive 72/2009 Concerning Common Rules for the Internal Market in Electricity**

*Recital (61)*

Regulatory authorities should also provide information on the market to permit the Commission to exercise its role of observing and monitoring the internal market in electricity and its short-, medium- and long-term evolution, including aspects such as generation capacity, different sources of electricity generation, transmission and distribution infrastructure, quality of service, cross-border trade, congestion management, investments, wholesale and consumer prices, market liquidity and environmental and efficiency improvements. National regulatory authorities should report to the competition authorities and the Commission those Member States in which prices impair competition and proper functioning of the market.

*Article 37*

*Duties and powers of the regulatory authority*

1. The regulatory authority shall have the following duties:
  - i) Monitoring the level of transparency, including of wholesale prices, and ensuring compliance of electricity undertakings with transparency obligations;
  - j) Monitoring the level and effectiveness of market opening and competition at wholesale and retail levels, including on electricity exchanges, prices for household customers including prepayment systems, switching rates, disconnection rates, charges for and the execution of maintenance services and complaints by household customers, as well as any distortion or restriction of competition, including providing any relevant information and bringing any relevant cases to the relevant competition authorities.

### **Regulation (EC) No 713/2009 Establishing an Agency for the Cooperation of Energy Regulators**

*Article 11*

*Monitoring and reporting on the electricity and natural gas sectors*

1. The Agency, in close cooperation with the Commission, the Member States and the relevant national authorities including the national regulatory authorities and without prejudice to the competences of competition authorities, shall monitor the internal markets in electricity and natural gas, in particular the retail prices of electricity and natural gas, access to the network including access of electricity produced from renewable energy sources, and compliance with the consumer rights laid down in Directive 2009/72/EC and Directive 2009/73/EC.
2. The Agency shall make public an annual report on the results of the monitoring provided for in paragraph 1. In that report, it shall identify any barriers to the completion of the internal markets in electricity and natural gas.
3. When making public its annual report, the Agency may submit to the European Parliament and to the Commission an opinion on the measures that could be taken to remove the barriers referred to in paragraph 2.

### **Regulation (EU) No 1227/2011 on Wholesale Energy Market Integrity and Transparency**

*Market monitoring*

1. The Agency shall monitor trading activity in wholesale energy products to detect and prevent trading based on inside information and market manipulation. It shall collect the data for assessing and monitoring wholesale energy markets as provided for in Article 8.
2. National regulatory authorities shall cooperate at a regional level and with the Agency in carrying out the monitoring of wholesale energy markets referred to in paragraph 1. For this purpose national regulatory

authorities shall have access to relevant information held by the Agency which it has collected in accordance with paragraph 1 of this Article, subject to Article 10(2). National regulatory authorities may also monitor trading activity in wholesale energy products at a national level. Member States may provide for their national competition authority or a market monitoring body established within that authority to carry out market monitoring with the national regulatory authority. In carrying out such market monitoring, the national competition authority or the market monitoring body shall have the same rights and obligations as the national regulatory authority pursuant to the first subparagraph of this paragraph, the second sentence of the second subparagraph of paragraph 3 of this Article, the second sentence of Article 4(2), the first sentence of Article 8(5), and Article 16.

3. The Agency shall at least on an annual basis submit a report to the Commission on its activities under this Regulation and make this report publicly available. In such reports the Agency shall assess the operation and transparency of different categories of market places and ways of trading and may make recommendations to the Commission as regards market rules, standards, and procedures which could improve market integrity and the functioning of the internal market. It may also evaluate whether any minimum requirements for organised markets could contribute to enhanced market transparency. Reports may be combined with the report referred to in Article 11(2) of Regulation (EC) No 713/2009. The Agency may make recommendations to the Commission as to the records of transactions, including orders to trade, which it considers are necessary to effectively and efficiently

monitor wholesale energy markets. Before making such recommendations, the Agency shall consult with interested parties, in particular with national regulatory authorities, competent financial authorities in the Member States, national competition authorities and ESMA. All recommendations should be made available to the European Parliament, the Council and the Commission and to the public.

### **Regulation (EC) No 714/2009 on Conditions for Access to the Network for Cross-border Exchanges in Electricity**

#### *Article 9*

#### *Monitoring by the Agency*

1. The Agency shall monitor the execution of the tasks referred to in Article 8(1), (2) and (3) of the ENTSO for Electricity and report to the Commission. The Agency shall monitor the implementation by the ENTSO for Electricity of network codes elaborated under Article 8(2), and network codes which have been developed in accordance with Article 6(1) to (10) but which have not been adopted by the Commission under Article 6(11). Where the ENTSO for Electricity has failed to implement such network codes, the Agency shall request the ENTSO for Electricity to provide a duly reasoned explanation as to why it has failed to do so. The Agency shall inform the Commission of that explanation and provide its opinion thereon. The Agency shall monitor and analyse the implementation of the network codes and the Guidelines adopted by the Commission as laid down in Article 6(11), and their effect on the harmonisation of applicable rules aimed at facilitating market integration as well as on non-discrimination, effective competition and the efficient functioning of the market, and report to the Commission.

## Annex 2

# Comparison of Market Monitoring in Different Jurisdictions

	PJM (US)	ISO-NE (US)	Australia	ERCOT (US)
Role of actor, governance and summary of activity	<p><b>Monitoring Analytics is the independent market monitor of the PJM Interconnection, a regional transmission organisation</b> that ensures the reliability of the electric power supply system in 13 US states and the District of Columbia. Monitoring Analytics was established in 2008 by spinning out the in-house Market Monitoring Unit of the PJM Interconnection. Monitoring Analytics has a memorandum of understanding with PJM and fees are charged to all market participants as declared in PJM's published tariff. The independent organisation is responsible for monitoring compliance with the rules, standards, procedures and practices of PJM markets. It observes and comments on actual and potential design flaws in market rules, standards and procedures, and identifies structural problems in PJM markets that may inhibit robust and competitive markets. It monitors the potential of market participants to exercise undue market power, the behaviour of market participants that is consistent with attempts to exercise market power and the market performance that results from the interaction of market structure with participant behaviour. It also monitors the actions of PJM and the impact of those actions on market outcomes. It reports to FERC and the Public Utilities Commission of Pennsylvania and other authorities as necessary regarding investigations and enforcement.</p>	<p>The ISO New England (ISO-NE) is a non-profit company that operates the transmission system and spot markets for electricity and related services in New England states. <b>The ISO-NE market operator has an internal and external (independent) market monitor.</b> The ISO-NE external market monitor is Potomac Economics, which serves as the Independent Market Monitoring Unit to the ISO-NE board of directors. Potomac Economics reports directly to ISO-NE's board of directors and works closely with the internal Market Monitoring Unit of ISO-NE to monitor the New England markets. The objective is to identify conduct by market participants or market rules that compromise the efficiency or distort the outcomes of the markets.</p> <p>Both internal and external monitors report to the Public Utilities Commission of New England and FERC regarding investigations and enforcement.</p>	<p>In the wholesale electricity and gas markets, <b>the Australia Energy Regulator (AER) monitors, investigates and enforces compliance with national energy legislation and rules.</b> AER monitors participant bidding and rebidding, market dispatch and prices, network constraints and outages, demand forecasts and forecasts of production and capacity. AER also reports on market activity, including: weekly reports on wholesale market outcomes; reports on prices outside normal thresholds; quarterly reports on our compliance monitoring activities. AER is part of the Australian Competition and Consumer Commission and enforces the rules established by the Australian Energy Market Commission.</p>	<p>ERCOT—<b>Electric Reliability Council of Texas</b>—manages the scheduling of power on the Texas electric grid and is a non-profit corporation. ERCOT is regulated by the Public Utility Commission of Texas.</p> <p><b>Potomac Economics is the independent market monitor of ERCOT.</b> Potomac Economics identifies conduct by market participants or market rules that compromise the efficiency or distort the outcomes of the markets. Additionally, Potomac Economics issues periodic reports providing an independent assessment of the competitive performance and operational efficiency of the market.</p> <p>Potomac reports to FERC and the Public Utilities Commission of Texas regarding investigations and enforcement.</p>
Total elec installed capacity MW	183, 604 (2013)	31,000 (2015)	47,779 (2013-14)	77,000 (2014)
Total energy generation MWh	793,679,000 (2013)	107,887,000 (2015)	194,000,000 (2013-14)	

	PJM (US)	ISO-NE (US)	Australia	ERCOT (US)
Source of report (click on text for links)	State of the Market Report for PJM, Quarterly State of the Market Reports	ISO-NE's internal market monitor : Annual markets report 2014  ISO-NE's external market monitor (Potomac): 2014 Assessment of the electricity markets in New England	Reports by AER: Market performance—weekly analysis of the electricity wholesale markets and detailed reports into high-price events;  Compliance reporting—including Quarterly Compliance Reports on compliance/enforcement activities; compliance bulletins that set out the AER position on specific issues; and investigation reports on major market incidents;  Enforcement matters—on matters where AER issues infringement notices or commences proceedings.  Annual reports including market performance for general energy market and retail markets.	2014 State of the market  Monthly reports
Report frequency	Annual and quarterly.	<ul style="list-style-type: none"> <li>Both internal and external monitors provide annual reports.</li> <li>Internal MMU also provides quarterly reports providing a summary of market outcomes and commentary on new issues in the market.</li> <li>External monitor will prepare other reports on specific market issues if necessary.</li> </ul>	Weekly market performance reports and high price reports when needed. Also, annual reports.	Annual and monthly
Total pages (including exec summary and appendices)	Volume 1 'introduction' (68pp) Volume 2 'detailed analysis' (562pp)	External annual: 104 pages; Internal annual: 101 pages	Weekly market performance reports and high price reports are around 10-20 pages. Annual general report—94pp Annual retail energy market—82pp	Annual (149pp)—published 6 months after end of reporting year.  Monthly reports published 2 months after the reporting month, approx. 35pp.
Summary of content	Energy market: market structure; market behaviour; market performance; scarcity. Energy uplift (operating reserves): energy uplift results; characteristics of credits; geography of charges and credits; energy uplift issues. Capacity market: installed capacity; RPM capacity market—structure, conduct, performance; generator performance. Demand response: PJM demand response programs; participation in DR programs. Net revenue: spark/dark/quark spreads; net revenue adequacy of new entrants for different energy	Internal: Real-time markets: real-time energy market; real-time operating reserves; regulation market. Forward markets: day-ahead energy market; financial transmission rights; forward reserve market; forward capacity market; demand response. Other market info. including internal audits.  External: Overview of market outcomes and trends: energy market; reserves	Weekly reports: contain information on significant price variations, movements in the contract market, together with analysis of spot market outcomes and rebidding behaviour. Content: spot market prices; spot market price forecast variations; generation and bidding patterns; frequency control ancillary services markets; detailed market analysis of significant price events; financial markets.  Prices above \$5,000/MWh reports: describes the significant factors contributing to the	Annual report: review of real-time market outcomes; review of day-ahead market outcomes, transmission and congestion, demand and supply, resource adequacy, analysis of competitive performance.  Monthly report: Data only, no narrative. Energy prices; load statistics; heat rates; daily operating reserve

## Can We Trust Electricity Prices?

	PJM (US)	ISO-NE (US)	Australia	ERCOT (US)
	<p>resources. Environmental and renewable energy regulations. Interchange transactions: interchange transaction activity; operating agreements with bordering areas; interchange transaction issues. Ancillary services markets: analysis for different types of reserves. Congestion and marginal losses: LMP; congestion; congested facilities; marginal losses; energy costs. Planning: including planned generation and retirements; generation and transmission interconnection planning process; regional transmission expansion plan. Financial transmission rights</p>	<p>and regulation markets; fuel usage under tight gas supply conditions; out-of-market actions and uplift costs; forward capacity markets: long-run price signals; competitive performance of the energy market. Improving the payment and allocation of uplift costs. Real-time market design improvements. Capacity market design improvements.</p>	<p>spot price exceeding \$5,000/MWh, including withdrawal of generation capacity and network availability; assesses whether rebidding contributed to the spot price exceeding \$5,000/MWh; identifies the marginal scheduled generating units; identifies all units with offers for the trading interval equal to or greater than \$5,000/MWh and compares these dispatch offers to relevant dispatch offers in previous trading intervals.  Annual reports—general review of market performance.</p>	<p>demand curve reserve adder value and duration; monthly and hourly average ancillary services required and prices; monthly average ancillary service cost per MWh load; ERCOT-wide cumulative peaker net margin; load forecast errors; monthly average wind generation; real time and day-ahead constraint rankings; CRR pairs by monthly auction value rankings.</p>
Market power issues	Yes—detailed	Yes	Yes	Yes—analysis in annual report
Analysis of market functioning/health	Yes—detailed	Yes	Yes	Yes—analysis in annual report
Anomalous/special events review	Yes—detailed	<p>Internal MMU provides detailed analysis of some specific events.  External MMU is more general.</p>	<p>Yes—dedicated high price reports whenever price is over \$5,000/MWh Also special reports, e.g., market outcomes in south Australia during April and May 2013; the impact of congestion on bidding and inter-regional trade in the NEM (2012).</p>	<p>References to weather or causes—not detailed analysis of specific events.</p>
Analysis of DR participation	Yes—detailed	Yes—internal and external give detail on DR	In weekly/high price reports references to whether or not demand can respond	Yes—in annual report including dedicated section on demand response capability
Recommendations?	Yes—detailed	Yes—both internal and external	In weekly/price reports—no (Note: the regulator produces the report.)	Yes—in annual report

	US (FERC)	EU (ACER)	Canada (MSP and IESO)
Role of actor and governance	The Federal Energy Regulatory Commission, or FERC, is an independent agency that regulates the interstate transmission and wholesale sales of electricity. FERC monitors and investigates energy markets and enforces FERC regulatory requirements through imposition of civil penalties and other means. In 2002, the FERC Office of Market Oversight and Investigations was established to provide oversight of the wholesale power markets and transmission, the ISOs and their (in-house) market monitoring units and to ensure effective enforcement.	ACER was set up to complement and coordinate the work of national energy regulators (NRAs) at EU level, and to work towards the completion of the single EU energy market for electricity and gas. Under the REMIT Regulation—regulation on wholesale energy market integrity and transparency—ACER is responsible for collecting and analysing wholesale markets and other relevant data to identify possible instances of market abuse and notifies NRAs concerned after an initial assessment identifies cases for investigation. The European Commission is responsible for monitoring implementation of the REMIT regulation in Member States. Enforcement responsibility for identified cases lies with the NRAs, but enforcement of EU law lies with the European Commission and ECJ.	The Market Surveillance Panel (MSP) monitors, investigates and reports on activities in markets administered by the Independent Electricity System Operator (IESO). The MSP was transferred from the IESO to the Ontario Energy Board (regulator) by law (2004). The IESO still has a Market Assessment Unit, which conducts daily market monitoring on behalf of the MSP, providing initial assessments/screening.
Total elec installed capacity MW	1,172,577 (2014)	958,527 (2013)	35,591 (2016)
Total energy generation TWh	4,306 (2013)	3,262 (2013)	153.7 (2015)
Source of report <i>(click on text for links)</i>	‘State of the Markets’ presentations. (last detailed report was for 2012)  Annual reports on enforcement	ACER’s annual report on its activities under REMIT in 2014  REMIT quarterly newsletters  CEER/ACER annual market monitoring report  DG ENERGY Market Observatory for Energy	Market surveillance panel monitoring report on the IESO-administered electricity markets, May 2014-Oct 2014 (released Oct 2015)
Report frequency	Annual	CEER/ACER market monitoring report: annual  DG ENER reports--quarterly ACER REMIT reports--annual and quarterly newsletters	Semi-annual (approx every 6 months)
Other intermediate reports	No	No	No
Total pages (including exec summary and appendices)	2015 report on enforcement (69pp) State of the market assessments are slide packs (20-30 slides) with detailed speaking notes.	REMIT report—71pp ACER/CEER MMR—324pp (covers both electricity and gas) DG ENER quarterly reports—around 40pp	107 pages
Summary content	State of the markets: prices; demand; imports/exports; production; storage; trading; energy resource growth; revenues.  Report on enforcement is broken down by division within FERC, i.e., investigations; audits and accounting; energy market oversight. Information covered includes: cause and related proceedings; settlements; statistics on investigations; report on FERC market monitoring and surveillance activities including reports and communications.	REMIT report: The agency’s market monitoring and coordination activities under REMIT; assessment of the operation and transparency of different categories of market places and ways of trading.  ACER/CEER MMR report: Wholesale electricity markets and network access: developments; improving the functioning of the internal energy market Retail markets: market structure; market conduct; competition performance; relative level of competition.	Market outcomes and analysis: pricing; supply; demand; imports, exports. Anomalous prices and uplift payments. MSP investigations. Market reforms and recommendations.

## Can We Trust Electricity Prices?

	US (FERC)	EU (ACER)	Canada (MSP and IESO)
		<p>Barriers to efficient retail market functioning: intervention in retail price setting mechanisms; consumer switching behaviour.</p> <p>Consumer protection and empowerment: elements of consumer protection; consumer complaints; consumer experience; quality of DSO services.</p> <p>The annual reports have an in-depth focus on different areas each year.</p> <p>DG ENER—quarterly report: Electricity demand drivers; evolution of commodity and power prices; traded volumes, market liquidity and cross border trade of electricity; regional wholesale electricity markets (volumes and prices); international outlook; comparing EU power prices with international peers; retail electricity prices in the EU.</p>	
Market power issues	Yes—in relation to FERC activities to investigate markets	REMIT report: Yes—in relation to ACER's activities, investigations initiated and assessment of operation and transparency of different categories of market places and ways of trading. ACER/CEER annual MMR report: yes, high-level. DG ENER quarterly report: limited.	Yes
Analysis of market functioning/health	Yes—in relation to FERC activities to analyse markets	ACER/CEER report: Yes, high-level. DG ENER quarterly report: No	Yes
Anomalous/special events review	Yes—e.g., Winter 2013/14 operations and market performance in RTOs and ISOs; report on the Southwest cold weather event from February 2011.	No Some brief references to anomalies in DG ENER quarterly reports	Yes
Demand response participation	Yes, high level	Generally no—in ACER/CEER MMR report, some brief high-level references	Some references but not in-depth analysis or dedicated section.
Recommendations?	No	Yes, ACER/CEER MMR report and ACER REMIT report provide recommendations. DG ENER quarterly reports do not.	Yes



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Rue de la Science 23

B – 1040 Brussels

Belgium

Tel: +32 2 894 9300

[www.raponline.org](http://www.raponline.org)