



## Improving Cooperation among EU Member States in Handling Electricity Crises Lessons for the Regulation on risk-preparedness

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### Summary

As part of the “Clean Energy for All Europeans” package, the European Commission has proposed a Regulation on risk-preparedness in the electricity sector that aims to improve cooperation among member states in preventing, preparing for and managing electricity crises. To reap the benefits of improved cooperation compared with the current diverging national approaches, the proposal foresees, inter alia, national risk-preparedness plans, a number of principles for crisis management and ex post crisis evaluation. This Policy Insight analyses the proposal and confronts it with a case study about a recent crisis in South East Europe (in January 2017). Among other conclusions, the findings suggest that the Regulation’s provisions for clear rules and national/regional procedures for crisis management and for evaluating crisis management ex post (i.e. whether the rules were followed) are appropriate, but they may need strengthening.

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## 1. Introduction

The European Commission's proposed Regulation on risk-preparedness in the electricity sector<sup>1</sup> intends to improve cooperation among member states in preventing, preparing for and managing electricity crises. It defines an electricity crisis as a "situation of significant electricity shortage or impossibility to deliver electricity to end-consumers".

Risk-preparedness has to date been dealt with almost exclusively by member state legislation. EU provisions have mostly focused on the adequacy of the available infrastructure rather than the operational issues of crisis prevention and preparation, crisis management and *ex post* evaluation for drawing lessons.

With a view to the ongoing integration of the EU electricity market and increasingly regional risks of electricity crises (including malicious attacks, natural hazards, fuel shortages and accidents during system operation), the European Commission argues that the absence of EU-level provisions constitutes a regulatory gap. Potential synergies like reducing economic damage through cross-border assistance and ensuring an effective response to common threats are not sufficiently addressed. Moreover, common procedures in times of shortage are an important step for facilitating the cross-border integration of system reserves, including the ongoing integration of balancing markets.

This Policy Insight sets out to analyse the drivers of and barriers to better cooperation among member states and to make policy recommendations. It examines the case of a recent electricity crisis in South East Europe (in January 2017) and compares the conclusions from the case with the provisions of the proposal.

## 2. Drivers and barriers affecting improved cooperation

A number of the drivers and barriers entailed in stronger cooperation among member states are key to understanding the rationale of the proposal. They are summarised below, based on the analysis carried out by the European Commission in its Impact Assessment.<sup>2</sup>

### 2.1 Drivers

Better cooperation in the area of risk-preparedness can minimise the future damage inflicted on the EU by electricity crises. Specifically, there is potential for:

- reducing damage to the economy and to public health by avoiding outages (especially to households and critical infrastructure) and
- ensuring more cost-efficient electricity supply when there is a shortage in a (group of) member states.

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<sup>1</sup> See European Commission, Proposal for a Regulation of the European Parliament and of the Council on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC, COM(2016) 862 final, Brussels, 30.11.2016.

<sup>2</sup> See European Commission, Impact Assessment, Commission Staff Working Paper, SWD(2016) 410 final, Brussels, 30.11.2016.

Regional crisis situations are becoming more likely, including both the cross-border effects of a local crisis and simultaneous crises in more than one member state. Given the increasing interconnectivity in the EU's electricity systems and the integrating markets, local crisis situations are poised to have cross-border effects. In addition, climate change is exacerbating the risk of weather-related regional crises (e.g. cold spells). Cyberattacks<sup>3</sup> are another growing risk with potential cross-border implications.

## 2.2 Barriers

The strong national focus of member state rules on preparing, preventing and managing crises is a key issue. The legal provisions and operational practices vary considerably across member states, which has led, for example, to different competences among national public authorities and varying definitions of key terminology (e.g. an 'emergency situation').

In crisis situations, there is a tendency for isolated, national crisis management (commonly including export bans), which disables cross-border trade and therefore constitutes market intervention. While such measures can be legal under EU law,<sup>4</sup> there are no provisions for the *ex post* evaluation of crises, implying a risk of undue intervention and a need for more transparency and effective regulation.

Lack of communication among member states before, during and after the crisis is another critical shortcoming. According to the Impact Assessment, national plans are often insufficient in detail and not shared with neighbours. In the event of a crisis, member states tend not to communicate their actions with one another and often even disregard their legal obligation to notify the European Commission about safeguard measures without delay. Such a lack of information sharing by a member state anticipating or facing a crisis can lead to premature market intervention, as it inhibits the capacity of other member states to react, e.g. by providing assistance.

## 3. Proposed measures

### 3.1 Status quo

According to the Impact Assessment<sup>5</sup> accompanying the proposal, the existing security of supply framework does not match the evolving needs of the EU's electricity sector. While member states are obliged to define their own standards, too few provisions for cooperation exist. As a result, standards vary among member states.

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<sup>3</sup> In 2014, an attack targeted several energy companies in Europe and the US. In 2015 and 2016, cyberattacks on Ukraine led to serious power cuts with implications for Central Europe, Romania and Moldova.

<sup>4</sup> See Art. 42 on "Safeguard Measures" in Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, OJ L 211, 14.8.2009.

<sup>5</sup> See European Commission, SWD(2016) 410 final, 30.11.2016, op. cit.

Based on the existing legislation, member states are obliged to monitor security of supply and required to take national safeguard measures<sup>6</sup> that do not unnecessarily discriminate against cross-border market participants.<sup>7</sup> ENTSO-E has a mandate to assess EU-wide risks seasonally (summer/winter outlooks)<sup>8</sup> and (in practice) acts as a platform for exchange between transmission system operators (TSOs) during an electricity crisis. Since 2008, ENTSO-E has facilitated the formation of at least three regional security coordinators (RSCs),<sup>9</sup> which are companies founded by two or more TSOs to broker cross-border security-related services. Various legal provisions establishing technical interoperability (at the TSO level) among member states during a crisis have been or are being implemented.<sup>10</sup> On the issue of cybersecurity risks, there are cross-sectoral provisions (not specific to the energy sector).<sup>11</sup> The Electricity Coordination Group, formed in 2012, provides the relevant platform for information and policy preparation exchange on cross-border issues and includes representatives from member states, national regulators, the Agency for the Cooperation of Energy Regulators (ACER) and ENTSO-E, and is chaired by the European Commission.

### 3.2 Elements of the proposal

#### *Crisis prevention and preparation (ex ante)*

At the centre of the proposal lies an obligation for member states to draft risk-preparedness plans in which concrete procedures at both the national and regional levels in case of an electricity crisis are to be defined. A template for the plans is provided in the annex of the proposal. It involves describing the measures and the criteria for their application, as well as schemes on information flows. Regional load-shedding plans play an important role. Additionally, trigger criteria for assistance, calculation formulas for compensation for provided assistance, rules for arbitration and agreements with third countries are part of the template. The Electricity Coordination Group is put in charge of ensuring coherence between the risk-preparedness plans of the member states within each region (in close collaboration with ACER) and may issue recommendations.

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<sup>6</sup> See Directive 2009/72/EC, op. cit.

<sup>7</sup> See the Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment, OJ L 33, 4.2.2006.

<sup>8</sup> See Regulation (EC) No. 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No. 1228/2003, OJ L 211, 14.8.2009.

<sup>9</sup> More RSCs are in the process of being created.

<sup>10</sup> These include the Guideline on System Operation, the Regulation on Capacity Allocation and Congestion Management and the Network Code on Emergency and Restoration (currently in comitology).

<sup>11</sup> See the Network and Information System Directive ((EU) 2016/1148, of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union, OJ L 194, 19.7.2016).

The regional operational centres (ROCs)<sup>12</sup> are mandated to perform short-term adequacy assessments (week-ahead and intra-day risk assessments), based on harmonised methodology developed jointly by ACER and ENTSO-E. The latter is also to be applied in ENTSO-E's seasonal assessment.

#### *Crisis management*

Spread across various articles, the proposal specifies common principles for the member states to follow in the event of an electricity crisis:

- In a spirit of solidarity, public safety-relevant consumption is to be prioritised across borders.
- Crisis situations are to be addressed with market measures whenever possible.
- The risk-preparedness plans are to be followed “to the fullest possible extent”.
- Information on crisis-related events of regional relevance has to be notified to the European Commission and Electricity Coordination Group without delay.
- Assistance received from other member states must be compensated.

#### *Crisis evaluation (ex post)*

The proposal foresees that after each crisis an evaluation report has to be submitted to the European Commission and to the Electricity Coordination Group, each of which can request additional information from the respective member state(s) that declared the crisis.

## **4. Case study of the recent electricity crisis in South East Europe (in January 2017)**

Starting at the end of December 2016, South East Europe experienced a cold spell with heavy snow and unusually low<sup>13</sup> temperatures that lasted for a period of almost six weeks. In January 2017, this led to an electricity crisis that most seriously affected EU member states Bulgaria, Romania and Greece.

In Bulgaria and Romania, domestic generation gradually neared a shortage by the second week of January. The cold spell led to the highest electricity consumption in Bulgaria since the early 1990s (with a peak load of 7,700 MW on 11 January).<sup>14</sup> Similarly, Romania's TSO Transelectrica reported the highest electricity consumption in the country since 2001, with a peak load of

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<sup>12</sup> These regional entities are proposed in the “Clean Energy for All Europeans” package to improve cooperation among TSOs.

<sup>13</sup> In January 2017, Romania registered a minimum temperature of -32°C, while Bulgaria registered a minimum temperature of -28°C. The Bulgarian winter was the coldest in 69 years.

<sup>14</sup> That is, according to reports by the Bulgarian Electricity System Operator (<http://www.eso.bg/?did=52#Новини>).

9,730 MW on 10 January. The consumption peak in both countries coincided with low levels of wind and solar generation and a reduced availability of hydropower capacity.<sup>15</sup>

The events overlapped with the new Romanian government taking office, leading to heavy media coverage of the events and public discussion about possibly insufficient coal and natural gas reserves.

In response to an escalating situation in Bulgaria, the Bulgarian TSO Electricity System Operator (ESO) asked the Romanian TSO Transelectrica for assistance to keep the grid stable on 8 January,<sup>16</sup> a request that was not honoured by the Romanian side.

In the course events, Bulgarian emergency reserve power plants were activated, but were subject to limited availability, as part of the reserve coal had frozen in the storage facility. One source claimed that the Bulgarian authorities had failed to properly inspect the premises of these cold reserves with respect to their preparedness for activation when needed.

On 9 January, the state-owned Bulgarian Energy Holding (BEH) cut the mandatory supply to the day-ahead market of the Independent Bulgarian Energy Exchange (IBEX)<sup>17</sup> by around 100 MW to serve protected customers on the regulated market (small businesses and households).<sup>18</sup> Because of the scarcity resulting from the cold spell and the Bulgarian market intervention, the IBEX day-ahead power price doubled compared with the previous week.<sup>19</sup>

Along with the price increase in Bulgaria, the import/export balance with Greece shifted considerably (more than halving Bulgaria's net exports from 5,000 MWh on 8 January to 2,400 MWh on 9 January).<sup>20</sup>

On 10 January, the Greek TSO ADMIE announced a safeguard measure,<sup>21</sup> imposing an export ban for two days (11–12 January), excluding long-term contract capacity. Exports to Albania, Macedonia, Turkey and Bulgaria resumed on the evening of 12 January, after conditions

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<sup>15</sup> More specifically, 1 GW out of 3.3 GW of Bulgaria's installed hydropower capacity was available (see Argus Media, "Bulgaria's BEH lifts supply limits on IBEX", 1 February 2017) and the Danube was at a record low (see [http://www.transelectrica.ro/documents/10179/114485/Informare+HG+10\\_13012017+final.pdf/42c9626d-a851-460c-9d7b-53704ea2adf6](http://www.transelectrica.ro/documents/10179/114485/Informare+HG+10_13012017+final.pdf/42c9626d-a851-460c-9d7b-53704ea2adf6)).

<sup>16</sup> See footnote 14. According to another source, the request amounted to 100 MW for a duration of 3-4 hours.

<sup>17</sup> As a result of a settlement with the European Commission regarding an antitrust case, BEH is obliged to trade certain amounts of electricity in the day-ahead market of the IBEX. See the Commission Decision of 10.12.2015 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union, Case AT.39767 – BEH Electricity.

<sup>18</sup> Argus Media, "Bulgaria's BEH cuts IBEX liquidity", 13 January 2017.

<sup>19</sup> The average price on 2–6 January was €42.53/MWh; the average price on 9–13 January was €88.76/MWh (see IBEX, *Market Report for January 2017*, Sofia, at [http://www.ibex.bg/bin/documents/192\\_file.pdf](http://www.ibex.bg/bin/documents/192_file.pdf)).

<sup>20</sup> Data from ADMIE (<http://www.admie.gr/en/operations-data/electricity-power-market-participation/balancing-market/ex-post-results/>).

<sup>21</sup> See the announcement of 10 January 2017 (<http://www.admie.gr/en/newstenders/news/announcement/article/2626/>).

stabilised due to improving winter weather conditions in the country and increased supplies of liquefied natural gas.

Despite a drop in peak consumption to 6,200 MW compared with the 7,700 MW peak on 11 January,<sup>22</sup> Bulgarian officials announced an export ban on 13 January. The export ban was not lifted until 9 February, i.e. after four weeks, without explanation. Organisations such as the Association of Traders of Electricity in Bulgaria (Ateb) had repeatedly stressed its negative consequences for both market confidence and market participants, some of which had faced significant financial losses.

According to an analysis by Argus Media, the National Electricity Company (NEK)<sup>23</sup> announced a tender to buy up any electricity offered to it for 13 January at a maximum price of €30 per MWh,<sup>24</sup> an opportunity that many traders made use of, fearing an oversupply due to the impending export ban. As a consequence of the tender, IBEX experienced a continued lack of liquidity and continued high prices (despite a decrease in overall demand). NEK was accused of having abused its market power and profited from the distorted market situation.

On 12 January, after the announcements of the Greek and Bulgarian export bans, the Romanian government issued a decision<sup>25</sup> through which the TSO Transelectrica was given powers to apply safeguard measures. These included notably a reduction or halt of exports, to keep the system safe. However, by the end of the cold spell no measures had been taken. Some Romanian market participants were accused of having abused the crisis-related uncertainty in the market, which led to a public investigation.<sup>26</sup> While adhering to cross-border trade provisions, the Romanian government did not grant the additional request from the Bulgarian Electricity System Operator on 8 January. This was described in some media reports as a lack of regional solidarity.<sup>27</sup>

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<sup>22</sup> *Reuters*, “Bulgaria keeps ban on power exports, braced for more cold weather”, 13 January 2017 (<http://af.reuters.com/article/commoditiesNews/idAFL5N1F3249>).

<sup>23</sup> NEK, a subsidiary of BEH, controls the biggest capacity of hydropower in the country.

<sup>24</sup> See footnote 18.

<sup>25</sup> See Government Decision 10/13.01.2017 concerning the adoption of safety measures on the electricity market, Government of Romania, published in the Official Monitor No. 40 on 13 January 2017.

<sup>26</sup> This investigation resulted in two license withdrawals for power suppliers, as well as in two insolvency filings. The financial losses have been substantial. (See V. Grigorescu, R. Dudau and L. Indries, “An analysis of the evolution of electricity prices in January 2017”, Energy Policy Group, Bucharest, February, 2017.)

<sup>27</sup> *Bloomberg*, “Winter cold exposes soft underbelly of EU Energy Union goal”, 9 February 2017 (<https://www.bloomberg.com/news/articles/2017-02-09/winter-freeze-exposes-soft-underbelly-of-eu-s-energy-union-goal>).

## 5. Conclusions

### 5.1 Conclusions from the case study

The 2016/2017 ENTSO-E Winter Outlook<sup>28</sup> (released in November 2016), whose inputs are based on questionnaires submitted by TSOs, did not indicate any risks in the region. The report included “upward adequacy analysis”, which indicated that even under severe conditions, demand could be met and reserves could be maintained across nearly all of Europe, thanks to energy surpluses in most regions and available interconnector capacity to supply the regions depending on imports.

The insights about the apparent shortcomings of the current methodology should be taken into account in the new methodology for risk assessment, which is foreseen in the proposal. While some of the problems in the region may be due to inefficient and ineffective procedures, the reliability of data (collection and reporting) is likely to be an area for future EU-wide attention. Capacity-building measures, supported for example by the European Commission, may be required in some cases.

The events in Bulgaria and neighbouring countries justify the European Commission’s approach of seeking to improve national and especially regional risk-preparedness planning. The more concrete and detailed the plans are, the better. This supports the European Commission’s focus on a harmonised template to be applied by all member states. It would appear that to create and increase confidence in the region, some EU oversight through the Electricity Coordination Group (as proposed) would be helpful.

The risk-preparedness plans and their evaluation should also consider the maturity of the market. The Bulgarian situation was worsened by the withdrawal of liquidity from the power exchange, the very long export ban and poor communication with regard to the public intervention. The high degree of market power of the state-owned NEK, combined with a general lack of transparency, undermines general confidence in the market, particularly as a mechanism to avoid or cope with a crisis. It was also the basis of allegations of political interference and manipulation.

Considering the Bulgarian situation, a primary focal point would seem to be the adoption of measures to improve market liquidity and increase the depth and transparency of the market. This could be done by moving significant volumes of electricity by all state-owned and private power producers to the power exchange. Migrating renewables and other private producers to the power exchange would be another priority, considering it would secure better liquidity through a multitude of producers. Improved market depth is likely to reduce volatility and lend higher reliability to price signals generated by the exchange. An increased number of producers on the power exchange would increase competition and stimulate the offering of a wider range

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<sup>28</sup> ENTSO-E, *Winter Outlook Report 2016/2017 and Summer Review 2016*, Brussels, 29 November 2016.

of products, some of which (such as peak) are essential but are currently missing from the Bulgarian market.

The case study shows that the quality and transparency of communication by the government and its agencies are crucial, especially in the event of necessary market intervention. Member states and the EU institutions could develop best-practice communication guidelines. Such best practices could be developed by regulators, possibly within the context of the Council for European Energy Regulators (CEER), ACER or through the Electricity Coordination Group.

The market behaviour in Romania resulting from crisis-related uncertainty shows that there may be a need for clearer *ex ante* rules from the energy regulator's side, if the existing rules should be unfairly exploited.

It is likely that the exact details of the crisis will never be fully exposed. Hence, a critical lesson from the crisis is the importance of an effective *ex post* evaluation. The European Commission's proposal to introduce mandatory evaluation reports must be seen as the cornerstone for ensuring compliance with crisis management rules and the risk-preparedness plans. A crucial element is the possibility for the European Commission to obtain access to all the necessary information from member states. In light of the events during the cold spell, a mechanism in case of non-compliance with obligations to provide information may be required. This could involve public consultations carried out by the European Commission in the respective member state. ROCs could also play a role during *ex post* evaluation, e.g. by reporting collected data to the Electricity Coordination Group and the European Commission.

A framework for remuneration of crisis assistance may have facilitated better cooperation between Bulgaria and Romania and thus reduced the economic damage dealt by the crisis. While such a framework is already being explored bottom-up in the region, it may be worth giving it additional institutional momentum. As TSOs are in the lead on this issue, one approach could be to ask ENTSO-E for a draft proposal on guidelines for inter-TSO compensation for cross-border crisis assistance with due allowance for costs incurred or benefits foregone by other stakeholders. ACER could then be mandated to provide feedback and approve the draft for adjustment. To account for regional differences, ROC-specific provisions may be needed.

## 5.2 Policy recommendations

With a view to the political nature and the potentially severe effects of electricity crises on the population, a substantial level of trust among member states is necessary to enable stronger cooperation. The ultimate objective of risk-preparedness Regulation must be to establish such trust. This will require the following elements:

- credible rules for *ex post* crisis evaluation – the proposed provision is therefore a key component and should be reinforced;

- increased prescriptiveness of the rules for crisis management to appropriately delimit the margin of discretion;
- risk-preparedness plans, which create confidence that they are actually implemented (as proposed by the European Commission);
- more credible risk assessment, which in some cases might require capacity building; and
- best practice guidelines for communication.

The proposed competence for the European Commission to request additional information from member states on their *ex post* crisis evaluation could be strengthened by providing a deadline for honouring requests in connection with a public consultation in the member state carried out by the European Commission in case of non-compliance. Such a consultation could take place online complemented by a physical meeting.

The principles for crisis management included in the proposal (see section 3.2) are a good step forward. However, the ambiguity created by using broadly defined terminology may leave too much room for interpretation. This can enable governments to take disproportionate measures to the detriment of market functioning and the security of protected consumers across borders. A greater degree of prescriptiveness on these principles, e.g. by implementing a detailed emergency rulebook, may be an option. This depends on whether the recently agreed technical provisions (see footnote 10) leave gaps. In any case, an accessible manual of principles from the various relevant legal documents, e.g. produced by ENTSO-E and ACER, would be useful to policy-makers and stakeholders.

A very high level of transparency in the case of companies with extensive market power, especially if state-owned, will be indispensable for establishing trust among member states.

Transparency is particularly important in nascent day-ahead markets; otherwise, trust in markets in general, let alone as a mechanism to avoid or cope with a crisis, will disappear. The *ex post* evaluation report should include this within its scope.

Considering the Bulgarian market, the situation of the power system should be reasonably transparent to market participants with continuous updates. These should include forecasts based on consumption in the previous year and planned availability and maintenance power plants. At the same time, it would be useful for the main producers to indicate what volumes they expect in each segment of the market. Producers should be encouraged to participate (through ESO, the Bulgarian TSO) in ENTSO-E's Transparency Platform.

Member states with functioning markets and high levels of transparency will likely be opposed to cooperation in a ROC region where other member states with significantly lower standards are included. This is illustrated, for example, by the complications in the Bulgarian cold reserve. For member states with lower standards, there is a need for upward convergence-driven enforcement and improvement of the network codes. Steps towards sophisticated rules for

regional load-shedding plans, trigger criteria for assistance, calculation formulas for compensation of provided assistance, rules for arbitration and agreements with third countries are in the right direction for many member states. These steps may need gradual implementation in South East Europe.

Parties to the Energy Community should only be included in a common risk-preparedness framework if they prove that they comply with EU standards.



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