



# Risk Preparedness in the Winter Package

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# Foreword

An integrated European electricity market will benefit consumers through lower prices, more cost-effective integration of renewable resources, and improved system reliability. A central question often asked in the context of the IEM is: can Poland rely on resources from neighbouring countries in a crisis situation? Is it safe to integrate market when national transmission system operators (TSOs) are responsible for managing Energy systems in Europe.

Poland and Europe have, over the years, experienced occasional widespread electricity crises that could have been prevented or mitigated through improved cooperation and shared rules. They could be prevented or mitigated by better cooperation and common operating rules.

In previous works of Forum Energii, we dealt with the economic effects of market integration. At our panel expert meetings decision-makers raised the issue of the lack of appropriate European regulations ensuring a sufficient level of security of electricity supply. Indeed, despite the network codes that define the technical conditions for the cooperation of European energy systems, there was no legal framework regulating the principles of cooperation. Some time later, the European Commission proposed a new regulation on risk preparedness in the electricity sector, which will probably be adopted this year.

That is why we decided to analyze the proposed solutions. The new regulations will give a number of rights, but they will also impose obligations, such as the preparation of national plans in case of electricity shortages.

We invite you to read and debate.

Yours faithfully  
**Joanna Maćkowiak Pandera, PhD**  
President, Forum Energii

# Key Messages

1. An integrated European electricity market will benefit consumers through lower prices, more cost-effective integration of renewable resources, and improved system reliability. The proposed Risk Preparedness Regulation aims to strengthen a critical element of the Internal Energy Market (IEM) by providing a framework for regional coordination in preventing, preparing for, and managing crisis situations.
2. A central question often asked in the context of the IEM is: can Poland rely on resources from neighbouring countries in a crisis situation? Poland and Europe have, over the years, experienced occasional widespread electricity crises that could have been prevented or mitigated through improved cooperation and shared rules. A key element of the Risk Preparedness Regulation is the requirement to prepare national risk preparedness plans, which must include regional measures.
3. Defining and managing risk requires coordination not just in real time, but also in investment time scales. An important element of long-term coordination is the establishment of clear and comparable reliability standards across Member States followed by a resource adequacy assessment to determine whether the required level of reliability is being met. Provisions in the Electricity Regulation take important steps in this direction through introduction of standard reliability indicators and the proposed European Union Resource Adequacy Assessment.
4. Despite the progress made around risk preparedness, some notable barriers to regional cooperation remain:
  - a. The Regulation builds on existing governance structures to carry out the tasks around risk preparedness. The lack of a stronger regional governance structure means that coordination around crisis situations will continue to depend on decisions at the Member State level, making optimisation of resources around Europe difficult.
  - b. Limited available capacity on existing cross-border networks continues to be a constraint on market integration and on the ability to rely on resources from neighbouring systems in the event of a regional crisis. Important steps to improve this include market coupling and implementation of the Guidelines on conditions for access to the network for cross-border exchanges in electricity, under which interconnector capacity offered to the market should be maximised and should not be reduced by “moving internal congestion to the borders”—subject to grid security not being compromised.

# 1. Introduction

In 2006, Europe experienced a widespread blackout that affected more than 15 million people, including in Poland. The blackout was traced back to a scheduling change in the routine disconnection of a transmission line in northwest Germany, which was not adequately communicated to neighbouring system operators<sup>1</sup>.

Following the crisis, European transmission system operators (TSOs) voluntarily agreed to form Regional Security Coordination Initiatives (RSCIs) with the objective of providing services on a regional basis. Over time, coordination of system operations has advanced. The recently adopted System Operation Guideline codifies the role of regional security coordinators (RSCs) and places an obligation on every TSO to participate in one of them.

The European Commission's proposed Regulation on Risk Preparedness complements these technical standards with a framework for coordination between TSOs and Member States in preparing for, responding to, and ex-post evaluation of crisis situations. Regional coordination around crisis situations is one of the most sensitive elements of the functioning of the Internal Energy Market (IEM). The proposed regulation serves to create greater certainty that, in the event of a crisis (including one crossing country borders), Member States respond in a coordinated fashion, and in a way that optimises resources regionally.

This paper considers the extent to which the Regulation on Risk Preparedness and related rules proposed under the Regulation on the Internal Market for Electricity help address the following concern:

*Can Poland rely on its neighbours in the event of a widespread electricity crisis?*

<sup>1</sup> UCTE, Final Report System Disturbance on 4 November 2006. Retrieved from [http://ecolo.org/documents/documents\\_in\\_english/blackout-nov-06-UCTE-report.pdf](http://ecolo.org/documents/documents_in_english/blackout-nov-06-UCTE-report.pdf)

The paper considers the following dimensions of system reliability, with a particular focus on risk preparedness:

- The proposed framework for preparing for, responding to, and ex-post evaluation of crisis situations, including regional crises;
- Assessing resource adequacy and defining reliability standards on a regional and European Union (EU) level;
- The evolution of responsibilities and governance structures under the proposed risk preparedness and electricity regulations.

This paper recognises that negotiations over these proposals will continue through 2018. It provides a framework for understanding key elements of the Commission's proposal, the extent to which they address Poland's concerns around mutual reliance in a crisis situation, where Poland can benefit, and where there is room for improvement. In this way, we hope to provide a balanced input into the important discussions around policy direction within the Clean Energy Package.

## 2. Risk Preparedness

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### What Is It?

One of the benefits of integrating power markets and power system operations is improved resilience. This includes the ability to better prevent and react to national and regional crisis situations by taking a broader view of the system and sharing resources. The proposed Regulation on Risk Preparedness introduces a framework to enable this to happen.

The regulation is organised around measures to anticipate, prevent, prepare for, and respond to crisis situations. It defines an electricity crisis as “a situation of significant electricity shortage or impossibility to deliver electricity to end-consumers, either existent or imminent.”

It further defines a simultaneous crisis as “an electricity crisis affecting more than one Member State at any time.”

The regulation builds on the recently adopted System Operation Guidelines and Network Code on Emergency Restoration, which provide technical rules on cooperation between TSOs, including in emergency situations<sup>2</sup>.

Specifically it introduces methodologies and procedures for:

- Identifying electricity crisis scenarios at national and regional levels, applying a standard methodology, and assessing specific categories of risk<sup>3</sup>;
- Assessing “short-term adequacy” covering regional seasonal as well as week-ahead to intraday adequacy assessments;
- Developing national risk preparedness plans that include regional measures, agreed upon by Member States within the relevant regions;
- Managing electricity crisis situations;
- Ex post evaluation and monitoring.

The Commission’s proposals build on the existing governance framework, which grew out of the Third Energy Package. Table 1 provides a simplified view of this framework, consisting of entities responsible for various aspects of regulation, system planning, system operations, and policy development at national, regional, and EU level. Entities marked in red represent those of particular focus in the context of risk preparedness.

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<sup>2</sup> European Commission. Electricity network codes and guidelines. Retrieved from <https://ec.europa.eu/energy/en/topics/wholesale-market/electricity-network-codes>

<sup>3</sup> Crisis scenarios are to be identified on the basis of at least four risk categories: rare and extreme natural hazards, accidental hazards going beyond the N-1 security criterion, consequential hazards including fuel shortages, and malicious attacks.

Table 1. Governance of System Planning and Operations

GOVERNANCE OF SYSTEM PLANNING AND OPERATIONS			
ROLE	NATIONAL	REGIONAL	UNIA EUROPEJSKA
Regulatory	National regulatory authorities Competent Authorities	ACER regional subgroups of national regulatory authorities (proposed) Regional crisis manager or team	ACER
System Planning	TSOs	RSCs/ regional entities	ENTSO-E
System Operations	TSOs	RSCs/ regional entities	-
Policy Development	National governments	Feed-in from regional regulatory and planning entities	European Commission
< Electricity Coordination Group >			

The Risk Preparedness Regulation assigns specific roles and responsibilities to the Agency for the Cooperation of Energy Regulators (ACER), the European Network of Transmission System Operators for Electricity (ENTSO-E), and the Electricity Coordination Group. In addition, it does the following:

- Establishes Competent Authorities, which are designated national governmental or regulatory authorities charged with carrying out the tasks in the Risk Preparedness Regulation;
- Calls for designation of a regional crisis manager or team; and
- Assigns additional tasks to regional entities, described in more detail in the text box below.

The Electricity Coordination Group (ECG) is given tasks to oversee the consistency of the risk preparedness process. The ECG is composed of two national representatives from each Member State, generally national regulatory authorities and relevant ministries. Poland has one representative from the regulator and one from the Ministry of Energy, for example. Although the ECG has limited powers under the Regulation, its role overseeing the whole risk preparedness process, including over the coherence of national plans, resource adequacy, and ex post evaluation, is important in assessing the coherence and coordination around crisis situations.

### The Role of Regional Entities

The Commission's proposals would expand the responsibilities of regional entities, referred to as Regional Operational Centres (ROCs) in the Commission's proposal, and by other names in amendments prepared by the Council and Parliament. These build on the responsibilities of RSCs set forth in the recently adopted System Operation Guideline.

RSCs are charged with performing five core services:

- Operational planning security analysis;
- Outage planning coordination;
- Coordinated capacity calculation;
- Short-term adequacy assessments (up to several weeks ahead of real time);
- Development of a common grid model.

The Commission's proposal would add to this list several additional tasks, including:

- Regional sizing of reserve capacity;
- Calculating the maximum entry capacity available for the participation of foreign capacity in capacity mechanisms;
- Defining regional crisis scenarios.

### Why Is It Important?

Until now, there has been no formal cooperation framework or standard approach for Member State and regional action around electricity crisis situations, other than bilateral emergency arrangements. Instead, crisis situations have been handled through national rules focused on national measures, often with very different definitions and approaches. The Regulation on Risk Preparedness takes important steps to move toward a coordinated approach.

In particular, the process of defining shared risks, identifying crisis scenarios, and developing national strategies with regional measures all help to strengthen planning and coordination around crisis situations. Designating responsible parties to carry out these tasks further strengthens transparency and coordination. Together, these measures should strengthen power system reliability and yield cost savings compared to a “go-it-alone” approach.

The expanded role of a regional coordinating body (ROCs or their equivalent) is a particularly important step toward a more regional approach to crisis situations and to coordination of regional system operations more broadly<sup>4</sup>. In particular, the role of these entities in carrying out short-term regional resource adequacy assessments and defining regional crisis scenarios should improve data on the state of the electricity system and resource availability and constraints. Seasonal forecasts are already prepared by ENTSO-E today<sup>5</sup>. The regulation adds to this week-ahead to intraday adequacy assessments to be prepared by regional entities<sup>6</sup>.

The emphasis on market measures in crisis situations is also important. Member States must identify the contribution of market-based measures and non-market measures in coping with electricity crisis situations. Non-market measures may be activated in a crisis situation only if all options provided by the market have been exhausted, and shall not “unduly distort competition and the effective functioning of the electricity market.” Ensuring that market-based measures are given priority in a crisis situation is important to support confidence in markets and scarcity prices to deliver reliability at least cost, with non-market measures applied only when all market solutions have been exhausted. At the same time, details of where the line between market measures and triggering of non-market measures lies remains an important area to define.

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## What Could Be Improved?

The Regulation builds on existing governance structures to carry out the tasks around risk preparedness. That is, it does not create a stronger regional operational entity to optimise the response to a crisis situation. Rather, risk preparedness is carried out by a combination of national actors who hold ultimate responsibility for security of supply, and regional actors who have limited powers to optimise regional resources in a crisis.

<sup>4</sup> For more on the role of ROCs, see Baker, P., Finkler, J., and Kolokathis, C. (2017). Regional Operational Centres: A review of the Commission’s proposal and recommendations for improvement. Retrieved from <http://www.raponline.org/knowledge-center/regional-operational-centres-review-commissions-proposal-recommendations-improvement/>

<sup>5</sup> The System Operation Guidelines would call on regional entities to carry out regional adequacy forecasts in “at least the week-ahead timeframe.” The Commission’s proposal adds to this day-ahead and intraday regional forecasts to inform decisions leading up to real time.

<sup>6</sup> The Commission’s proposal called for creation of ROCs to fulfill this and other tasks. However, in both the Council and Parliament, the ROCs have been replaced with regional entities with different names. To avoid confusion, this paper will refer to “regional entities” in places where the Commission proposal referred to ROCs.

Two problems arise from this situation:

1. In the event of a crisis, system operators and Member State authorities still face some uncertainty that the regional response will be cooperative;
2. The interplay of roles and responsibilities of the various national and regional actors is not always clear.

The strengthened role for regional entities (ROCs or their equivalent) is a productive step toward improving regional system operations and use of interconnectors. However, in the event of a crisis, there is nothing to push Member States to act in a way that would optimise the regional response. Member States are expected to:

- “Act and cooperate in a spirit of solidarity”;
- Offer each other assistance to prevent or mitigate a crisis “where necessary and possible”;
- Follow the actions set out in the risk preparedness plan “to the fullest possible extent.”<sup>7</sup>

Although this language encourages cooperation, it does not guarantee it.

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To illustrate, two benefits of regional integration are the operational and cost benefits of pooling reserve capacity. The traditional practice has been for every country to estimate required reserves independently, although gradually some coordination has begun to emerge. To move more decisively toward regional coordination, the Commission has proposed that regional entities be responsible for regional sizing of reserve capacity. However, the existing governance framework does not ensure that these reserves will be deployed in a coordinated fashion. This is particularly true in a crisis situation where resources are scarce and Member States may put national interests above regional interests.

The lines are somewhat blurred on roles and responsibilities around risk preparedness and how they will play out in practice. For instance, ENTSO-E is expected to prepare the methodologies for identifying electricity crisis scenarios and for near-term adequacy forecasts. Preparation of seasonal forecasts is assigned to ENTSO-E, whereas week-ahead to intraday forecasts are prepared by regional entities. ENTSO-E has the option to assign responsibility for preparing seasonal forecasts to regional entities. However, where this does not happen, there is a question over the efficiency and consistency of such an approach.

In this context, the main value of the Risk Preparedness Regulation is in strengthening coordination leading up to a crisis event. There is still room for improvement in securing cooperation during a crisis.

<sup>7</sup> COM(2016) 862 final

### **Risk Preparedness and the Role of Interconnectors**

*Interconnector availability is essential to take full advantage of market coupling and maximise regional responsiveness to a widespread crisis.*

*Today, Poland has nearly 6,791 megawatts (MWs) of estimated import and export interconnector capacity. However, available interconnector capacity to the market is limited to just a small fraction of this.*

*This is largely due to unscheduled flows originating in Germany, which congest transmission grids in Poland and the region. The current phase shifter in place between Poland and Germany allows for only an estimated 500 MWs of capacity to be available to the market, and the other border between Poland and Germany is closed while work on a second phase shifter is completed. ACER estimates the capacity available to the market along the PL/DE border should be 2,424 MWs. In practice, only an average 1 MW (PL>DE) and 9 MWs (DE>PL) of tradable net transfer capacity was available in 2016.*

*Transmission capacity is often withheld on the Lithuanian border as well to address network challenges internal to Poland. According to ACER's recent Market Monitoring Report, only 30 percent of the capacity that should be available to the market on the Polish-Lithuanian border was in fact available on average in 2016.*

*Restrictions in interconnector availability create several problems. First, they restrict the benefits to Polish consumers of lower prices associated with integrated markets. Second, in the event of a crisis limited to Poland, restrictions on imports would deny Poland valuable support from its neighbours, possibly requiring unnecessary curtailment of demand. Third, not taking proper account of interconnector capacity when assessing resource adequacy increases the need for investment in generation capacity, imposing unnecessary costs on Polish consumers.*

*One important measure to improve regional network availability is to properly implement the Guidelines on conditions for access to the network for cross-border exchanges in electricity (714/2009), under which interconnector capacity offered to the market should be maximised and should not be reduced by "moving internal congestion to the borders"—subject to grid security not being compromised. Furthermore, in a wider, regional crisis situation, national measures restricting interconnector availability could exacerbate the problem and undermine confidence in the concept of a regional approach to resource adequacy and reliability. The cooperation framework proposed in the Risk Preparedness regulation goes some way to addressing this issue but does not of itself entirely solve the problem.*

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## **3. Security of Electricity Supply**

### **What Is It?**

Security of electricity supply is defined in the Risk Preparedness Regulation as “the ability of an electricity system to guarantee an uninterrupted supply of electricity to consumers with a clearly defined level of performance.”

That is, security of supply is defined not as an absolute (“ensure that the lights will never go out!”) but rather in terms of performance.

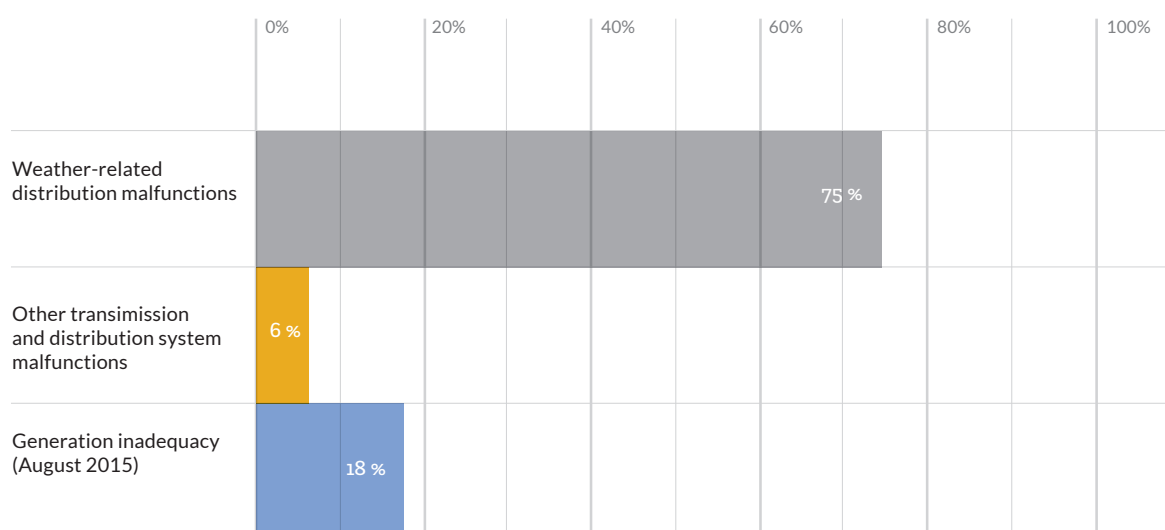
Although security of supply is often correlated with resource adequacy (in all time frames), it is important to remember that it in fact relies on a broader set of factors. The vast majority of supply interruptions are caused by network problems, most weather related, with only a small minority attributable to insufficient resource availability.

Figure 1 reflects causes of electricity supply interruptions in Poland from 2005 to 2015. The amount of curtailment during this period was 299.805 gigawatt-hours (GWhs), or about 1.8 percent of demand in 2015 spread over ten years. Most supply interruptions were due to network problems, primarily on distribution networks affected by severe weather. The proportion attributable to generation inadequacy, 18.35 percent of the total, is due to one event, the forced curtailments implemented by the Polish system operator in August 2015.

The sudden outage at Poland’s largest power station in Bełchatów is often seen as the precipitating cause of the forced curtailments. In fact, several factors contributed significantly, including weather, network constraints, the closure of a nuclear generator in the Czech Republic, and a lack of sufficient resources capable of reliably meeting summer peak demand.<sup>8</sup> To put the 2015 event in perspective, the total inadequacy amounted to 55.02 GWhs, compared with 161,400 GWhs of total annual consumption. That is, the one instance of generation inadequacy in ten years amounted to 0.03 percent of annual demand in the year it occurred.

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**Figure 1. Cause of Electricity Supply Interruptions in Poland 2005 to 2016**



Source: PSE

<sup>8</sup> For an analysis of the 2015 event, see Niedobory mocy w polskim systemie elektroenergetycznym w sierpniu – komentarz Forum Analiz Energetycznych (Resource inadequacy in the Polish electricity system in August – commentary by the Forum for Energy Analysis), (2015, 23 September). Retrieved from [http://forum-energii.eu/files/file\\_add/file\\_add-q2.pdf](http://forum-energii.eu/files/file_add/file_add-q2.pdf)

One of the expected benefits of the IEM is improved reliability and lower costs associated with shared resources and balancing reserves<sup>9</sup>. The Regulation on the Internal Market for Electricity proposes to introduce an EU Resource Adequacy Assessment. This proposal is tied to determining whether, in a given Member State, there is a resource adequacy concern that would justify the introduction of a capacity mechanism, taking into account regionally available resources.

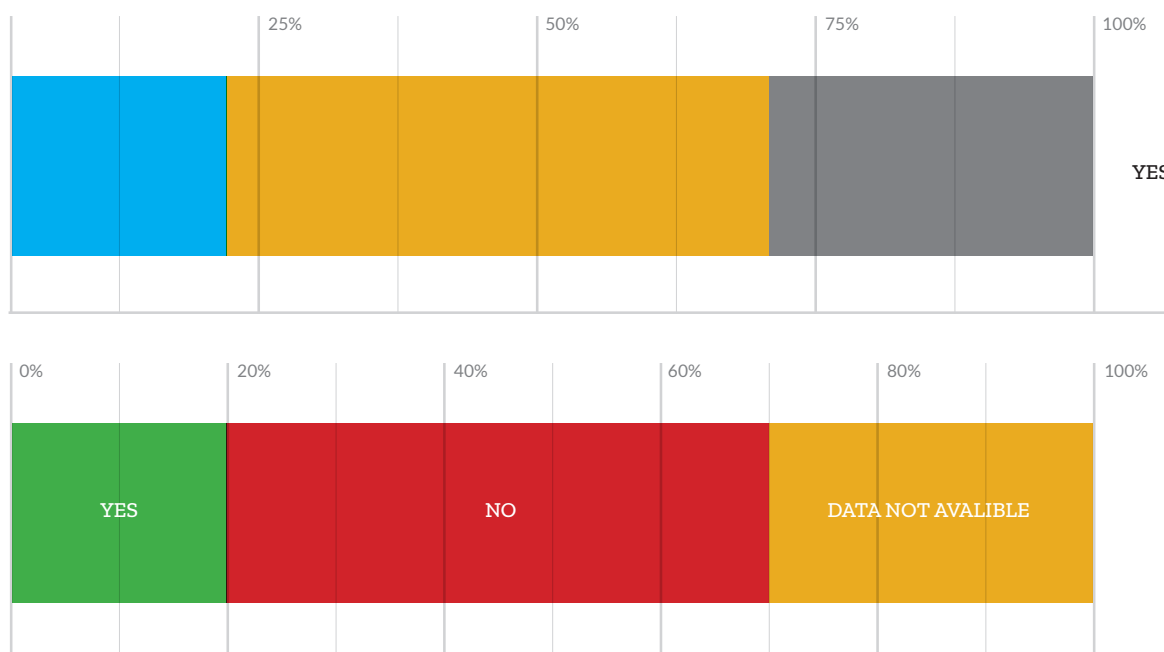
Resource adequacy assessments are conducted by ENTSO-E in its Mid-term Adequacy Forecast (MAF) and seasonal outlook reports based on data supplied by Member State TSOs. The MAF is published annually and covers a ten-year outlook<sup>10</sup>. Seasonal outlook reports for summer and winter are prepared every year before the upcoming season.

The purpose of these assessments is to provide an overview of the expected balance of supply and demand in Europe. The longer-term assessment gauges resource adequacy in investment time frames, and the seasonal outlooks provide data to anticipate problems in the coming months.

A central challenge to determining resource adequacy on a regional or pan-European level has been the lack of reliability standards in many Member States. As shown in Figure 2, in 2015 more than half of Member States did not have a reliability standard in place.

**Figure 2. Reliability Standards in Europe, 2015**

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Based on ACER, CEER Market Monitoring Report for 2016<sup>11</sup>

<sup>9</sup> European Commission. (2016, 30 November). Commission staff working document: Impact Assessment. Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast). Retrieved from [http://eur-lex.europa.eu/resource.html?uri=cellar:e4c834ae-b7b8-11e6-9e3c-01aa75ed71a1.0001.02/DOC\\_1&format=PDF](http://eur-lex.europa.eu/resource.html?uri=cellar:e4c834ae-b7b8-11e6-9e3c-01aa75ed71a1.0001.02/DOC_1&format=PDF)

<sup>10</sup> Though the 2017 report assesses resource adequacy to 2025. Retrieved from [https://www.entsoe.eu/Documents/SDC%20documents/MAF/MAF\\_2017\\_report\\_for\\_consultation.pdf](https://www.entsoe.eu/Documents/SDC%20documents/MAF/MAF_2017_report_for_consultation.pdf)

<sup>11</sup> Retrieved from [https://acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/ACER%20Market%20Monitoring%20Report%202016%20-%20ELECTRICITY.pdf](https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202016%20-%20ELECTRICITY.pdf)

The EU Resource Adequacy Assessment calls for development of a reliability standard against which resource adequacy is measured. Or more accurately, it provides the framework for a methodology to establish national reliability standards. Member States would still be responsible for setting their own reliability standards based on the value placed on uninterrupted electricity supply. However, by applying the same methodology and defining reliability in comparable terms, it would be possible to gauge security of supply based on whether national reliability standards are being met.

The Electricity Regulation sets a reliability standard expressed in two dimensions:

1. **Loss of load expectation (LOLE)** represents the mean **number of hours per year** in which supply does not meet demand in the absence of intervention from the system operator. It is calculated as:  

$$(\text{CONE w } \text{€}/\text{MW}/\text{rok})^{12}/(\text{VoLL w } \text{€}/\text{MWh})^{13}.$$
2. **Expected energy not served (EENS)** represents the mean **amount of electricity** demand that is not met in a year (likelihood + potential size of any supply shovrtfall) expressed in GWhs/year.

A key element of the reliability standard is the value of lost load (VoLL). This is the estimated maximum price in €/MWh that customers would be willing to pay to avoid a forced interruption of supply

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## Why Is It Important?

The development of a shared methodology for establishing national reliability standards is important to enable meaningful assessment of resource adequacy on a regional and pan-European level. In turn, resource adequacy assessments in all time frames play an important role in determining the availability of resources to meet reliability standards in longer time frames. The Risk Preparedness Regulation adds to the short-term resource adequacy assessments, which are particularly important in the context of risk preparedness and identifying and avoiding potential crisis situations as they develop.

The EU Resource Adequacy Assessment is also important for Poland in light of the recent decision by the European Commission authorising Poland's capacity market under State Aid Guidelines. Poland has recently introduced an LOLE standard of three hours, based on a calculation of the VoLL and CONE. The capacity mechanism has been designed to enable cross-border capacity and demand-side resources (storage and demand response) to participate in the capacity market. These are important elements that have aligned the Polish capacity mechanism with European guidelines. The Polish capacity mechanism will, however, need to be adjusted to the final shape of the Electricity Regulation.

<sup>12</sup> The CONE (cost of new entry) is the estimated levelised cost in €/MW/y of a marginal generating source, traditionally a combined gas cycle turbine.

<sup>13</sup> These reliability standards are not defined in the proposed legislation. We apply here standard definitions used by Ofgem, which are similar to definitions applied in Poland and other jurisdictions. The VoLL is explained further in the text box that follows.

## VoLL

The value of lost load represents a price for electricity it is assumed consumers are willing to pay to avoid an outage. It is a measure applied in many countries around the world as the basis for establishing a reliability standard. The process of setting a VoLL can be an opportunity for engagement with customer groups, and introduces transparency into how much customers are paying for a given level of reliability and why.

The value varies for each class of consumer, industrial, commercial, domestic, and for individual consumers within those broad classes. Alighting on a single value of VoLL is therefore rather subjective. It is also worth noting that we are talking about a standard to be used for interruptions attributable to a shortage of available generation, which are typically quite rare. The standard adopted should be consistent with the standard customers are provided against service interruptions from all causes, including from network problems. It would make no sense to build enough generation to meet a level of service that no customer would ever experience in practice.

Requiring the establishment of a transparent reliability standard based on the VoLL should help inform the discussion in Poland around the current level of security of supply. Currently many Member States still assess resource adequacy based on criteria that are not transparent and that vary from one Member State to another. Recently ENTSO-E has introduced, following public consultation, a standard procedure for establishing the level of resource adequacy<sup>14</sup>. The Commission's proposal would go a step further by requiring ENTSO-E to propose a standard methodology for setting a reliability standard, against which resource adequacy would be assessed, including the role of demand-side and cross-border resources.

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## What Could Be Improved?

Although a pan-European view of the electricity system has value, a pan-European Resource Adequacy Assessment is unlikely to be sufficiently granular to fully reflect whether there is a capacity deficit in the region or in a given country. A combination of national, regional, and pan-European Union assessments is more likely to show how the balance of supply and demand in the region over different time frames is likely to influence risks and benefits to the Polish power system.

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<sup>14</sup> ENTSO-E. Mid-term adequacy forecast 2017. Retrieved from <https://www.entsoe.eu/outlooks/maf/Pages/default.aspx>

In this context, it is worth noting that the revisions to the ACER regulation could support establishment of regional subgroups of the Board of Regulators, which could support development of stronger regional cooperation on assessing resource adequacy. Long-term regional resource adequacy assessments could supplement the seasonal and short-term regional assessments envisioned under the Guideline on Electricity Transmission System Operation and under the Risk Preparedness Regulation to provide a long-term regional outlook.

Lastly, there is some concern over the fairness of basing the reaction to a regional crisis situation on the VoLL. In this context, it is important to understand the purpose of the VoLL and its impact on the response to a crisis situation. The VoLL is introduced in the Electricity Regulation as an indicator for setting national reliability standards. It is clear that a single national VoLL is not representative of the price limits that different consumers are willing to pay for power. In practice, large consumers are likely to gradually reduce or curtail their demand as the electricity price rises in a scarcity event. If a risk of imbalance remains after gate closure, the system operator will implement emergency measures, including activating emergency demand response contracts and, as a last resort, load shedding. In this context, the introduction of load shedding plans in the Risk Preparedness Regulation is an important step toward building certainty around the regional response to a crisis situation and establishing appropriate compensation.

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In the event of a significant regional crisis, it is possible that power would eventually flow to the country with the highest VoLL, while power would be curtailed in countries with a lower VoLL. An improvement to the current framework, therefore, would be to remove price caps entirely, which would set a level playing field among Member States.

## 4. Conclusions

Until now, a missing element and source of concern in the IEM has been the lack of rules on regional cooperation around crisis situations. A frequently asked question in the public debate around the IEM is: Can Poland rely on its neighbours' support in the event of a widespread electricity crisis? The Regulation on Risk Preparedness takes important steps to fill this gap and provide a framework for such cooperation.

The regulation proposes rules to prevent, prepare for, and manage crisis situations. This includes establishing a common methodology and process for defining and identifying risk, as well as for conducting short-term regional resource adequacy assessments. Member States are expected to develop risk preparedness plans that include regional measures, agreed upon with electrically connected neighbours. Provisions proposed in the Electricity Regulation relating to a long-term pan-European resource adequacy assessment and common framework for defining national reliability standards further support resource adequacy in investment timescales.

Risk preparedness is an important part of the broader debate around the effect that interconnected markets and coordinated system operations will have on the Polish power system and on broader public policies. Often discussions around the IEM focus on issues relating to the effect that lower-cost imports will have on Polish generators (on the one hand) and on consumer prices and economic development (on the other). Until recently, risk preparedness was flagged as a concern with no clear resolution. The Commission's proposal on risk preparedness provides a path forward to strengthen certainty over the ability to rely on neighbouring resources in a widespread crisis.

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As negotiations around these legislative proposals advance, it will be important to consider where they provide opportunities for Poland to strengthen its national interests through greater regional coordination and cooperation.

# Risk Preparedness in the Winter Package



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