



Is security of energy supply possible without deeper cross-border market integration?

Lessons from the cold spell in South-Eastern Europe

Christian Egenhofer and Cristian Stroia

In late December 2016 and early 2017, South Eastern Europe experienced an extended cold spell lasting almost six weeks and triggering an electricity ‘crisis’, which seriously affected EU member states as well as Energy Community countries, notably Bulgaria, Romania, Greece and FYR of Macedonia. These countries opted to tackle the actual or perceived supply situation via a traditional path of administrative interventions, based on a purely national perspective and requiring the addition of considerable capacity. This approach departed sharply from the solutions discussed within the Central and South Eastern Europe Energy Connectivity (CESEC) initiative, launched by the European Commission in 2015 with the aim of integrating markets to address energy security in the region. One of the possible outcomes from the cold spell might well be that governments in the region come to realise that they have few options other than to integrate with their neighbours, increase energy efficiency and support renewable energy, whose cost by now is comparable to conventional sources and, given its scalability, poses less economic risks for investors.

Keywords: electricity crisis, regional cooperation, energy security

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Introduction

For many years now, the countries of Central and South-Eastern Europe have been vulnerable to security of energy supplies, especially gas, as reflected in the results of the [stress tests](#) conducted by the European Commission in 2014.¹ The cancellation of the South Stream pipeline project in December 2014, as well as the geopolitical changes in Ukraine have also had a strong impact on the region, persuading its leaders of the need to reinforce European energy markets as an important building block to reduce its vulnerabilities. This led – in February 2015 – to the establishment of the Central and South-Eastern Europe Energy Connectivity (CESEC) group, a high-level initiative to foster regional cooperation in diversifying the supply of natural gas and addressing the challenges of security of supply.

At the second ministerial meeting in July 2015, the CESEC group produced an Action Plan to identify projects to diversify gas supply in the region. The initial focus was on creating interconnectors, involving a limited number of infrastructure projects, to supply gas when and where needed. Soon thereafter, seven out of a total of twenty proposals were approved, and are now being implemented. In parallel, CESEC concentrated on the development and implementation of rules to enhance connectivity. As a result, attention has shifted to ensuring market functioning (reverse flows, setting cross-border tariffs and capacity allocation). As a logical next step, the CESEC High Level meeting in Budapest in September 2016 agreed the expansion of the initiative's scope beyond natural gas and proposed the establishment of two new working groups, one on the “cost-effective development of renewable energy and energy efficiency in the region” and another on “an efficient, well-connected electricity market”. A Memorandum of Understanding and a new Action Plan was signed at the 4th CESEC High-Level meeting in Bucharest in September 2017. As highlighted by a previous CEPS study², the implementation of the new mandate, informally labelled as CESEC 2.0, has opened the door to a new level of regional cooperation.

¹ “[Gas stress test: Cooperation is key to cope with supply interruption](#)”, Press Release, European Commission, 16 October 2014.

² C. Egenhofer and C. Stroia, “CESEC 2.0: Opening the door to a new level of regional cooperation”, CEPS Policy Insight, CEPS Brussels, September 2017 (<https://www.ceps.eu/publications/cesec-20-opening-door-new-level-regional-cooperation>).

These developments in the context of CESEC stand in sharp contrast to the actions of many CESEC governments on the ground, especially those taken during the time of the so-called ‘cold spell’ in early 2017, when the region experienced heavy snowfall and unusually low temperatures for a period of almost six weeks. The governments reacted by adopting administrative measures based purely on a national perspective, thereby foregoing possible benefits of regional integration.

This Policy Insight aims to highlight the unfolding events during the cold spell in the selected countries in Central and South Eastern Europe, and to draw some relevant lessons from this crisis. The paper is based on in-house research, supplemented by interviews conducted by the authors in the wake of the cold spell with major stakeholders from the region (in Romania, Bulgaria and FYROM), which included transmission system operators, national regulatory authorities, energy analysts, energy think tanks and energy market players.

What was happening on the ground in January 2017?

Starting at the end of December 2016, South-Eastern Europe experienced heavy snowfall and unusually low temperatures that lasted for a period of almost six weeks. In January 2017, this led to an electricity ‘crisis’ that inflicted serious hardship on the population of three EU member states (Bulgaria, Romania and Greece), and one contracting party of the Energy Community (the Former Yugoslav Republic of Macedonia – FYROM). All four countries are the focus of this brief case study.

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 2017).³ Similarly, Romania’s electricity transmission system operator (TSO) Transelectrica reported the highest electricity consumption in the country since 2001, registering a peak load of 9,730 MW on January 10th. The consumption peak in both countries coincided with low levels of wind and solar generation and a reduced availability of hydropower capacity.⁴ In FYROM, which imports around 30% of its electricity, all power facilities were in poor condition, preventing them from producing enough electricity to meet domestic demand.

This extreme weather also coincided with particularly delicate political developments in the region. A new Romanian government was facing, among other controversies, intense speculation in the media and public discussion about a possible shortfall in generation capacity. Indeed, serious questions were being raised in all four countries concerning how much of the reported capacity they were actually able to generate. Bulgaria was in the final pre-election

³ As reported by the Bulgarian Electricity System Operator (<http://www.eso.bg/?did=52#Новини>).

⁴ More specifically, only 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 water level of the Danube had dropped to a record low

(http://www.transelectrica.ro/documents/10179/114485/Informare+HG+10_13012017+final.pdf/42c9626d-a851-460c-9d7b-53704ea2adf6).

campaign stage, where any, even the most remote, risk of a power cut was completely unacceptable for the government, which faced tough opposition. Bulgarian emergency reserve power plants had been activated, but as it turned out, a part of the coal reserves had frozen in the storage facility. In an effort to keep the grid stable, the Bulgarian Electricity System Operator (ESO) asked the Romanian TSO Transelectrica for relief assistance on January 8th, but Romania turned down the request.

On January 9th, the state-owned Bulgarian Energy Holding (BEH) cut the mandatory supply to the day-ahead market of the Independent Bulgarian Energy Exchange (IBEX) by around 100 MWh to serve protected customers on the regulated market (small businesses and households).⁵ In response, the IBEX day-ahead power price, compared with the previous week,⁶ was doubled and the demand surged from the cold spell. In parallel, Bulgaria's net exports to Greece halved, moving from 5,000 MWh on January 8th to 2,400 MWh on January 9th.⁷

On January 10th, the Greek TSO ADMIE curtailed exports for the next two days (11–12 January)⁸ as a safeguard measure but excluded electricity contracted for under long-term contracts. The markets in the region reacted with price spikes during peak times. Exports from Greece to Albania, Macedonia, Turkey and Bulgaria resumed on the evening of January 12th, after conditions stabilised due to improved weather 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 January 11th,⁹ Bulgarian officials declared a state emergency and announced an export ban on January 13th. The official justification cited difficult weather conditions and the need to safeguard security of supply.¹⁰ The export ban was in effect until February 9th, without any explanation. Organisations such as the Association of Traders of Electricity in Bulgaria (ATEB) repeatedly stressed the negative consequences for both market confidence and market participants, some of whom had faced significant financial losses.

According to an analysis by Argus Media, the National Electricity Company (NEK)¹¹ released a tender on January 13th to buy any electricity offered to it at a maximum price of €30 per

⁵ Argus Media, "[Bulgaria's BEH cuts IBEX liquidity](#)", 13 January 2017.

⁶ The average price on 2-6 January 2017 was €42.53/MWh; the average price on 9–13 January was €88.76/MWh (see IBEX, [Market Report for January 2017](#), Sofia).

⁷ Data from ADMIE (<http://www.admie.gr/en/operations-data/electricity-power-market-participation/balancing-market/ex-post-results/>).

⁸ See the announcement of 10 January 2017 (<http://www.admie.gr/en/newstenders/news/announcement/article/2626/>).

⁹ "[Bulgaria keeps ban on power exports, braced for more cold weather](#)", Reuters, 13 January 2017.

¹⁰ Bulgaria's export ban had been justified on the basis of Article 70 of the Bulgarian Energy Act, which imposes public service obligations on energy companies.

¹¹ NEK, a subsidiary of BEH (Bulgarian Energy Holding), controls the biggest capacity of hydropower in the country.

MWh.¹² Many traders seized the opportunity to take part in the tender, partly out of fear of oversupply due to the impending export ban. As a consequence, IBEX experienced a continued lack of liquidity and high prices (despite a decrease in overall demand). NEK was accused of having abused its market power and profiting from the distorted market situation.

On January 12th, following the export bans imposed by the Greek and Bulgarian governments, the Romanian government issued a decision¹³ through which the TSO Transelectrica was given discretionary powers to apply safeguard measures. These included notably a reduction or halt to exports, if deemed necessary. By the end of the cold spell, however, no measures had been taken, although some Romanian market participants were accused of taking advantage of the uncertainty created by the crisis. While having formally adhered to cross-border trade provisions, the Romanian government was criticised for its negative response to the request of the Bulgarian Electricity System Operator on January 8th, described in the media as lacking regional solidarity.¹⁴ The incident became the focus of a public investigation.¹⁵

At the time, the Former Yugoslav Republic of Macedonia (FYROM) was still in search of a new government following the December 2016 elections, which was finally only appointed at the end of May 2017. During the cold spell, like its neighbours, the country also faced difficulties with its domestic production. Although the hydro and thermal power plants nominally had the capacity to meet demand, improper storage of coal stocks (with some having frozen) led to insufficient availability for the country's reserve power plants. Moreover, allegations of unlawful use of the water outflow from Lake Ohrid for hydroelectric production by ELEM (FYROM's largest electricity producer) to balance the national grid provoked protests from among environmentalists, the media and the public.¹⁶ During the cold spell, the largest state-owned coal-fired thermal power plant REK Bitola malfunctioned, despite major efforts at modernising the plant in previous years, and was forced to reduce its operational capacity. Immediate repairs were made, but the power plant shut down one of its energy blocks for a

¹² See Argus Media, "Bulgaria's BEH cuts IBEX liquidity", 13 January 2017.

¹³ 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.

¹⁴ Bloomberg, "[Winter cold exposes soft underbelly of EU Energy Union goal](#)", 9 February 2017.

¹⁵ This investigation resulted in the withdrawal of the operating licenses of two power suppliers, as well as the filing of two claims of insolvency. 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 (<https://www.enpg.ro/an-analysis-of-the-evolution-of-electricity-prices-in-january-2017/>).

¹⁶ During the electricity crisis, the water level in Ohrid Lake reached an extremely low level (15cm below the natural minimum elevation, well below the permissible minimum limit), due to the use of water from the outflow of the Dim River for electricity production by ELEM for balancing the national system. Given that Lake Ohrid and its ecosystem is a UNESCO World Heritage site, the unlawful discharge of the lake's water provoked outcry from environmentalists and the media. For more, see Meta.mk News Agency, *Експертите предупредуваат на штетноста од нискиот водостој на Охридско Езеро* (Experts warn of the harmfulness of the low water level of Ohrid Lake), 29 January 2017 (<http://meta.mk/ekspertite-predupreduvaat-na-shtetnosta-od-niski-ot-vodostoj-na-ohridsko-ezero/>).

planned maintenance towards the end of January 2017.¹⁷ In addition, issues with the delivery of district heating prompted household consumers to move to alternative heating sources (mainly electricity and solid fuel), putting a strain on the national grid.

Market participants in FYROM's power exchange suffered significant losses due to Bulgaria's extended ban on the export of electricity. What had normally been relatively cheap Bulgarian power was suddenly unavailable, and it then became necessary to buy more expensive power elsewhere to honour obligations. A formal complaint was filed to the Energy Community Secretariat against the European Union (as a contracting party to the Treaty of the Energy Community), for market distortion. The procedure is still going on.

Drawing lessons for the region and for CESEC

The turn of events during the January 2017 electricity crisis seems to justify the European Commission's approach of seeking to improve national and especially regional risk-preparedness planning through a regulation proposal¹⁸, as part of the Clean Energy for All legislative package. A recent study by CEPS¹⁹ highlighted that the regulation's provisions for clear rules and national/regional procedures for crisis management and for ex post evaluation (i.e. whether the rules were followed) are appropriate, but they may need further strengthening.

Ultimately, as it turned out, there was no electricity shortage in South-Eastern Europe. According to the available information, there was sufficient capacity in Bulgaria and Romania to weather this severe winter. It was the 'disproportionate' government response that caused the problem. A short electricity export ban might have been justifiable, but its extension to almost a month without explanation was costly for everyone concerned.

The situation was aggravated by a lack of liquidity in the market, e.g. the move by state-owned BEH (Bulgarian Energy Holding) to withdraw liquidity from the power exchange. This created price volatility, which was aggravated by a lack of transparency in the Bulgarian market. For effective crisis management, the quality and transparency of communication by the governments and their agencies are crucial. The quality of data provided by power producers and transmission system operators is often unverifiable, and in some cases, does not reflect the reality. Many coal-fired electricity producers in these four South-Eastern Europe countries

¹⁷ Macedonia Information Energy MIA, "REK Bitola third bloc shut down due to repairs", 31 January 2017 (<http://www.mia.mk/en/Inside/RenderSingleNews/61/133548618>)

¹⁸ 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.

¹⁹ A. Hassel, C. Stroia, C. Egenhofer, J. Jansen, A. Behrens, "Improving Cooperation among EU Member States in Handling Electricity Crises. Lessons for the Regulation on risk-preparedness", CEPS, July 2017 (<https://www.ceps.eu/publications/improving-cooperation-among-eu-member-states-handling-electricity-crises-lessons>)

did not meet the requirements for adequately storing winter coal stocks or for transparently reporting on the technical upkeep of industrial assets.

Another lesson is that there is considerable scope to improve forecasting, as shown in the inadequacy of the Winter Outlooks, national outlooks and Mid-term Adequacy Forecasts of ENTSO-E. These shortcomings, have been recognised by the European Commission and are being addressed.

Returning to CESEC, the cold spell also revealed that the building of interconnectors alone – which is one of the pillars of CESEC – does not guarantee security of supply. In the absence of effective rules to operate them, especially in times of actual or perceived crisis, energy security in the region will not be improved. Politicised and state-driven national energy policies inhibit the necessary formation of trust between countries to allow them to successfully engage in cross-border energy security frameworks. This is where the value of CESEC 2.0 and its focus on market functioning lies. By offering its members the possibility to collectively move towards a more integrated, interconnected and transparent market, CESEC ultimately builds trust.

In the absence of such market integration, the only alternative is to build national capacity reserves. While there is a lot of enthusiastic talk in many CESEC countries about new – often large-scale – generation capacity investment, the reality is that the economic framework conditions typically do not allow for it. Electricity prices are often below cost, while the cost of capital is high, regulatory regimes are unstable and the independence of regulators is questionable. Under these circumstances, it is difficult to anticipate that anything other than marginal investment will take place. The best option therefore seems to be to increase energy efficiency and support renewable energy, whose costs by now are comparable to conventional sources, and given its scalability and the high cost of capital in the region, most likely poses less economic risks for investors.

There is no miracle solution to the region's energy security challenges. Deeper market integration may take time, but on balance, it may well prove to be the most promising solution. Energy security is turning into a more complex concept, and CESEC is a relevant platform for debating and advancing market integration for enhanced energy security. The European Commission has laid the groundwork by launching several major initiatives, such as the [Clean Energy for All](#) package, an expanded mandate for CESEC to include energy efficiency and renewables and various regulatory responses to the electricity crisis. It is now up to EU member states and Energy Community contracting parties to follow its lead.



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