

**CEER**

**Council of European  
Energy Regulators**



Fostering energy markets, empowering **consumers**.

# **Analysis of the COVID-19 Pandemic's Effects on the Energy Sector - Second Report**

**Ad Hoc COVID-19 Group**

**Ref: C21-COV-09-03  
8 February 2022**

## INFORMATION PAGE

### Abstract

With this document, (C21-COV-09-03) CEER continues its analysis of the effects of the COVID-19 pandemic on the energy sector. The report is based on the replies of 24 regulatory authorities and covers a period ranging from January 2020 to June 2021. It examines the measures taken by public authorities in CEER countries to limit the spread of COVID-19 (notably lockdowns), as well as the effects on electricity and natural gas consumption and prices (which registered historical lows in several countries notably due to the lockdowns of spring 2020). The report also addresses the specific impact of the pandemic on consumers, energy suppliers, network operators, as well as the measures taken to support them. It presents the measures taken by NRAs with regard to their internal organisation, notably telework. It concludes that the energy system has proved resilient and that measures such as disconnection moratoria have shielded consumers from the worst impact. The pandemic-related restrictions have also fostered teleworking, remote operations and digital solutions across the energy sector.

### Target audience

European Commission, energy suppliers, traders, gas/electricity customers, gas/electricity industry, consumer representative groups, network operators, Member States, academics and other interested parties.

### Keywords

COVID-19; pandemic; electricity market; gas market; energy regulation; dynamic regulation; resilience; digitalisation; flexibility; consumers; consumer protection.

If you have any queries relating to this paper, please contact:

CEER Secretariat

Tel. +32 (0)2 788 73 30

Email: [brussels@ceer.eu](mailto:brussels@ceer.eu)

## Related documents

### CEER Documents

- [CEER Response to the European Commission's consultation on the Action Plan for digitalising the energy sector](#), 19 January 2022.
- [ACER-CEER Market Monitoring Report \(MMR\) 2020 – Energy Retail Markets and Consumer Protection Volume](#), 9 November 2021
- [ACER/CEER Market Monitoring Report 2020 – Electricity Wholesale Market Volume](#), 4 November 2021
- [ACER-CEER Market Monitoring Report 2020 – Gas Wholesale Market Volume](#), 14 July 2021
- [CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector](#), 29 March 2021
- [CEER Paper on Cybersecurity in the Clean Energy for All Europeans Package](#), 4 June 2020
- [CEER Consultation on Dynamic Regulation to Enable Digitalisation of the Energy System](#), 10 October 2019

### External Documents

- Agency for the Cooperation of Energy Regulators (ACER), "Note on Europe's high energy prices", 13 October 2021, [https://documents.acer.europa.eu/en/The\\_agency/Organisation/Documents/Energy%20Prices\\_Final.pdf](https://documents.acer.europa.eu/en/The_agency/Organisation/Documents/Energy%20Prices_Final.pdf)
- Commission de régulation de l'énergie (CRE), "The functioning of the wholesale electricity and natural gas markets", 21 July 2021, <https://www.cre.fr/en/Documents/Publications/Thematic-reports/the-functioning-of-the-wholesale-electricity-and-natural-gas-markets>
- Criscuolo, C., Gal, P., Leidecker, T., Losma, F., and Nicoletti, G., "The role of telework for productivity during and post-COVID-19: Results from an OECD survey among managers and workers", 2021, *OECD Productivity Working Papers*, No. 31, OECD Publishing, Paris.
- European Commission, "Tackling rising energy prices: a toolbox for action and support", 13 October 2021, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A660%3AFIN&qid=1634215984101>
- European Commission, "Study on the resilience of critical supply chains for energy security and clean energy transition during and after the COVID-19 crisis", 14 October 2021, [https://ec.europa.eu/energy/studies\\_main/final\\_studies/study-resilience-critical-supply-chains-energy-security-and-clean-energy\\_en](https://ec.europa.eu/energy/studies_main/final_studies/study-resilience-critical-supply-chains-energy-security-and-clean-energy_en)
- European Commission, "Quarterly Reports on European Electricity and Gas Markets", Volumes 13 and 14, Q1/2 2021, [https://ec.europa.eu/energy/data-analysis/market-analysis\\_en](https://ec.europa.eu/energy/data-analysis/market-analysis_en)
- European Commission, "Addressing together current and new COVID-19 challenges", 1 December 2021, <https://ec.europa.eu/info/sites/default/files/communication-addressing-covid19-challenges.pdf>
- International Energy Agency, "Global Energy Review 2020", April 2020, <https://www.iea.org/reports/global-energy-review-2020>
- International Energy Agency, "COVID-19 impact on electricity", January 2021, <https://www.iea.org/reports/covid-19-impact-on-electricity>

## Table of contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>8</b>
1.1	Context .....	8
1.2	Aim of the report.....	8
1.3	Methodology .....	8
<b>2</b>	<b>GENERAL EFFECTS ON THE ENERGY SYSTEM.....</b>	<b>9</b>
2.1	Measures taken to curb the spread of the virus .....	9
2.1.1	Lockdowns .....	9
2.1.2	Travel restrictions .....	12
2.1.3	Vaccination programmes.....	13
2.1.4	Relevance for the energy system .....	14
2.2	Effects on electricity and gas consumption.....	14
2.2.1	Electricity consumption.....	14
2.2.2	Natural gas consumption .....	20
2.3	Effects on energy prices.....	24
2.3.1	Electricity prices .....	24
2.3.2	Natural gas prices.....	29
2.4	Other effects on the energy system.....	33
<b>3</b>	<b>ENERGY CONSUMERS .....</b>	<b>35</b>
3.1	Effects on energy consumers .....	35
3.2	Measures taken to support consumers.....	35
<b>4</b>	<b>ENERGY SUPPLIERS .....</b>	<b>40</b>
4.1	Effects on energy suppliers .....	40
4.2	Measures taken to support energy suppliers .....	40
4.2.1	Staggering and/or deferral of network tariff bills.....	41
4.2.2	Aid for businesses (subsidies, loans, guarantees, etc.) .....	42
<b>5</b>	<b>IMPACTS ON NETWORK OPERATORS .....</b>	<b>43</b>
5.1	How the pandemic impacted network operators .....	43
5.1.1	Losses in tariff revenue .....	43
5.1.2	Delays in network development and similar works.....	44
5.1.3	Delays in smart-meter rollout.....	44
5.1.4	Falling short of performance indicators .....	45
5.1.5	Other consequences, notably on costs.....	45
5.2	Measures taken to support network operators.....	45
5.2.1	Inclusion of some crisis-related costs in the tariff.....	45

5.2.2	General aid for businesses and targeted aid for network operators .....	46
5.2.3	Other measures.....	46
<b>6</b>	<b>INTERNAL ORGANISATION OF NRAS.....</b>	<b>47</b>
6.1	Working arrangements.....	47
6.2	Meeting arrangements .....	48
6.3	Interactions with stakeholders .....	48
6.4	Travel arrangements .....	49
6.5	Other measures .....	49
<b>7</b>	<b>CONCLUSIONS.....</b>	<b>50</b>
7.1	The resilience of the energy sector.....	50
7.2	Protecting consumers.....	51
7.3	The role of NRAs.....	51
7.4	Telework, digitalisation and remote operations.....	52
7.5	Ensuring good and swift information flows between all stakeholders .....	52
7.6	Flexibility and adaptability .....	53
	<b>ANNEX 1 – LIST OF ABBREVIATIONS .....</b>	<b>54</b>
	<b>ANNEX 2 – LIST OF THE 24 RESPONDENTS.....</b>	<b>55</b>
	<b>ANNEX 3 – SELECTED NRAS LISTING MAIN MEASURES TAKEN THROUGHOUT THE PANDEMIC.....</b>	<b>56</b>
	<b>ANNEX 4 – ABOUT CEER.....</b>	<b>61</b>

## List of figures

Figure 1: Nationwide lockdowns in selected CEER countries.....	11
Figure 2: Evolution of the spot gas price in Spain 2019-2021.....	30
Figure 3: Measures to support consumers reported by NRAs .....	36
Figure 4: Measures to support suppliers reported by NRAs .....	41

## List of tables

Table 1: Year-on-year change in monthly electricity consumption 2020 .....	18
Table 2: Year-on-year change in monthly electricity consumption H1 2021.....	19
Table 3: Year-on-year change in monthly natural gas consumption 2020 .....	22
Table 4: Year-on-year change in monthly natural gas consumption H1 2021 .....	23
Table 5: EEX German Power Base Futures (1 January 2020 - 30 June 2021).....	26
Table 6: Year-on-year change in monthly electricity wholesale prices 2020 .....	27
Table 7: Year-on-year change in monthly electricity wholesale prices H1 2021 .....	28
Table 8: Year-on-year change in monthly natural gas wholesale prices 2020 .....	31
Table 9: Year-on-year change in monthly natural gas wholesale prices H1 2021.....	32

## EXECUTIVE SUMMARY

### Background

The COVID-19 pandemic had far-reaching economic and social repercussions across the globe which also impacted the energy sector heavily. In June 2020, CEER created an Ad Hoc Working Group (COV WG) to examine the pandemic's effects on energy in more detail. The COV WG prepared an interim report with preliminary findings based on data gathered until December 2020 which was published in March 2021<sup>1</sup>.

### Objectives and contents of the document

This second report completes the assessment made in the interim report. It examines how the COVID-19 pandemic has affected electricity and natural gas consumption and prices in CEER countries<sup>2</sup>, what effects it had on energy consumers, suppliers and network operators, and what measures were taken by governments, regulators and other stakeholders to limit the pandemic's negative impacts. The report is based on data collected from 24 NRAs covering the period from 1 January 2020 to 30 June 2021.

The content of the document is as follows:

- The measures taken by public authorities to limit the spread of the virus;
- The impact of the pandemic on the energy system (energy consumption and prices);
- The effects on, and the measures taken, to support energy consumers;
- The effects on, and the measures taken, to support energy suppliers;
- The effects on, and the measures taken, to support network operators;
- The effects on national regulatory authorities (in terms of working arrangements); and
- Lessons learnt and good practices identified.

### Brief summary of the conclusions

The report finds that a majority of CEER countries imposed nationwide lockdowns which restricted social and economic life and, as a consequence, reduced electricity and gas consumption, as well as electricity and natural gas prices. The relative impact of the pandemic was more pronounced for electricity than for gas. Moreover, the first wave of lockdowns, which was imposed simultaneously in most countries in spring 2020, had a more obvious effect on energy indicators than the later waves of restrictions, which were generally less severe. Hence, other factors such as weather conditions and commodity prices played a bigger role towards the end of 2020 and in 2021.

---

<sup>1</sup> CEER, "First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector", 29 March 2021, <https://www.ceer.eu/2050>

<sup>2</sup> The term "CEER countries" includes the 30 CEER Members (the 27 EU MS, Iceland, Norway and the United Kingdom) and 9 CEER Observers (Albania, Bosnia and Herzegovina, Georgia, Kosovo, Moldova, Montenegro, Republic of North Macedonia, Republic of Serbia and the Swiss Confederation).

Moreover, most CEER countries took measures to protect energy consumers from the economic effects of the pandemic. The most prevalent were moratoria on disconnections, which helped to secure energy supply for consumers in case of payment difficulties. Similarly, aid for businesses, not specifically targeted toward the energy sector, was available. This may explain why no NRA reported specific pandemic-induced difficulties for energy suppliers – in contrast to their experience during the energy price surge in 2021.

Furthermore, NRAs had to adapt their work methods, e.g. transitioning to full-time teleworking. Therefore, the main lessons identified by NRAs include the overall resilience of the energy sector, the importance of protecting consumers, and the overall positive changes made to work procedures throughout the sector (such as the uptake in teleworking, remote operations and digitalisation). The report includes a detailed list of all measures taken by NRAs, which underlines the key role they played during the pandemic.

## **1 Introduction**

### **1.1 Context**

COVID-19, which was declared a pandemic by the World Health Organisation (WHO) in March 2021<sup>3</sup>, constitutes a rare, if not unprecedented health crisis. A record number of people were under some form of lockdown<sup>4</sup>, and the repercussions on economic and social life are severe. The pandemic also stands out with regard to governments' swift and comprehensive responses which helped to protect their citizens from the disease and to support their economies.

### **1.2 Aim of the report**

This second report complements the first analysis of the pandemic's effects on the energy sector, which CEER provided in its interim report published in March 2021<sup>5</sup>. It covers a longer period of time, ranging from January 2020 to June 2021. It examines the restrictions imposed by public authorities to limit the spread of the disease and the restrictions' effects on indicators such as electricity and natural gas consumption and prices. It also provides an inventory of the measures taken to support energy stakeholders and identifies lessons learnt.

### **1.3 Methodology**

This report relies mainly on information provided in September and October 2021 by 24 NRAs<sup>6</sup> to a questionnaire circulated in the framework of CEER's Ad Hoc Working Group on the COVID-19 crisis (COV WG). It also draws on an earlier questionnaire to which 28 NRAs replied in December 2020<sup>7</sup>. The data collected cover all of 2020 and the first half of 2021. While later developments are partially mentioned, the report is not intended to provide a systematic analysis beyond June 2021. The report also compares the survey's results with findings from other institutions such as the International Energy Agency (IEA), the Organisation for Economic Cooperation and Development (OECD), the European Commission (EC), and the Agency for the Cooperation of Energy Regulators (ACER).

At the time of data collection, not all data were necessarily available, complete or definitive to allow to draw a clear and precise view of the impacts on the energy markets due exclusively to the COVID-19 pandemic.

In this report, energy is understood as referring to electricity and natural gas.

---

<sup>3</sup> Cf. WHO Director General's Opening Remarks at the Media Briefing on COVID-19, 11 March 2020, <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>

<sup>4</sup> Cf. IEA, Global Energy Review 2020, p. 5.

<sup>5</sup> Cf. CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector.

<sup>6</sup> See Annex 2 "List of the 24 respondents".

<sup>7</sup> Cf. CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 7.



## 2 General effects on the energy system

When examining the effects the COVID-19 pandemic had on the energy system in CEER countries, it is first necessary to do an inventory of the measures taken by national authorities to prevent the spread of the virus.

### 2.1 Measures taken to curb the spread of the virus

In essence, the measures taken by public authorities against COVID-19 restricted economic and social life in order to minimise social contact and thus virus exposure. In many countries, public life was brought to a temporary standstill. However, not all CEER countries were impacted at the same time and in the same way<sup>8</sup>. These differences explain why the measures varied from one country to another.

The report relies on a questionnaire that covered the period from January 2020 to June 2021. In autumn and winter 2021, some CEER countries reimposed new restrictions to counter a new wave of COVID-19 infections. However, these restrictions fall outside the scope of the report<sup>9</sup>.

#### 2.1.1 Lockdowns

**Several CEER countries imposed lockdowns of unprecedented intensity.** They usually entailed the large-scale closure of shops, businesses, workplaces and schools and, in many cases, nation-wide restrictions on free movement during daytime (i.e. people being requested to stay at home and only leave the house for a limited number of reasons)<sup>10</sup>. In addition, the countries often alternated between lockdowns and some less restrictive measures, depending on surging or falling infection numbers or the emergence of a new coronavirus variant. The following list is not exhaustive:

- **Austria** experienced four lockdowns: from 16 March 2020 to 30 April 2020, from 17 November to 6 December 2020, from 26 December 2020 to 7 February 2021, and in April 2021 (the final one was a regionally limited lockdown, applying mainly to Vienna). All non-essential shops, restaurants, bars and recreational facilities had to close. Only grocery stores, pharmacies, and a few other outlets were considered essential. The following lockdowns tended to be less severe in scope and intensity.
- In **Belgium**, the first lockdown started on 18 March 2020. Working from home became the rule, and all non-essential shops (other than supermarkets, food shops, drug stores and pharmacies) were required to close. The measures were gradually phased out in June 2020. A second, lighter lockdown was imposed on 19 October 2020, and included restrictions on the number of close contacts people could meet and a curfew between midnight and 05:00 in the morning. Restaurants and bars had to close. Measures were eased again in December 2020.
- In **France**, during the first nationwide lockdown (17 March to 11 May 2020), people were confined at home and could only leave the house for a limited number of reasons. Only essential businesses and shops remained open. A second nationwide lockdown started on

---

<sup>8</sup> The WHO's COVID-19 dashboard provides an overview of infection cases and deaths per country and over time: <https://covid19.who.int/>

<sup>9</sup> On the situation in autumn 2021, cf. European Commission's Communication, "Addressing together current and new COVID-19 challenges", <https://ec.europa.eu/info/sites/default/files/communication-addressing-covid19-challenges.pdf>.

<sup>10</sup> Cf. CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 8.

30 October 2020 and lasted until 15 December 2020. This time, schools remained open, as did factories, businesses in agriculture and the building sector, and public administration. In spring 2021, new restrictions came into effect. During the day, people were required to stay within a 10 km radius of their home. Non-essential shops had to close again. The measures initially applied only to certain areas, notably the Paris region, but were extended to the rest of the country in April. Restrictions were eased between May and June 2021.

- In **Germany**, nationwide lockdowns were imposed from March to April 2020 and from December 2020 to March 2021. Due to the government's federal structure, there were also regional lockdowns from April to June 2021, and more stringent measures were taken in areas with high infection rates. This included limitations on social contacts with people from other households and the closure of catering, tourism and cultural institutions. The second nationwide lockdown lasted until 3 March 2021. On 23 April 2021, the so-called "federal emergency brake" (*Bundesnotbremse*) was introduced, allowing localised lockdowns if the infection rate in a given area exceeded 50 new cases per 100,000 inhabitants. As of 12 June 2021, there was no district with an infection rate above that threshold, and the emergency brake elapsed at the end of the month.
- In **Hungary**, the government declared a nationwide state of emergency on 11 March 2020, which ended on 16 June. A second state of emergency came into effect on 11 November 2020 for a duration of 90 days. People were generally confined to their homes for certain time periods and could leave only for specific reasons. There were restrictions on public gatherings and private events. Higher education institutions and secondary schools had to close, as well as certain shops. On 8 March 2021, with infections rising again, new restrictions were imposed. Schools and non-essentials shops had to close and service providers, other than health care providers, could not operate anymore. Restrictions were gradually eased over the months of April and May 2021.
- In **Italy**, there was a strict lockdown since February 2020 under which all non-essential activities were forbidden. Initially, it applied only to some municipalities, but from 18 March 2021, it was extended to the whole country. The strict lockdown ended in May 2020 and was gradually replaced with a dynamic and regional restrictions system, which is still in place. There are four levels of restrictions (white, yellow, orange, and red) that are applied at regional level depending on several factors including the number of COVID-19 cases, the number of recoveries from COVID-19 and the number of recoveries in intensive care units.
- **Lithuania** experienced nationwide lockdowns from 16 March to 16 June 2020 and from 7 November to 17 December 2020 (which to some degree was extended until 1 July 2021). The second one was preceded by local quarantines in a third of the country's municipalities, including major cities. In December 2020, rules were further tightened: social contacts were limited to the same household; non-essential travel within the same municipality was forbidden; all non-food shops closed or converted to e-commerce solutions; and classes were moved online. Restrictions were progressively eased in the first quarter of 2021, but in general, the national lockdown was in place until 1 July 2021.
- **Romania** was under lockdown from 16 March to 14 May 2020. Later, the lockdown was downgraded to a night-time curfew. As of 1 July 2020, the government eased restrictions, and restaurants, bars, hotels and similar venues were allowed to open again. With rising infection numbers in autumn 2020, authorities reimposed a weekend curfew in areas with the highest incidence rates.
- In **Spain**, as of 15 March 2020, citizens were put under lockdown and had to stay at home. They were only allowed to go out to buy food and medicines, to work or to attend emergencies. Moreover, non-essential shops and businesses, including bars, restaurants, and commercial and retail businesses had to close. On 28 March 2020, the government

banned all non-essential activity, providing workers with paid leave unless they provided an essential service, worked remotely, were on sick leave or had their contract suspended. Restrictions were progressively eased during the month of April. On 25 October 2020, the government reimposed a state of alarm and introduced a national curfew, which ended on 9 May 2021.

- In the **United Kingdom (UK)**<sup>11</sup>, there were three lockdowns: 1) from 24 March to summer 2020, 2) from 5 November to 2 December 2020, and 3) from January to April 2021. The devolved administrations of Scotland, Wales and Northern Ireland were allowed to impose their own lockdowns, therefore the length and severity of the restrictions varied across the country. During the first lockdown, all non-essential services were closed. If possible, people had to work from home. Schools were shut. Only essential businesses such as supermarkets, pharmacies, and petrol stations were allowed to stay open.

Figure 1 below maps the timing and duration of nationwide lockdowns in a selection of CEER countries. It shows that **a first series of restrictions was imposed in the period between March and May 2020**, when most of Europe was hit by the first wave of the COVID-19 pandemic<sup>12</sup>. A second series of restrictions came in autumn 2020. As illustrated by the examples above, many lockdowns had gradual build-up and phase-out periods, rather than clear-cut start and end dates.

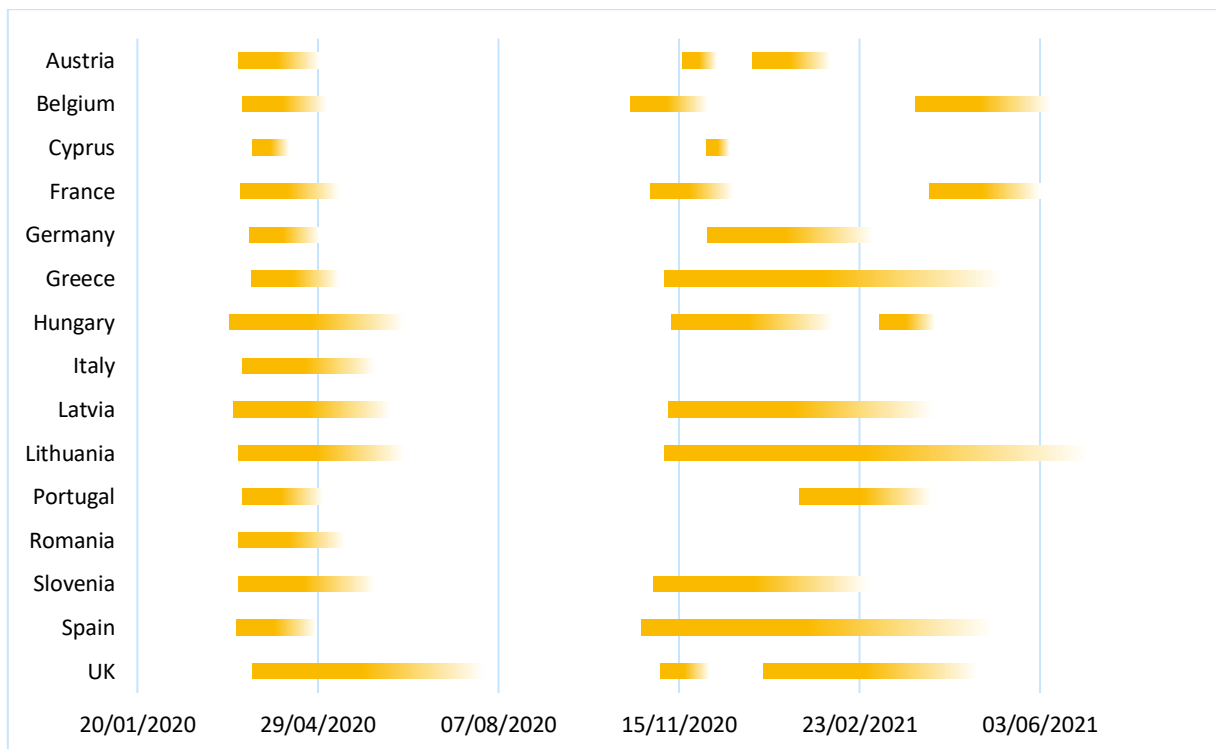


Figure 1: Nationwide lockdowns in selected CEER countries (January 2020 – June 2021)

<sup>11</sup> Throughout this report, some information provided by Ofgem refers to the whole of the United Kingdom, and some only to Great Britain (thus excluding Northern Ireland). Hence, the two geographical names are used accordingly.

<sup>12</sup> The WHO characterised the global spread of COVID-19 as a pandemic on 11 March 2020: <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>

Only some CEER countries applied full-fledged lockdowns. Others opted instead for less restrictive measures, such as night-time curfews, the closure of certain shops or venues, or the obligation for people to limit the number of their social contacts or to work from home. This was the case for **the Czech Republic, Malta, Norway, and Sweden**. **Finland** only reported regional restrictions limiting travel to other regions.

### 2.1.2 Travel restrictions

In 2020, after the first COVID-19 infections occurred in Asia and then in some European countries, **several CEER countries resorted to restrictions on international travel**. As with lockdowns, these measures were tightened or loosened over time, depending on the pandemic situation abroad. In October 2020, **the Council of the European Union** adopted a “Recommendation on a coordinated approach to the restriction of free movement in response to the COVID-19 pandemic” with a view to promoting the use of harmonised criteria and to limiting restrictions within the EU to the minimum necessary<sup>13</sup>. It states that restrictions should be non-discriminatory with regard to nationality, that Member States (MS) of the EU and of the European Economic Area (EEA) should rely on a harmonised map of regions with a colour code for different rates of infection (green, orange, red, and dark red)<sup>14</sup>, and that restrictions should be coherent with the colour code of risk areas. In 2021, the increased reliance on digital certificates (proving vaccination, a negative test result, or recovery from a COVID-19 infection) has enabled CEER countries to ease the restrictions on travel abroad (on these certificates, also see section 2.1.3 below). The EU’s digital COVID-19 certificate applied from 1 July 2021<sup>15</sup>.

Most CEER countries imposed some form of travel restrictions. The following examples illustrate their different approaches:

- In March 2020, **Austria banned flights from several destinations** (first Northern Italy, China, South Korea, Iran, then Switzerland, France, Spain, the UK, the Netherlands, Russia, and Ukraine). While the flight ban elapsed over the summer, it was reinstated in December 2020 for incoming flights from certain countries (the UK, South Africa, Brazil, and India), due to the emergence of an aggressive new COVID-19 variant. Like other countries, Austria set up a repatriation programme to bring back its citizens from overseas once regular flights were no more available. **Travel by land was also severely affected**. The borders between Austria and its neighbouring countries were at times closed or travellers had to quarantine, creating a difficult situation for seasonal workers and care staff, notably from Romania and Bulgaria, who wanted to enter the country or visit home. Bilateral agreements were instated to allow free movement in specific cases.
- After having largely closed its borders in March 2020 on any non-essential travel, **Belgium** reauthorised travel to and from EU MS (plus the UK, Switzerland, Liechtenstein, Iceland and Norway) in June 2020. **Like many other countries, Belgium applied the colour code to categorise foreign destinations** according to their risk level. If the code was green, no restrictions applied; orange meant that travel was subject to quarantine, testing or other restrictions; travel to red destinations was temporarily banned. When Belgians, like other European citizens, were allowed to go on summer holidays in 2020, they were required to fill in a passenger locator form upon their return and comply with testing and

---

<sup>13</sup> OJ L 337 14 October 2020, p. 3. See [https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/travel-during-coronavirus-pandemic/common-approach-travel-measures-eu\\_en](https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/travel-during-coronavirus-pandemic/common-approach-travel-measures-eu_en) for the initial Recommendation and the updates.

<sup>14</sup> <https://www.ecdc.europa.eu/en/covid-19/situation-updates/weekly-maps-coordinated-restriction-free-movement>

<sup>15</sup> [https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/safe-covid-19-vaccines-europeans/eu-digital-covid-certificate\\_en](https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/safe-covid-19-vaccines-europeans/eu-digital-covid-certificate_en)

quarantine rules depending on the place where they had holidayed. Travel restrictions were tightened again in October and in December 2020, as well as in January 2021.

- In **Latvia**, international passenger travel via plane, boat, bus and train was prohibited from 17 March 2020 to 9 June 2020. From 9 November 2020, only essential travel was allowed (work or studies, family reunions, receiving medical treatment, transit, accompanying minors, returning to a permanent place of residence, or funerals). Authorities also required travellers to take a COVID-19 test and to self-isolate when entering the country. This requirement and the ban on non-essential travel were lifted on 16 June 2021, under the condition that the person travelling presented a digital COVID-19 certificate confirming their full vaccination or recovery from the disease.
- **Sweden** had travel bans in place for non-essential travels from non-EU/EEA and some other countries from March 2020. For instance, borders were closed with Denmark, the UK and Norway during winter 2020/2021 (Swedish citizens were not affected by these bans). Since February 2021, a negative COVID-19 test is necessary to enter the country. As of 30 June 2021, a valid COVID-19 vaccination certificate is also accepted. The travel ban from Nordic countries was lifted on 31 May 2021.

### 2.1.3 Vaccination programmes

**Vaccines against COVID-19 became available towards the end of 2020.** In December 2020, BioNTech-Pfizer's vaccine was the first one to be authorised for use in the UK, in Switzerland and in the EU<sup>16</sup>. CEER countries generally started their vaccination campaigns in the wake of this first approval. Three other vaccines developed by Moderna, AstraZeneca and Janssen received the green light for use in the EU between January and March 2021<sup>17</sup>. In their initial stages, vaccination programmes usually focused on those most at-risk as well as on frontline workers, before being extended to other categories of the general population.

By the autumn of 2021, in most CEER countries, a major part of the population had already received their first jab<sup>18</sup>. **Spain** reported that around 38 million citizens had been fully vaccinated by November 2021 (which amounts to 90% of the Spanish population older than 12 years). In **Italy**, by November 2021, 84.28% of the population over 12 had been vaccinated. In the EU and the EEA as a whole, on 3 December 2021, 82.3% of adults had received at least one dose, whereas 77.5% had been fully vaccinated<sup>19</sup>.

Vaccination and testing requirements were directly linked to efforts to reopen parts of the economy that had been affected by lockdown measures in 2020. **Most countries now operate with a digital certificate** proving vaccination status, a negative test result, or recovery from a COVID-19 infection. For example, in **Lithuania**, the national COVID-19 certificate, the so-called "opportunity pass" (*Galimybių pasas*), has been in effect since 24 May 2021. It has been used as a tool for accessing cafes and restaurants since May/June 2021, and for entering supermarkets and certain shops since 1 July 2021. Since 13 September, the certificate is compulsory to access the above-mentioned locations. Similarly, on 12 July 2021, authorities in **France** announced the introduction of a so-called "health pass" (*passé sanitaire*). During the

---

<sup>16</sup> For the UK: <https://www.gov.uk/government/news/uk-medicines-regulator-gives-approval-for-first-uk-covid-19-vaccine>; for Switzerland: <https://www.bag.admin.ch/bag/en/home/das-bag/aktuell/medienmitteilungen.msg-id-81761.html>; for the EU: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_2466](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2466).

<sup>17</sup> Cf. <https://www.ema.europa.eu/en/human-regulatory/overview/public-health-threats/coronavirus-disease-covid-19/treatments-vaccines/vaccines-covid-19/covid-19-vaccines-authorised#authorised-covid-19-vaccines-section>

<sup>18</sup> See the WHO's COVID-19 dashboard: <https://covid19.who.int/>

<sup>19</sup> Cf. <https://vaccinetracker.ecdc.europa.eu/public/extensions/COVID-19/vaccine-tracker.html#uptake-tab>



summer of 2021, the French government introduced the requirement that access to cultural and sport venues, restaurants, cafés, hospitals, trains and planes was only permitted with a valid health pass. Likewise, **Latvia** requires people entering the country to provide information regarding their vaccination status, testing, or recovery. Pupils also need a COVID-19 certificate to access schools, and employees who are in direct contact with patients, clients, or children in health care, social care and education need it for working purposes. In October 2021, **Greece** imposed a requirement on all working personnel and university students to provide a certificate once a week before attending work or university. The same requirement had gradually been introduced from September 2021 to access certain shops and services (such as gyms, theatres, museums, cinemas, shopping malls, public services, and banks). The NRAs of **Romania** and **Slovakia** reported similar rules under which access to shops, restaurants, bars, cinemas or concerts are conditioned upon presentation of a digital certificate. In **Italy**, since 15 October 2021, a “green certificate” is required to access all workplaces and public spaces (restaurants, bars, cinemas, concert halls, museums, hospitals etc.) except shops.

#### **2.1.4 Relevance for the energy system**

The lockdowns, curfews, business closures and travel restrictions had an impact on the energy system in CEER countries.

The closure of all businesses and workplaces considered non-essential – industrial and commercial sites, shops, restaurants and bars, schools and universities – led to a fall in energy consumption. This is true especially in the industrial and commercial sectors. On the other hand, when people were put under lockdown or asked to work from home, household consumption increased (although not to such an extent as to compensate for the decline in industrial and commercial consumption). The general drop in energy consumption has, in turn, contributed to a decrease in electricity and gas prices.

Some NRAs reported that travel restrictions prevented specialised technical staff to enter the country where they were expected to carry out work on energy infrastructure, thereby causing delays<sup>20</sup>.

The effects on electricity and gas consumption and prices are examined in more detail in sections 2.2 and 2.3 below.

## **2.2 Effects on electricity and gas consumption**

### **2.2.1 Electricity consumption**

The COVID-19 pandemic impacted **electricity consumption** in most CEER countries<sup>21</sup>, although the impact varied over time and geographically. The NRAs of **Denmark, Finland and Norway** reported that there was no discernible effect on electricity consumption in their countries due to the pandemic. NRAs of other countries reported an impact in three periods

---

<sup>20</sup> In Finland, a centralised task force helped identify restrictions to the entry of specialised personnel, so that the restrictions could be lifted (CEER First Analysis, p. 30). On the issue of disruptions to the free movement of skilled labour, also see the European Commission's [study](#), p. 60.

<sup>21</sup> ACER and CEER note that the overall year-on-year fall in electricity consumption in 2020 in the EU (-4.1%) was nearly as big as in 2009 (-5%), the year of the financial crisis: [ACER-CEER Electricity MMR 2020](#), p. 11.

that can be distinguished based on the consumption data: the first half of 2020 (January-June), the second half of 2020 (July-December), and the first half of 2021 (January-June). While pandemic restrictions influenced electricity consumption in these countries, they were not the only factor, as other causes, such as weather conditions, also had an effect on consumption. For most NRAs, it was not possible to isolate the pandemic effect from the other causes.

The impact of COVID-19 is most visible in **the first half of 2020**: In March, April, May and June 2020, when several countries underwent some form of nationwide lockdown, monthly electricity consumption decreased sharply, compared to the corresponding months in 2019<sup>22</sup>. As shown in Table 1 below, electricity consumption in April 2020, compared to April 2019, fell by double-digit figures in **Austria, Belgium, Croatia, Cyprus, the Czech Republic, France, Italy, Portugal, and Spain**. In addition, when considering the periods during which **Austria, Belgium, Cyprus, France, Germany, Italy, Hungary, Portugal and Spain** were under a nationwide lockdown (signalled in bold red in Table 1), the lockdown month is the one with the sharpest drop in electricity consumption. For example, CNMC noted that **Spain** experienced a drop of approximately 20% during the days of severe restrictions when only essential industries were allowed to operate. During this time, thermal generation was pushed out of the day-ahead market (although its need increased in re-dispatching markets). During the entire lockdown period (15 March to 21 June 2020), demand was 13.3% lower compared to the same period in 2019. In **Greece**, in June 2020, while the first lockdown had ended, entry into the country was still prohibited for non-essential reasons and tourism companies remained closed. This explains the drop in consumption compared to June 2019.

Some NRAs reported **differences in terms of consumers groups**:

- In **Lithuania**, throughout 2020, electricity consumption of household consumers increased by 4.6%, whereas the consumption of non-household consumers decreased by 3.5% (compared to 2019).
- For **Latvia**, while overall electricity consumption decreased by 3.8% in 2020 compared to 2019, it dropped by 8.9% in the industrial sector, by 7.4% in the trade and catering sector, by 2.2% in agricultural facilities, and by 5.4% for other users (culture, sports facilities, and hotels). For these consumer groups, the decrease in consumption was influenced by the restrictions imposed to prevent the spread of COVID-19. In contrast, household electricity consumption increased by 4.1%, mainly due to remote work and distance learning.
- In **Romania**, due the restrictions to curb the pandemic and their consequences for the economy (decrease in industrial production, switching to teleworking or technical unemployment), annual consumption of non-household customers on the competitive market (as opposed to the regulated market) fell by approximately 5% (more than 1.7 TWh) compared to the previous year. At the same time, the amount of electricity supplied on the competitive market to household customers increased by approximately 14%.
- In the **UK**, overall electricity demand reached a record low of 330 TWh in 2020 (-4.6% compared to 2019). Though electricity demand has been declining year-on-year since 2015, the larger reduction seen in 2020 was primarily a result of the response to the COVID-19 pandemic. Restrictions in response to COVID-19 led to lower industrial and commercial electricity consumption, but higher domestic consumption. Industrial use of electricity, including iron and steel, was down 9.3% in 2020 compared to 2019, and

<sup>22</sup> For data on the reduction at EU level, see [European Commission](#), Quarterly Report, Electricity, vol. 13, Q1 2020, p. 3, and Q2 2020, p. 3: -3% in the first quarter and -11% in the second quarter 2020. For data on selected countries across the world, the IEA finds that “[e]lectricity demand dropped to Sunday levels under lockdown” (<https://www.iea.org/reports/covid-19-impact-on-electricity>).

consumption by other final users, including the commercial sector, fell by 11.2%. Conversely, domestic consumption increased by 3.9%.

**In the second half of 2020 and in 2021**, the correlation between reported lockdowns and drops in electricity consumption is less visible. The electricity transmission system operator (TSO) of **Lithuania** reported that, from the summer of 2020 onwards, the impact of COVID-19 on consumption was minimal. The consumption data paints a similar picture for other countries: In **Belgium, France, Greece, and Spain**, electricity consumption dropped less markedly in November 2020 (which experienced no lockdown) than in spring. In other countries, there was no drop at all. Instead, in some cases a slight increase was observed.

While there are many reasons energy consumption changed in the last quarter of 2020, such as seasonal effects and colder weather conditions, there is an explanation relating to the pandemic too: Some NRAs (**Austria, Belgium, France**) reported that restrictions in the second half of 2020 were less severe than during the first wave. Moreover, less businesses were affected by closures. In the meantime, testing became more widely available, and protocols were experimented and put in place to keep businesses operational<sup>23</sup>. Thus, the lockdowns of the first half of 2020 (mostly March to May) appear to have had the most notable impact on reducing electricity consumption. The lockdowns and restrictions imposed later were less disruptive in terms of their effects on the energy system.

Finally, during **the first half of 2021**, electricity consumption was higher than in 2020. In April 2021, for instance, there was a drastic year-on-year increase in electricity consumption in **Austria, Belgium, the Czech Republic, France, Greece, Italy, and Spain**, compared to April 2020. In addition to the catch-up effect on the low consumption in 2020, many countries were subject to lighter pandemic restrictions in 2021 than in 2020. However, weather conditions also had an impact, as temperatures in 2021 were lower compared to the mild weather in 2020.

**France** is an interesting case when considering the interdependency of pandemic restrictions, lingering economic effects, and weather and calendar contingencies:

- In **January 2021**, according to the French TSO Réseau de Transport d'Électricité (RTE), consumption increased by 7.5% compared to 2020, while temperatures were significantly below seasonal norms. In fact, when correcting the consumption for weather and calendar contingencies, demand is 1% lower. Similarly, in **February 2021** (when consumption nominally fell by 0.1% compared to February 2020), consumption adjusted for weather and calendar contingencies was 2.7% lower. This reflects the continuing effects in 2021 of the drop in economic activity due to the pandemic.
- For **March 2021**, the picture is different. The strict French lockdown started in March 2020, so that month was particularly marked by low consumption (-3.2% compared to March 2019). Hence, consumption in March 2021 (nominally 6.2% higher than in 2020), once adjusted for weather and calendar contingencies, increased by 2% compared to 2020.
- April and May 2020 were also heavily impacted by the lockdown. Thus, corrected consumption was respectively 8 % and 6 % higher in **April and May 2021** compared to 2020. In addition, the first few months of 2021 were marked by unusually cool temperatures, which explains why consumption increased by almost 16% in May 2021 (excluding the effects of the pandemic).

---

<sup>23</sup> See for instance, in France, the reference document prepared by electricity and gas network operators towards the end of the first lockdown listing the health protection measures to be put in place: [https://travail-emploi.gouv.fr/IMG/pdf/guide\\_sanitaire\\_operateurs\\_reseaux\\_electricite\\_gaz\\_9\\_mai\\_2020.pdf](https://travail-emploi.gouv.fr/IMG/pdf/guide_sanitaire_operateurs_reseaux_electricite_gaz_9_mai_2020.pdf)



- In **June 2020**, economic activity was already affected to a lesser extent. Electricity consumption adjusted for weather contingency increased by 3.4% in June 2021 compared to June 2020.

In the **United Kingdom**, the total consumption of electricity by end users was 76.6 TWh in **the first quarter of 2021** - a decrease of 2.8% compared to 2020. This reflects the ongoing COVID-19 restrictions on business and industry. In contrast, domestic consumption of electricity saw a substantial increase of 8.4%, reaching its highest since the first quarter of 2013. The pandemic restrictions increased the amount of time people spent at home, including teleworking. However, lower-than-average temperatures increased electricity demand for heating. In **the second quarter of 2021**, electricity demand increased by 10.3%. There was a 6.0% year-on-year increase of domestic consumption, to the highest value since the second quarter of 2013. Electricity consumed by the industrial sector increased by 13% compared to the second quarter of 2020 but remained 10% below the value for the same period in 2019.

Electricity consumption 2020												
	01/20	02/20	03/20	04/20	05/20	06/20	07/20	08/20	09/20	10/20	11/20	12/20
Austria	-3.0%	+1.3%	<b>-3.9%</b>	<b>-13.1%</b>	-11.3%	-6.2%	-4.2%	-2.0%	-0.8%	+1.2%	<b>-0.5%</b>	<b>-0.2%</b>
Belgium	-5.1%	-1.1%	<b>-6.8%</b>	<b>-13.2%</b>	<b>-9.0%</b>	-3.8%	-5.2%	-0.1%	-2.0%	<b>-2.4%</b>	<b>-4.5%</b>	<b>-0.6%</b>
Croatia	-4.8%	-1.4%	-1.0%	-12.6%	-14.8%	-14.8%	-8.8%	-6.1%	-4.5%	+1.0%	+3.3%	+1.0%
Cyprus	n/a	n/a	<b>-5.7%</b>	<b>-18.2%</b>	-10.8%	<b>-20.0%</b>	-5.9%	-6.1%	n/a	n/a	n/a	n/a
Czech Rep.	-2.5%	+1.0%	-1.2%	-11.6%	-12.5%	-4.8%	-4.4%	-1.3%	-0.7%	+0.6%	+1.4%	-4.4%
Denmark	No evidence of an impact of the pandemic on electricity demand.											
Finland	No evidence of an impact of the pandemic on electricity demand.											
France	-8.1%	-1.9%	<b>-3.2%</b>	<b>-18.9%</b>	<b>-13.6%</b>	-6.0%	-5.0%	-1.1%	-0.1%	<b>+5.8%</b>	<b>-8.5%</b>	<b>-3.6%</b>
Germany	-2.3%	+4.5%	<b>-1.7%</b>	<b>-7.3%</b>	-8.3%	-4.1%	-5.9%	-2.4%	-1.4%	+1.6%	+0.5%	<b>+2.4%</b>
Greece	-2.9%	-0.9%	<b>-2.1%</b>	<b>-9.8%</b>	<b>-6.9%</b>	-13.5%	-1.0	-7.1%	0%	-1.9%	<b>-3.0%</b>	<b>-5.3%</b>
Hungary	+0.6%	+2.0%	<b>-1.1%</b>	<b>-9.7%</b>	<b>-9.0%</b>	<b>-7.4%</b>	-1.6%	-2.2%	-0.2%	+2.8%	<b>+0.5%</b>	<b>+3.3%</b>
Italy	-4%	+0.7%	<b>-10.2%</b>	<b>-17.2%</b>	<b>-10.3%</b>	-13.4%	-7%	-14%	0%	-0.8%	-1.5%	+1.1%
Latvia	-8.4%	-2.5%	<b>-5.1%</b>	<b>-6.4%</b>	<b>-6.2%</b>	<b>-3.8%</b>	-1.0%	-2.7%	-3.1%	-2.5%	<b>-3.5%</b>	<b>+0.3%</b>
Lithuania	-1.5%			<b>-5.7%</b>			-0.1%			<b>+1.1%</b>		
Malta	-2.9%	-2.3%	-1.7%	-9.8%	-8.3%	<b>-17.9%</b>	-9.9%	-2.1%	-1.0%	-5.6%	-2.9%	+0.7%
Netherlands	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Norway	No evidence of an impact of the pandemic on electricity demand.											
Portugal	-0.9%	-3.3%	<b>-0.5%</b>	<b>-11.9%</b>	<b>-13.1%</b>	-7.3%	0%	-0.7%	-0.1%	-2.2%	-5.0%	+1.5%
Romania	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Spain	-3.0%	-1.4%	<b>-4.6%</b>	<b>-17.5%</b>	<b>-13.4%</b>	-9.0%	-4.3%	-2.9%	-3.8%	<b>-3.6%</b>	<b>-6.0%</b>	<b>+1.4%</b>
Sweden	<b>-11.2%</b>	+2.3%	+1.0%	-0.3%	-2.3%	-2.2%	-4.5%	0%	-2.1%	-4.1%	-5.8%	+0.2%
UK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 1: Year-on-year change in monthly electricity consumption (January-December 2020)

Colour code: < -15% -15% to -10.1% -10% to -5.1% -5% to -0.1% 0% to +4.9% +5% to +9.9%

**Bold red:** Month for which the NRA reported a nationwide lockdown

Electricity consumption 2021						
	01/21	02/21	03/21	04/21	05/21	06/21
Austria	-2.6%	-3.8%	+5.7%	+16.5%	+9.8%	+9.0%
Belgium	+3.1%	+0.2%	+5.5%	+17.3%	+8.0%	+5.7%
Croatia	-3.7%	+0.3%	+6.3%	+5.3%	-4.4%	-3.1%
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a
Czech Rep.	-0.7%	+1.8%	+4.8%	+16.4%	+12.0%	+4.4%
Denmark	No evidence of an impact of the pandemic on electricity demand.					
Finland	No evidence of an impact of the pandemic on electricity demand.					
France	+7.5%	-0.1%	+6.2%	+22.3%	+13.0%	+4.3%
Germany	+1.8%	-2.3%	+5.6%	+13.5%	+9.1%	+9.4%
Greece	-9.5%	-6.6%	+1.5%	+7.7%	+4.5%	+10.8%
Hungary	+1.1%	+1.0%	+1.1%	+9.9%	+8.2%	+7.5%
Italy	-1%	-3.4%	+11.8%	+21.7%	+8.5%	+13.8%
Latvia	+1.3%	+2.4%	+2.5%	+4.3%	+3.4%	+3.3%
Lithuania	+6.4%			+8.4%		
Malta	-3.2%	-4.9%	+0.8%	+6.3%	+7.3%	+20.7%
Netherlands	n/a	n/a	n/a	n/a	n/a	n/a
Norway	No evidence of an impact of the pandemic on electricity demand.					
Portugal	+2.7%	+0.4%	-1.9%	+6.7%	+10.6%	+6.8%
Romania	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a
Spain	+0.3%	-3.9%	+4.1%	+14.4%	+9.6%	+6.2%
Sweden	+13.2%	+7.5%	-1.1%	+5.5%	+4.8%	+2.7%
UK	-2.8%			+10.3%		

Table 2: Year-on-year change in monthly electricity consumption (January-June 2021)

Colour code: -10% to -5.1% -5% to -0.1% 0% to +4.9% +5% to +9.9% +10% to 14.9% > 15%

**Bold red:** Month for which the NRA reported a nationwide lockdown

## 2.2.2 Natural gas consumption

Regarding **gas consumption**, Tables 3 and 4 show that the largest year-on-year drops occurred in April and May 2020<sup>24</sup>, at a time when several countries experienced their first lockdown and when electricity consumption fell too. Consumption drops were less prevalent in the second half of 2020<sup>25</sup>. In 2021, a significant increase in gas consumption was registered, notably in April 2021<sup>26</sup>.

Again, there were differences in user groups. For instance, the Croatian Energy Regulatory Agency (HERA) reported that total gas consumption in **Croatia** was 5% higher in 2020 than in 2019. However, at the level of non-household natural gas customers (excluding natural gas use for electricity generation in power plants or in combined heat and power plants, or for non-energy purposes, such as for instance in the chemicals industry), demand was 12% lower year-on-year. In the first half of 2021, there was a recovery effect, as total gas demand was 13% higher compared to the first six months of 2020. In **Spain**, the main decrease was in the use of gas for electricity generation (-20.1%). In contrast, the decrease of the consumption of residential and industrial use of natural gas was only -5.5%.

Yet, compared with electricity, the correlation between the pandemic and natural gas consumption is probably weaker. While COVID-19 certainly caused a “demand shock”<sup>27</sup> in the early months of 2020, some NRAs noted that changes in consumption patterns could not necessarily be attributed to the pandemic alone. Weather conditions (both in terms of heating needs and renewable energy production) and global market effects also influenced natural gas consumption<sup>28</sup>.

- The Belgian Federal Commission for Electricity and Gas Regulation (CREG) indicated that demand evolution in **Belgium** is mainly explained by temperature, economic activity, and price evolution. In contrast, the pandemic did not have a significant impact. In particular, the gas power plant offtake profile remained mainly a function of renewable production, the availability of nuclear generation capacity and gas price competitiveness.
- The Commission de Régulation de l'Énergie (CRE) reported that, according to the French TSO, GRTgaz, gas consumption for public distribution in **France** fell by 7.2% between 2019 and 2020, of which 5.3% can be attributed to weather conditions and 1.9% to other causes, including COVID-19.
- According to PUC, gas demand fluctuations in **Latvia** were caused by weather conditions (and thus heating needs) and by the gas price increase in global markets (which caused natural gas to lose competitiveness in the energy generation mix). Gas consumption decreased by 19.1% in 2020 compared to 2019 due to mild weather. In

<sup>24</sup> Also see [European Commission](#), Quarterly Report, Gas, vol. 13, Q2 2020, p. 4, referring to the second quarter of 2020 as the “peak period of widespread lockdown measures”.

<sup>25</sup> ACER and CEER also find a significant fall in gas demand in the spring of 2020 and its recovery in the last quarter: see [ACER-CEER MMR 2020 – Gas Wholesale Market Volume](#), p. 22. For the EU, the year-on-year change in gas consumption was -0.6% in Q3 2020 and +1.3% in Q4 – see [European Commission](#), Quarterly Report, Gas, vol. 13, Q3 2020, p. 4, and Q4 2020, p. 3.

<sup>26</sup> At EU level, gas consumption in the second quarter of 2021 increased by 19% year-on-year: [European Commission](#), Quarterly Report, Gas, vol. 14, Q2 2021, p. 3.

<sup>27</sup> [ACER-CEER MMR 2020 – Gas Wholesale Market Volume](#), p. 23. The European Commission speaks of “demand destruction” (Quarterly Report, Gas, vol. 13, Q2 2020, p. 4).

<sup>28</sup> On the role of the different causes over the course of 2020, see [ACER-CEER Gas MMR 2020](#), p. 22. Differences between countries are notably explained by differences in infection rates, reliance on gas generation, and the importance of the industrial sector.

the first half of 2021, gas demand was 17.5% higher compared to the same period in 2020, due to cold spells in January and February and late spring. Therefore, while there were big year-on-year fluctuations, they were primarily due to different heating needs as the winters were dramatically different.

- In the **UK**, natural gas demand in 2020 fell by 6.0% compared to 2019, the lowest level since 2015. The Office of Gas and Electricity Markets (Ofgem) attributes this to reduced activity across all sectors due to the pandemic restrictions. There were declines in gas demand for electricity generation, industry, and services as large parts of the economy shut down in line with government restrictions. In 2021, in the second quarter, there was a 24% year-on-year increase in natural gas demand, mainly because demand for electricity generation was up by 45%. Moreover, very windy weather in 2020 led to record renewable generation, whereas in 2021, thermal generation from gas was called to fill the gap. Domestic demand increased due to colder temperatures than in 2020, and industrial demand was higher than the 2020 baseline that was influenced by the first lockdown.

Natural gas consumption 2020												
	01/20	02/20	03/20	04/20	05/20	06/20	07/20	08/20	09/20	10/20	11/20	12/20
Austria	-1.3%	-6.4%	<b>+9.6%</b>	<b>-10.7%</b>	-17.6%	-4.3%	-3.6%	-18.5%	-24.5%	-4.7%	<b>+4.4%</b>	<b>+6.9%</b>
Belgium	-10.8%	+3.9%	<b>+7.9%</b>	<b>-15.7%</b>	<b>-9.7%</b>	+8.0%	<b>+23.2%</b>	<b>+13.3%</b>	-1.2%	<b>-3.6%</b>	<b>-12.6%</b>	<b>+3.7%</b>
Croatia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Czech Rep.	-5.2%	-2.8%	<b>+8.9%</b>	-4.3%	<b>-11.7%</b>	<b>+6.9%</b>	<b>+5.6%</b>	<b>+5.2%</b>	<b>-12.0%</b>	<b>+2.7%</b>	<b>+11.9%</b>	<b>+9.9%</b>
Denmark	No evidence of an impact of the pandemic on natural gas demand.											
Finland	No evidence of an impact of the pandemic on natural gas demand.											
France	-11.9%	-9.0%	<b>-0.8%</b>	<b>-33.1%</b>	<b>-24.4%</b>	-1.3%	-1.3%	<b>+15.8%</b>	<b>+27.1%</b>	<b>+14.1%</b>	<b>-11.4%</b>	<b>+2.6%</b>
Germany	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Greece	-9.1%	+0.2%	<b>+23.7%</b>	<b>+9.9%</b>	<b>+19.6%</b>	<b>+16.3%</b>	<b>+14.2%</b>	<b>+17.7%</b>	<b>+12.2%</b>	<b>+6.9%</b>	<b>+37.4%</b>	<b>+37.5%</b>
Hungary	-0.7%	+7.4%	<b>+0.5%</b>	<b>-3.3%</b>	<b>-11.5%</b>	<b>+9.7%</b>	+9.1%	-3.1%	-5.6%	-1.7%	<b>-3.2%</b>	<b>-1.0%</b>
Italy	-8.4%	-7.1%	<b>-4.6%</b>	<b>-22.9%</b>	<b>-22.4%</b>	-7.5%	-4.0%	-1.5%	+1.2%	+2.4%	+3.9%	+10.1%
Latvia	No evidence of an impact of the pandemic on natural gas demand.											
Lithuania	-14.7%	+3.1%	<b>-10.7%</b>	<b>+9.7%</b>	<b>+7.5%</b>	<b>+33.9%</b>	<b>+49.3%</b>	<b>+52.5%</b>	<b>-15.0%</b>	<b>-4.5%</b>	<b>+14.0%</b>	<b>+18.5%</b>
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Netherlands	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Norway	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Portugal	<b>+0.2%</b>	-4.0%	<b>-0.5%</b>	<b>-13.1%</b>	<b>-27.7%</b>	<b>-13.5%</b>	-6.2%	<b>+3.6%</b>	<b>+8.6%</b>	-1.0%	0%	+0.3%
Romania	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Spain	-2.2%	-1.3%	<b>-4.2%</b>	<b>-20.9%</b>	<b>-22.6%</b>	<b>-16.6%</b>	-6.6%	<b>-12.5%</b>	<b>-7.2%</b>	<b>-11.7%</b>	<b>-7.7%</b>	<b>-2.9%</b>
Sweden	n/a	n/a	n/a	<b>-26%</b>	<b>-20%</b>	<b>+1%</b>	<b>+13%</b>	<b>+15%</b>	<b>+19%</b>	<b>+13%</b>	<b>-1%</b>	<b>+5%</b>
UK	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 3: Year-on-year change in monthly natural gas consumption (January-December 2020)

Colour code:

< -30%	-30% to -20.1%	-20% to -10.1%	-10% to -0.1%	0% to +9.9%	+10% to +19.9%	> 20%
--------	----------------	----------------	---------------	-------------	----------------	-------

**Bold red:**

Month for which the NRA reported a nationwide lockdown

Natural gas consumption 2021						
	01/21	02/21	03/21	04/21	05/21	06/21
Austria	-3.4%	+9.7%	+13.5%	+43.5%	+19.4%	+4.5%
Belgium	+10.3%	+1.2%	+3.3%	+37.8%	+89.6%	-14.4%
Croatia	n/a	n/a	n/a	n/a	n/a	n/a
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a
Czech Rep.	+4.6%	+19.4%	+18.7%	+53.4%	+18.4%	+2.9%
Denmark	No evidence of an impact of the pandemic on natural gas demand.					
Finland	No evidence of an impact of the pandemic on natural gas demand.					
France	+8.5%	+5.3%	+9.7%	+70.2%	+30.2%	-12.7%
Germany	n/a	n/a	n/a	n/a	n/a	n/a
Greece	+2.7%	-6.9%	+5.4%	+46.2%	+6.7%	+23.7%
Hungary	+1.5%	-5.0%	-0.1%	+4.9%	+17.4%	-2.8%
Italy	+1.1%	+2.5%	+12.7%	+30.7%	+9.4%	+7.3%
Latvia	No evidence of an impact of the pandemic on natural gas demand.					
Lithuania	+23.4%	+25.4%	+30.2%	+16.2%	+1.2%	-11.3%
Malta	n/a	n/a	n/a	n/a	n/a	n/a
Netherlands	n/a	n/a	n/a	n/a	n/a	n/a
Norway	n/a	n/a	n/a	n/a	n/a	n/a
Portugal	+2.2%	+2.6%	0%	+13.8%	+32.5%	+11.3%
Romania	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a
Spain	-1.4%	-10.7%	+6.4%	+31.5%	+19.9%	+5.5%
Sweden	+18%	+27%	-14%	-3%	-17%	-33%
UK	+8%			+24%		

Table 4: Year-on-year change in monthly natural gas consumption (January-June 2021)

Colour code: < -30% -30% to -20.1% -20% to -10.1% -10% to -0.1% 0% to +9.9% +10% to +19.9% > 20% > 40%

**Bold red:** Month for which the NRA reported a nationwide lockdown

## 2.3 Effects on energy prices

At the time of writing, energy prices reached unprecedented heights. The European Union Agency for the Cooperation of Energy Regulators (ACER) noted that natural gas and electricity prices in October 2021 were respectively 400% and 200% higher than in April 2021<sup>29</sup>. This led the European Commission to publish a communication highlighting the measures that EU MS could take to alleviate the impact on consumers. It noted that the price surge was largely driven by global gas demand following the recovery of economies worldwide from the COVID-19 pandemic, and to a lesser extent by an increase of the CO<sub>2</sub> price<sup>30</sup>. However, one and a half years before, at the height of the first pandemic wave and the first lockdowns, energy prices were significantly reduced.

### 2.3.1 Electricity prices

The COVID-19 pandemic and the associated restrictions had an unprecedented impact on electricity market prices across several countries. Tables 6 and 7 below show the change in average electricity day-ahead market prices for each month in 2020 and the first half of 2021, compared to the same month one year prior.

For many of the countries that provided the data, **the first six months of 2020** are characterised by significantly lower electricity prices compared to 2019. The months of March and April 2020 stand out, as the year-on-year drop sometimes exceeds the mark of 50 %<sup>31</sup>. As mentioned before (and as is made visible in Tables 6 and 7 by bold red font), these months were associated with lockdowns in various countries.

However, not all CEER countries were affected by the drop in electricity wholesale market prices. The NRAs of **Denmark, Finland and Norway** did not find any significant effects of the pandemic on their electricity price levels<sup>32</sup>.

There were different reasons for the significant price drops that some countries registered in early 2020, given that many countries also reported below-2019 price levels for January and February, i.e. before the pandemic reached Europe and the first restrictions were imposed. Besides the lockdown measures, **the downward price trend was also fed by mild weather, high renewable energy production and cheap thermal generation due to low gas prices**<sup>33</sup>.

- In the case of **Austria**, after controlling for exogenous effects (such as temperature and renewable energy generation), E-Control estimates that the pandemic reduced electricity wholesale market prices by 9 EUR/MWh during the first lockdown (March 2020 to May 2020) and by 4 EUR/MWh during the second lockdown (November 2020-December 2020). No significant price effects were found afterwards.
- Similarly, for **Belgium**, CREG reported that the drastic drop in demand was not only due to international lockdown measures, but also due to the mild spring weather conditions.

---

<sup>29</sup> ACER, “Note on Europe’s high energy prices”, 13 October 2021, p.4.

<sup>30</sup> European Commission, “Tackling rising energy prices: a toolbox for action and support”, p. 2.

<sup>31</sup> Cf. for the EU, European Commission, Quarterly Report, Electricity, vol. 13, Q2 2020, p. 3, and ACER-CEER Electricity MMR 2020, p. 34.

<sup>32</sup> ACER-CEER Electricity MMR 2020 (p. 34) registers a significant drop in electricity prices for the Nordic countries, but attributes this to the high availability of wind power and hydropower generation.

<sup>33</sup> However, ACER and CEER note that the pandemic was the “main driver of the decline” (ACER-CEER Electricity MMR 2020, p. 34).



- In **Germany**, the 2020 lower price levels were caused by the very low electricity consumption due to the COVID-19 measures, combined with the high feed-in from renewable energy sources occurring at that same time. In April 2020, Germany recorded the lowest average wholesale price (17.1 EUR/MWh). The price only increased again in September and December 2020 respectively.
- In **Spain**, electricity wholesale market prices were 60% lower in April 2020 than in April 2019. Here too, the contraction of electricity demand due to the lockdown coincided with a spell of high wind, good sunshine conditions and heavy rainfall. These weather conditions coincided with an increase in installed renewable energy capacity and thus pushed electricity generation from renewable sources up to 46.1% of the total mix in the first half of the year (while it stood at 37% in 2019). Both the pandemic restrictions and renewable electricity generation caused a fall to an average price of 18 EUR/MWh and 20 EUR/MWh, in April and May 2020, respectively. In addition, during several days, some gas combined cycle plants were dispatched. Electricity costs were extremely low due to the falling gas prices. Thus, in the last quarter of 2019, the cost of variable generation of a combined cycle was 50-55 EUR/MWh, while costs fell to 26-30 EUR/MWh in May 2020.
- Besides the pandemic, there were several factors that affected the **Swedish** electricity wholesale market prices during 2020 and 2021. 2020 was characterised by a high hydrological balance which was a favourable factor for hydropower generation.

**The second half of the year 2020** shows rather a mixed picture, given that year-on-year price drops were not as significant as in the first half and that some countries also experienced price increases. CREG noted that prices in **Belgium** rose sharply in September 2020, due to a certain tension in nuclear power production in Belgium (i.e. the unavailability of the nuclear power plants Doel 1, Doel 4 and Tihange 3) and also in France (where the first lockdown delayed the maintenance schedule of nuclear power plants and some nuclear power plants became unavailable because of insufficient river flow to cool the reactors)<sup>34</sup>. Other factors were the lower renewable energy production in early September and the increase in demand because of a heat wave, a recovery of economic activity and significant imports to France.

Given the unprecedented low price levels in the months of January to June 2020, it was very likely that prices would be higher in **the first half of 2021**. As shown in Table 7, in those countries that provided data, year-on-year price decline was the exception and price increase the rule. The price increases exceeded up to 100% or even up to 200%. The increases have been **attributed to the easing of pandemic restrictions, but also to low temperatures, low renewable energy generation, and increases in natural gas and CO<sub>2</sub> prices**<sup>35</sup>. These factors have also been among the causes of the continued and unprecedented price spike that Europe faced at the end of 2021.

In **Germany**, the increase of electricity prices was mainly influenced by the phasing out of the COVID-19 restrictions. Another reason was the significant increase of the price for EU carbon emission allowances since the beginning of the year as well as in the rising spot prices for coal and natural gas. Higher prices for carbon allowances and fuel thus led to higher marginal costs for electricity generated from fossil fuels, which in turn were reflected in higher electricity wholesale market prices. This was especially true at times when renewable energy generation was low. Table 5 below illustrates this point with the changes in prices for German power futures in 2020 and 2021.

---

<sup>34</sup> On the situation in France, see section 2.4 below.

<sup>35</sup> See also European Commission, Quarterly Report, Electricity, vol. 14, Q1 2021, p. 3.

	Average month-ahead price [EUR/MWh]	Change / same period of the previous year	Average year-ahead price [EUR/MWh]	Change / same period of the previous year
Jan – Dec 2020	33.01	-21.4%	40.17	-18.0%
Jan – Jun 2021	56.61	+103.8%	57.84	+47.5%

Table 5: EEX German Power Base Futures (Trading period: 1 January 2020 - 30 June 2021). Source: European Energy Exchange.

Similarly, in **Spain**, September 2020 saw gas and CO<sub>2</sub> prices recover to pre-March levels, bringing the price of electricity back to 42 EUR/MWh. As regards the electricity mix, coal generation was completely left out of the daily dispatching for economic reasons and its operation now was only aimed at solving zonal security problems.

In **France**, 2021 electricity market prices also increased significantly compared to 2020. Given that electric heating is prevalent in France, lower-than-normal seasonal temperatures (especially at the beginning of the year) led to an increase in electricity consumption and, in turn, to the use of more expensive generation means, especially thermal ones. French market prices increased significantly in April 2021 compared to March 2021 (and by 369.2% compared to April 2020, noting that there was also a sizable difference in consumption between April 2020 and April 2021). The price gained 13 EUR/MWh on average and reached 63.1 EUR/MWh. Again, this increase was due to low temperatures over most of the month, periods of low renewable generation, reduced availability of the French nuclear power fleet, and high prices for fuels and CO<sub>2</sub> emission allowances.

In **Lithuania**, electricity wholesale market prices decreased by an average of 18% in 2020 (January-December, compared to the same period in 2019). They increased by 109% on average in January-June 2021 (compared to the same period in 2020). The increase in electricity prices became more prominent at the end of 2020 and in the beginning of 2021, when the import price rose from 46 to 54 EUR/MWh.

The NRA of **Sweden** noted that, in contrast to the favourable hydrological situation in 2020, water levels in 2021 have been lower. This factor, in combination with low levels of wind power production and high prices for gas and electrical power in the rest of the EU, drove the increase of electricity wholesale market prices in the country.

Electricity wholesale prices 2020												
	01/20	02/20	03/20	04/20	05/20	06/20	07/20	08/20	09/20	10/20	11/20	12/20
Austria	-27%	-37%	<b>-26%</b>	<b>-51%</b>	-54%	-23%	-19%	-5%	+20%	-9%	<b>-4%</b>	<b>+32%</b>
Belgium	-37,4%	-40,4%	<b>-36,2%</b>	<b>-61,2%</b>	<b>-59,5%</b>	<b>-7,1%</b>	-20,9%	+5,4%	+31,7%	<b>+4,8%</b>	<b>-10,1%</b>	<b>+20,4%</b>
Croatia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cyprus	+5.0%	+11.0%	<b>+18.1%</b>	<b>+6.7%</b>	-6.9%	-17.8%	-18.4%	-22.5%	-23.5%	-25.9%	<b>-21.1%</b>	<b>-19.5%</b>
Czech Rep.	-10%	-8%	-17%	-22%	-23%	-15%	-18%	-17%	-16%	-19%	-17%	+3%
Denmark	No evidence of an impact of the pandemic on electricity prices.											
Finland	No evidence of an impact of the pandemic on electricity prices.											
France	-37.6%	-43.7%	<b>-29.6%</b>	<b>-64.7%</b>	<b>-60.1%</b>	-11.9%	-11.3%	+10.1%	+32.8%	<b>-1.8%</b>	<b>-12.7%</b>	<b>+32.8%</b>
Germany	-29.1%	-48.8%	<b>-26.6%</b>	<b>-53.7%</b>	-53.5%	-19.5%	-24.2%	-5.4%	+22.2%	-8.0%	-5.4%	<b>+36.1%</b>
Great Britain	-43%	-36%	<b>-26%</b>	<b>-45%</b>	<b>-41%</b>	<b>-27%</b>	<b>-25%</b>	-4%	-21%	+18%	<b>+17%</b>	+49%
Greece*	-23.0%	-29.0%	<b>-27.7%</b>	<b>-54.7%</b>	<b>-48.4%</b>	-50.3%	-34.1%	-28.3%	-24.0%	-26.1%	<b>-5.8%</b>	<b>-2.1%</b>
Hungary	-27.7%	-19.6%	<b>-25.0%</b>	<b>-45.5%</b>	<b>-44.0%</b>	<b>-27.5%</b>	-33.3%	-35.9%	-17.9%	-30.9%	<b>+11.3%</b>	<b>+43.3%</b>
Italy	-29.8%	-31.2%	<b>-39.5%</b>	<b>-53.5%</b>	<b>-57.0%</b>	-2.3%	-27.3%	-18.6%	-4.7%	-17.5%	+1.2%	+24.7%
Latvia	-45.6%	-40.7%	<b>-40.1%</b>	<b>-46.0%</b>	<b>-44.6%</b>	<b>-13.4%</b>	-35.0%	-12.3%	-18.3%	-20.3%	<b>-9.2%</b>	<b>+14.9%</b>
Lithuania	-45%	-41%	<b>-40%</b>	<b>-46%</b>	<b>-44%</b>	<b>-13%</b>	-35%	-12%	-19%	-20%	<b>-8%</b>	<b>+17%</b>
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Norway	No evidence of an impact of the pandemic on electricity prices.											
Portugal	-35%	-34%	<b>-43%</b>	<b>-65%</b>	<b>-56%</b>	-35%	-33%	-20%	-1%	-23%	0%	+25%
Romania	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Spain	-33.7%	-33.6%	<b>-43.2%</b>	<b>-65.0%</b>	-56.1%	-35.1%	-32.7%	-19.5%	-0.4%	<b>-22.5%</b>	<b>-0.6%</b>	<b>+24.1%</b>
Sweden	-55%	-64%	<b>-70%</b>	<b>-79%</b>	<b>-67%</b>	-33%	<b>-66%</b>	-27%	-7%	-41%	-57%	-27%

Table 6: Year-on-year change in monthly electricity wholesale prices (January-December 2020)

Colour code:	< -60%	-60% to -40.1%	-40% to -20.1%	-20% to -0.1%	0% to +9.9%	+10% to +19.9%	> 19.9%	> 29.9%
<b>Bold red:</b>	Month for which the NRA reported a nationwide lockdown							

\* In November 2020, Greece started to implement the EU electricity target model. Before that, the Greek electricity market was based on a mandatory pool model. As a result, prices before and after that date are not fully comparable, as they result from two different models.

Electricity wholesale prices 2021						
	01/21	02/21	03/21	04/21	05/21	06/21
Austria	<b>+42%</b>	<b>+73%</b>	+118%	+228%	+213%	+180%
Belgium	+51,7%	+71,3%	<b>+94,1%</b>	<b>+287,2%</b>	<b>+261,5%</b>	<b>+203%</b>
Croatia	n/a	n/a	n/a	n/a	n/a	n/a
Cyprus	-24.4%	-24.2%	-15.1%	n/a	n/a	n/a
Czech Rep.	+11%	+17%	+25%	+29%	+38%	+37%
Denmark	No evidence of an impact of the pandemic on electricity prices.					
Finland	No evidence of an impact of the pandemic on electricity prices.					
France	+56.5%	+86.7%	<b>+110.7%</b>	<b>+369.2%</b>	<b>+271.9%</b>	<b>+185.1%</b>
Germany	<b>+50.7%</b>	<b>+122.2%</b>	<b>+109.8%</b>	+213.7%	+203.2%	+182.9%
Great Britain	<b>+153%</b>	<b>+76%</b>	<b>+70%</b>	<b>+189%</b>	+217%	+180%
Greece*	<b>-10.0%</b>	<b>+2.30%</b>	<b>+32.1%</b>	<b>+125.1%</b>	<b>+84.3%</b>	+145.3%
Hungary	<b>+6.5%</b>	<b>+27.6%</b>	<b>+84.9%</b>	<b>+148.5%</b>	+154.1%	+159.9%
Italy	+54%	+71%	+81%	+155%	+291%	<b>+373%</b>
Latvia	<b>+73.7%</b>	<b>+110.9%</b>	<b>+81.3%</b>	<b>+85.4%</b>	+97.4%	+97.2%
Lithuania	<b>+74%</b>	<b>+114%</b>	<b>+100%</b>	<b>+92%</b>	<b>+105%</b>	<b>+101%</b>
Malta	n/a	n/a	n/a	n/a	n/a	n/a
Norway	No evidence of an impact of the pandemic on electricity prices.					
Portugal	<b>+48%</b>	<b>-22%</b>	<b>+63%</b>	<b>+265%</b>	+214%	+172%
Romania	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a
Spain	<b>+46.4%</b>	<b>-20.6%</b>	<b>+63.9%</b>	<b>+268.3%</b>	<b>+215.8%</b>	+172.1%
Sweden	+94%	+194%	+175%	+289%	+266%	+169%

Table 7: Year-on-year change in monthly electricity wholesale prices (January-June 2021)

Colour code:	-50% to -0.1%	0% to +49.9%	+50% to +99.9%	+100% to 199.9%	> 199.9%	> 300%
<b>Bold red:</b>	Month for which the NRA reported a nationwide lockdown					

## 2.3.2 Natural gas prices

Table 8 below indicates the year-on-year changes of monthly natural gas wholesale market prices between 2019 and 2020. The NRAs of **Denmark and Finland** declared that there were no significant effects of the pandemic on prices in their countries. The NRAs of other countries (**Austria, Belgium, Czech Republic, France, Great Britain, Greece, Italy, Lithuania, and Portugal**) provided data that showed that natural gas prices were lower, by double-digit figures, in the months of January until approximately August 2020, compared with the same period in 2019. The negative price delta is present as early as January 2020, whereas pandemic restrictions started to be imposed as of March (see section 2.1.1 and Figure 1 above). This means that, as with electricity prices, other factors that depreciated gas wholesale prices were already present before the start of the pandemic in those countries.

Indeed, CREG reported that, while **Belgium** experienced a stark decline in natural gas wholesale market prices due to pandemic restrictions imposed between March and May 2020, gas prices on the wholesale market were already low at the beginning of 2020 due to the abundance of gas supply<sup>36</sup>. With the pandemic, the slowdown in economic activity, combined with mild weather, led to a more significant drop. **Spanish** gas spot prices closely followed the same trend than most liquid European gas markets (such as TTF in the Netherlands and NBP in the UK), with price differentials on average of around 1 EUR/MWh. Similar to other European markets, gas prices experienced a sharp decrease during 2020, reaching historic minimum levels (around 5 EUR/MWh).

The price patterns in the second half of 2020 varied from one country to another and no clear depreciating effect of lockdowns was observed. In 2021, prices showed sharp increases. As it was stated above for consumption, lockdowns and other restrictions in **the final months of 2020 and in 2021** had less of a negative impact on gas prices, because they were less severe and because other factors driving gas prices, such as worldwide economic recovery, were stronger. In **Belgium** for instance, in the second half of 2020, gas demand picked up again, leading to an increase in prices. The period from October to March is generally when energy prices are highest, particularly for natural gas, due to the higher demand associated with seasonality. In **Spain**, too, gas prices recovered in September 2020 to pre-COVID-19 levels, and the escalation of prices continued during the first semester of 2021, reaching more than 40 EUR/MWh in August 2021. While this price evolution was in line with the price progression in other European countries, the only period with a large price differential between Spain and the TTF hub was during the first days of January 2021. During that week, the Spanish spot price reached a peak close to 60 EUR/MWh, due to a combination of strong cold (with heavy snowstorms affecting the centre of Spain) and the reduction of gas flows coming from Algeria. This is shown in Figure 2 below.

---

<sup>36</sup> Similarly, ACER and CEER indicate that there was an abundant supply of LNG in Europe at the beginning of 2020 before receding significantly in the second half of the year (ACER/CEER Gas MMR, p. 9, 23, 25).

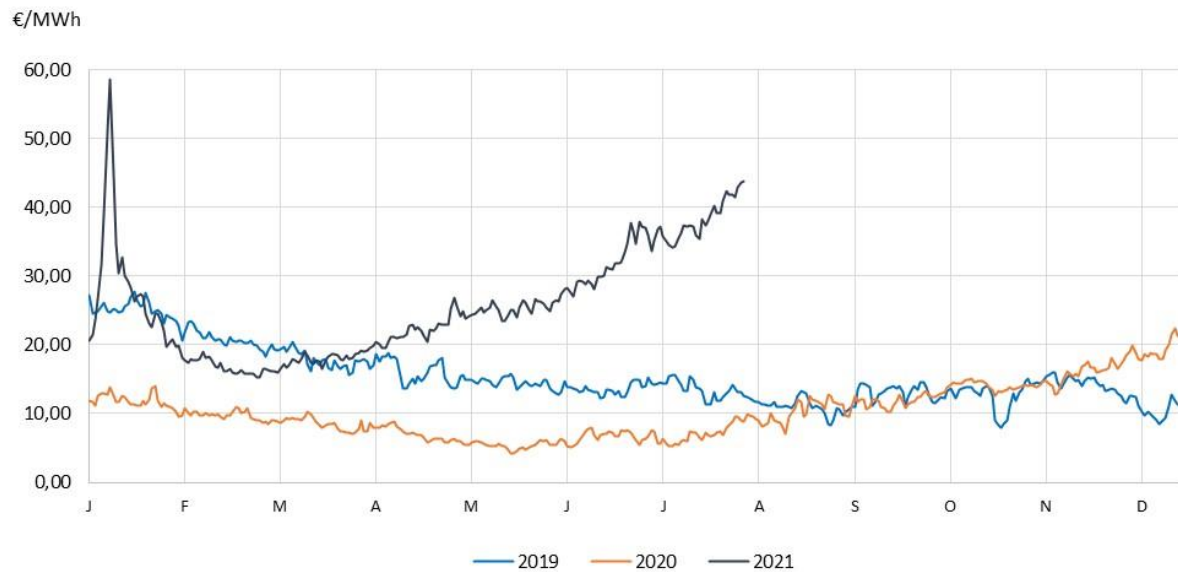


Figure 2: Evolution of the spot gas price in Spain 2019-2021 (Source: CNMC)

In **Romania**, the weighted average price increased by 70% in 2021 compared to 2020. In July 2021, the weighted average price was three times higher than in July 2020. The National Energy Regulatory Authority (ANRE) believes that a contributing factor is the suppliers' behaviour: In 2020, due to the COVID-19 pandemic and its impact on consumption, Romanian gas suppliers had to sell natural gas they had procured on forward contracts on the day-ahead market at very low prices. Therefore, they were more reluctant to buy the same amount of gas on the forward market for 2021. As a consequence, they are now exposed to the unprecedented rise in day-ahead market prices. While prices in Romania in the summer are usually lower, this was not the case in 2021.



Natural gas wholesale prices 2020												
	01/20	02/20	03/20	04/20	05/20	06/20	07/20	08/20	09/20	10/20	11/20	12/20
Austria	-45%	-45%	<b>-44%</b>	<b>-53%</b>	<b>-61%</b>	<b>-55%</b>	<b>-42%</b>	-14%	-2%	+22%	<b>-13%</b>	<b>+13%</b>
Belgium	-40,1%	-48,4%	<b>-49,6%</b>	<b>-46,1</b>	<b>-55,7%</b>	<b>-62,9%</b>	<b>-51,6%</b>	<b>-51,9%</b>	-29%	<b>-11,9%</b>	<b>-9,0%</b>	<b>-12,6%</b>
Croatia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Czech Rep.	-27%	-35%	<b>-43%</b>	<b>-55%</b>	<b>-57%</b>	<b>-50%</b>	<b>-47%</b>	<b>-35%</b>	<b>-33%</b>	<b>-26%</b>	<b>-22%</b>	<b>0%</b>
Denmark	No evidence of an impact of the pandemic on natural gas prices.											
Finland	No evidence of an impact of the pandemic on natural gas prices.											
France	-49.6%	-50.0%	<b>-46.4%</b>	<b>-57.2%</b>	<b>-65.9%</b>	<b>-51.2%</b>	<b>-55.2%</b>	<b>-27.0%</b>	+12.9%	<b>+34.5%</b>	<b>-5.5%</b>	<b>+23.5%</b>
Germany	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Great Britain	-52%	-50%	<b>-42%</b>	<b>-61%</b>	<b>-63%</b>	<b>-53%</b>	<b>-55%</b>	-27%	+20%	+49%	<b>-1%</b>	<b>+42%</b>
Greece	-33.4%	-44.1%	<b>-47.9%</b>	<b>-62.4%</b>	<b>-67.3%</b>	<b>-74.3%</b>	<b>-68.1%</b>	<b>-68.2%</b>	<b>-49.7%</b>	<b>-40.5%</b>	<b>-36.0%</b>	<b>-35.5%</b>
Hungary	-47%	-45%	<b>-46%</b>	<b>-52%</b>	<b>-59%</b>	<b>-46%</b>	<b>-37%</b>	<b>-27%</b>	+6%	+13%	<b>-9%</b>	<b>+5%</b>
Italy	-44.3%	-47.4%	<b>-45.2%</b>	<b>-53.5%</b>	<b>-61.7%</b>	<b>-58.7%</b>	<b>-48.7%</b>	<b>-28.5%</b>	-9.9%	+0.6%	-15.2%	<b>-35.2%</b>
Latvia	-23.6%	-27.9%	<b>-48.2%</b>	<b>-54.5%</b>	<b>-49.3%</b>	<b>-51.7%</b>	<b>-43.8%</b>	<b>-45.8%</b>	<b>-27.9%</b>	-10.2%	<b>-16.1%</b>	<b>-22.7%</b>
Lithuania	-43.9%	-52.0%	<b>-30.1%</b>	<b>-42.7%</b>	<b>-53.8%</b>	<b>-71.1%</b>	<b>-47.1%</b>	<b>-31.5%</b>	<b>-17.8%</b>	<b>-32.2%</b>	<b>-25.6%</b>	<b>-9.2%</b>
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Norway	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Portugal	-53%	-53%	<b>-53%</b>	<b>-56%</b>	<b>-63%</b>	<b>-52%</b>	<b>-54%</b>	<b>-24%</b>	-5%	+2%	+8%	<b>+51%</b>
Romania	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Spain	-53.0%	-52.9%	<b>-52.4%</b>	<b>-55.8%</b>	<b>-63.1%</b>	<b>-51.3%</b>	<b>-53.8%</b>	<b>-22.0%</b>	-4.2%	<b>+3.3%</b>	<b>+5.8%</b>	<b>+51.5%</b>
Sweden	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 8: Year-on-year change in monthly natural gas wholesale prices (January-December 2020)

Colour code: < -60% -60% to -40.1% -40% to -20.1% -20% to -0.1% 0% to +9.9% +10% to +19.9% > 19.9% > 29.9%

**Bold red:** Month for which the NRA reported a nationwide lockdown

Natural gas wholesale prices 2021						
	01/21	02/21	03/21	04/21	05/21	06/21
Austria	+58%	+67%	+91%	+164%	+312%	+390%
Belgium	+13,4%	+81,7%	<b>+91,7%</b>	<b>+106,9%</b>	<b>+205,4%</b>	<b>+404,4%</b>
Croatia	n/a	n/a	n/a	n/a	n/a	n/a
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a
Czech Rep.	+1%	+12%	+24%	+31%	+40%	+44%
Denmark	No evidence of an impact of the pandemic on natural gas prices.					
Finland	No evidence of an impact of the pandemic on natural gas prices.					
France	+87.0%	+91.0%	<b>+106.3%</b>	<b>+217.6%</b>	<b>+449.3%</b>	<b>+469.9%</b>
Germany	n/a	n/a	n/a	n/a	n/a	n/a
Great Britain	<b>+112%</b>	<b>+95%</b>	<b>+96%</b>	<b>+298%</b>	+463%	+446%
Greece	<b>-4.5%</b>	<b>+43.1%</b>	<b>+36.6%</b>	n/a	n/a	n/a
Hungary	<b>+37%</b>	<b>+54%</b>	<b>+82%</b>	<b>+140%</b>	+256%	+268%
Italy	+1%	+3%	+14%	+44%	+10%	+8%
Latvia	<b>-37.3%</b>	<b>-6.7%</b>	<b>+30.5%</b>	<b>+81.9%</b>	+151.0%	+264.2%
Lithuania	<b>+21.2%</b>	<b>+72.6%</b>	<b>+35.6%</b>	<b>+54.9%</b>	<b>+129.4%</b>	<b>+337.3%</b>
Malta	n/a	n/a	n/a	n/a	n/a	n/a
Norway	n/a	n/a	n/a	n/a	n/a	n/a
Portugal	<b>+138%</b>	<b>+71%</b>	<b>+105%</b>	<b>+181%</b>	+363%	+346%
Romania	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a
Spain	<b>+138.8%</b>	<b>+70.8%</b>	<b>+103.9%</b>	<b>+185.6%</b>	<b>+364.3%</b>	+315.7%
Sweden	n/a	n/a	n/a	n/a	n/a	n/a

Table 9: Year-on-year change in monthly natural gas wholesale prices (January-June 2021)

Colour code:	-50% to -0.1%	0% to +49.9%	+50% to +99.9%	+100% to 199.9%	> 199.9%	> 300%
<b>Bold red:</b>	Month for which the NRA reported a nationwide lockdown					



## 2.4 Other effects on the energy system

Furthermore, the pandemic had other – sometimes unexpected – effects on the energy system:

- In **France**, the pandemic restrictions interfered with the availability of nuclear power plants which account for more than two-thirds of the country's electricity production (70.6% in 2019 and 67.1% in 2020). The first lockdown from March to May 2020 reduced the number of technical staff that could be present on site. This did not only disrupt operations in spring (which brought nuclear production to a historic low), it also had a “cascading effect” on the long-term schedule of plant shutdowns for maintenance and refuelling activities. EDF, the operator of the nuclear fleet, had to reschedule the shutdowns from 2020 to 2022. To ensure a sufficient level of security of electricity supply in the upcoming winter season, EDF also modulated the operation of running plants (e.g. by shutting down units to save nuclear fuel and ensure that they would be available later, or by accelerating the fuel consumption so that they could be refuelled earlier than initially planned). In June 2020, RTE, the French electricity TSO, warned of a risk to security of supply during the winter 2020/2021. RTE noted that by rescheduling the maintenance and refuelling operations, EDF already significantly reduced that risk. Only in the event of a colder than normal winter, would action be required. In that case, RTE would resort to measures such as interruptions, voltage level reductions and limited load shedding. In July, the prospects for the availability of nuclear generation capacity during the upcoming winter improved<sup>37</sup>.
- In **Ireland**, where pandemic restrictions disrupted the maintenance operations of power plants in a similar way, some generation units did not operate in order to ensure their availability during winter<sup>38</sup>.
- CERA issued an early warning to the European Commission to inform and provide all relevant information on **the possibility of an electricity crisis in Cyprus** for the period from 1 June 2020 to 15 September 2020 as well as on crisis prevention measures. For that specific period, the Electricity Authority of Cyprus (EAC), the vertically integrated electricity generation and supply entity, ensured that the conventional production units which were in working condition were connected to the system and technically available for the TSO whenever required. Throughout that period, the TSO implemented the emergency action plan of the summer period 2020 to ensure the adequacy of the electricity generation and transmission system. At that stage, the assistance of other MS was not required.
- In **Greece**, due to the decrease in electricity demand and consequently in electricity wholesale market prices, the revenues of the special account for renewable energy sources (“RES special account”), through which all RES units receiving operating aid are financed, were heavily reduced. This led to **a deficit in the RES special account** which, according to the Greek RES Operator DAPEEP reached 336.97 million EUR in November 2020. The deficit has shrunk since. Indeed, the Greek government imposed a special contribution tax on all RES units operating under a feed-in tariff which was equal to 6% of their total 2020 revenues.
- VERT reported that in **Lithuania**, during the first phase of the COVID-19 crisis period, business customers (organisations in various segments, from retail chains to manufacturing companies) **stalled their plans to invest in energy efficiency measures**, such as solar power plants and modern lighting solutions. The support provided by the government to businesses made a significant contribution to increasing the volume of investments in the above-mentioned measures. Moreover, **the volume of services of the**

<sup>37</sup> For a more detailed account, see [CRE's report](#) on the functioning of the wholesale electricity and natural gas markets, p. 35.

<sup>38</sup> CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 29.

**electric vehicles' charging network in Lithuania also increased significantly** during the pandemic (probably because customers avoided public transport, used more electric cars and/or services of car-sharing companies).

- In **Romania**, ANRE reported that extremely low energy demand, together with changes in the generation structure, made **balancing the power system more difficult** for network operators<sup>39</sup>. However, despite high volatility and fluctuating liquidity, the internal market has withstood the turmoil and the energy system proved resilient to the crisis.

---

<sup>39</sup> For the same effect at EU level, see European Commission, Quarterly Report, Electricity, vol. 13, Q2 2020, p. 3.

### 3 Energy consumers

For energy consumers, the COVID-19 pandemic was also a new situation. As people lost income or even jobs because of the restrictions, they were not able to pay their energy bills and faced an increased risk of energy poverty or even disconnection.

#### 3.1 Effects on energy consumers

Several NRAs observed an **increase in unpaid energy bills** due to the economic impact of the COVID-19 pandemic (decrease in or loss of income) and the related emergency measures taken by governments such as lockdowns and other restrictions.

- In the Flanders region in **Belgium**, commercial suppliers reported an increase of 6.3% of defaults on energy bills in 2020.
- **Italy** mentioned that in the first and second trimesters of 2020, unpaid energy bills increased by 1-2%. These percentage figures did not increase significantly in the first half of 2021.
- In **Great Britain**, between July and November 2020, Ofgem monitored failure rates for customers paying by direct debit, which in each month have averaged 0.82% for domestic customers, 0.49% for SME customers, and 0.69% for industrial and commercial customers.

Belgium flagged increases in **indebtedness and energy poverty**. CREG reported that, as far as the **Brussels** region was concerned, different groups were now asking for help as a result of the crisis: self-employed people, single working women, lower-level employees suffering from unemployment, etc. The aim was to prevent these households from falling into a more structural precariousness. Therefore, public social welfare centres received an increase in funding.

In contrast, the **Hungarian** regulator did not identify a clear COVID-19 effect. For electricity, the total debt of household consumers increased by 0.63% between December 2019 and December 2020, while the total stock of non-household consumer arrears decreased by 24.12% over the same period. For natural gas, there was a decline in total debt of 18.73% among household consumers, and a decrease of 19.6% among non-household consumers.

#### 3.2 Measures taken to support consumers

To help energy customers, governments, regulatory authorities, suppliers and others introduced measures such as deferral of energy bills, social tariffs for vulnerable consumers, financial aids for households and businesses or even disconnection moratoria and bans for energy customers. There were also financial interventions on prices and taxes as well as regulatory interventions on the execution of energy contracts. After their first introduction these measures were extended as long as they were necessary to help the energy customers during the lockdown periods. The measures reported by NRAs for each country are listed in Figure 3 below.

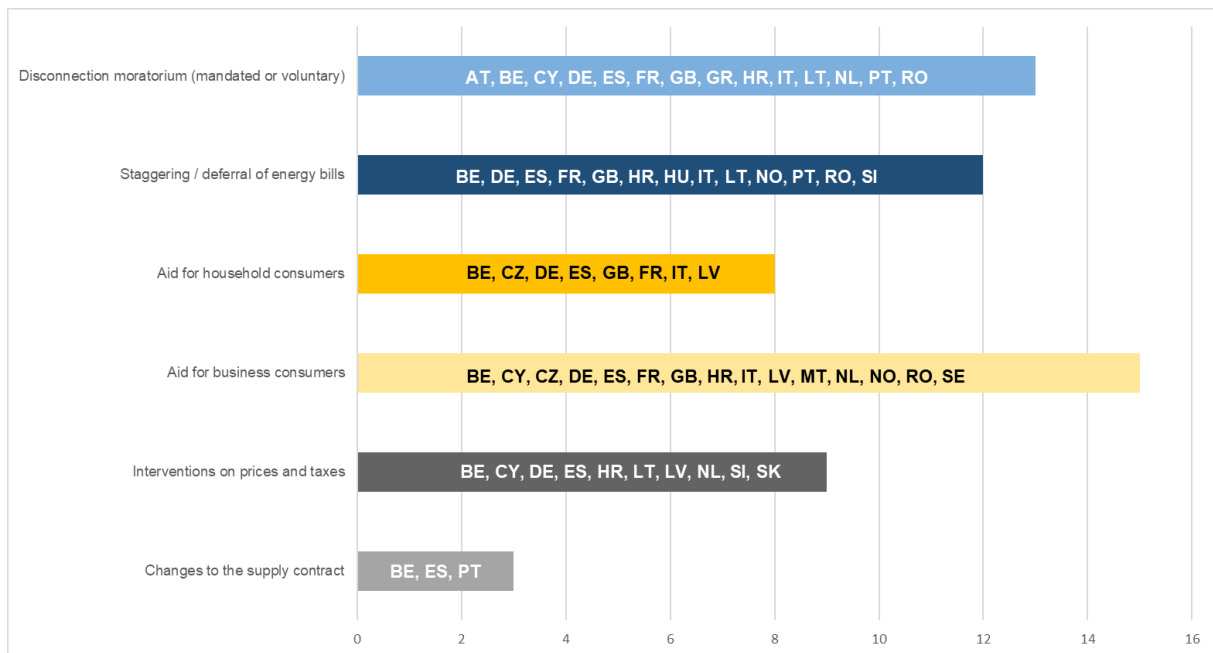


Figure 3: Measures to support consumers reported by NRAs

One of the most common measures was a **moratorium on disconnections** during some or all of the lockdown periods in 2020 and 2021 to ensure the supply of energy, even in case of non-payment of energy bills. These disconnection moratoria were not always mandated by the authorities; in some cases, they happened voluntarily or were imposed *de facto* (due to concerns regarding the physical reading of meters).

- In **Belgium**, in the Brussels region, people who were temporarily unemployed as a result of the pandemic (e.g. in restaurants, bars, at hairdressers etc.), as well as self-employed or employees with a debt to their energy supplier were protected from being cut off. This protection lasted for one year starting from June 2020.
- In **Portugal**, during the so-called “calamity state”, consumers’ energy supply could not be interrupted. The energy supply of consumers who were unemployed, who had a drop in household income equal to or greater than 20% or who suffered a COVID-19 infection could not be interrupted until 31 December 2021.
- **France** already had an annual and temporary disconnection moratorium in place before the pandemic, but the pandemic prompted French authorities to extend it. Indeed, French law mandates a “winter truce”, which ranges from 1 November to 31 March and during which suppliers are prohibited from disconnecting household consumers from their energy supply. In the first half of 2020, French authorities extended this winter truce until 10 July 2020. Similarly, the 2020-2021 winter truce was extended until 31 May 2021.
- In **Spain**, the prohibition of disconnection of electricity, gas and water supplies provided to certain categories of vulnerable consumers and consumers at risk of social exclusion was extended until August 2021. Recently, the minimal vital supply mechanism was approved, by which the disconnection period is extended to six months since the first unpaid electricity bill.
- In **Italy**, between April and May 2020, all procedures for the disconnection of households and small-sized enterprises from their electricity, gas and water supply due to payment arrears were postponed.
- As for the measures to support consumers, there was no obligatory moratorium on disconnections in **Hungary** for energy providers. However, some energy suppliers voluntarily established a moratorium under the state of emergency during the first

pandemic wave. Examples also existed for this voluntary moratorium concerning household customers between 29 November 2020 and 8 January 2021.

- **In Croatia**, it was the private initiative of gas and electricity network operators and suppliers not to pursue disconnection of consumers.

As a result, some NRAs (**France, Hungary, Malta, Slovenia**) observed a **significant fall in disconnections**.

- In 2020, **France** registered 156,795 disconnections and 252,296 power reductions in electricity, as well as 42,233 disconnections in gas. For electricity, that is approximately 8-9% lower than 2019 when there were 172,419 disconnections and 273,690 power reductions in electricity. For gas, the difference with 2019 was slightly lower as there had been 40,537 disconnections. In the first half of 2021, there were 9,462 disconnections and 120,670 power reductions in electricity and 2,481 disconnections in gas. However, disconnections and power reductions are not necessarily related to unpaid bills and can also be requested in case of contract termination at the request of the consumer, work on the network or installation, or because of an error on the side of the supplier or the distribution system operator (DSO).
- **Germany** reported that disconnections decreased by approximately 20% for electricity as well as for gas in 2020.
- In **Croatia**, there were 34% less disconnections of electricity consumers compared to the previous year.
- In March 2021, 10% of customers on pre-payment meters in **Great Britain** reported having at some point run out of credit and being temporarily disconnected. Ofgem noted that disconnections for debt were extremely rare before COVID-19 (there were only 15 disconnections for debt in 2019 and 6 disconnections in 2018).
- In **Hungary**, a significant drop was reported for the disconnections between December 2019 and 2020 in both the electricity and gas sector. Among household consumers, the number of disconnections decreased by 19.85% in electricity and by 24.87% in gas. After having examined complementary data on disconnections, the effect of the disconnection moratorium period is clearly visible.

To avoid time-lagged disconnection due to non-payment, some NRAs also reported schemes to extend payment deadlines or implement the staggering of bill payments.

- In **Belgium**, in the Brussels region, suppliers implemented more flexible procedures for repayment plans, both in terms of amounts and number of monthly payments. In addition, they reduced the monthly payments for professional clients whose activity had ceased.
- **Spain** provided small and medium-sized companies as well as self-employed workers with the possibility to delay the payment of their electricity and gas bills during the initial state of alarm and up to six months after the end of this period.
- In **Portugal**, customers could ask to delay the payment of their energy bills or for payments plans. For these clients, suppliers could similarly ask to delay the payment of their tariff bills to DSOs.
- **Greece** provided guidelines to suppliers to incentivise the timely payment of bills by the consumers through debt settlement programmes.
- In **Norway**, some retailers extended the payment due date on energy bills to help customers who were waiting to receive government support or welfare payments. The Norwegian government introduced financial aid schemes for several business sectors during the crisis.
- In **Lithuania**, customers, individuals who use electricity to meet household needs and legal entities were able to defer payments for natural gas and electricity during the lockdown period and up to an additional 30 days without calculating interest in arrears and current

interest payments. Additionally, it was possible to spread the payments according to an individual schedule for a period of up to one year.

- In **Germany**, consumers and micro-enterprises were allowed to temporarily stop payments of their energy bills if they were unable to make them due to the pandemic.
- In **Hungary**, there was no mandatory prescription on energy bill payment staggering or deferral. However, the possibility of deferred payment exists in both the electricity and natural gas sectoral legislation.

Many NRAs reported that **financial support** was available to both household consumers and businesses. This was the case notably for social welfare payments, furlough schemes to enable businesses to retain staff, or credit guarantees which benefited workers and companies in the wider economy. Some measures specifically targeted the energy sector. However, the decrease of energy prices in 2020 also mitigated the impact of the COVID-19 crisis on consumers.

- In **Spain**, people who were temporarily unemployed due to the pandemic (staff of hotels, restaurants, SMEs, etc.) were granted the possibility to request a social bonus (a discount on all the components of the regulated electricity tariff). Moreover, the gas tariff and the regulated prices liquefied petroleum gas (LPG) were frozen or adjusted downwards.
- **Germany** lowered the standard value added tax rate from 19% to 16 % (generally for non-food items and services) and the reduced VAT rate from 7% to 5% (mostly for food items) for a limited period from 1 July 2020 to 31 December 2020. Catering services also received a new classification from the standard to the reduced VAT rate. The lowered rates were in effect from 1 July 2020 until 1 July 2021. In addition, the requirement to file for insolvency was temporarily suspended until April 2021 in cases where the insolvency or over-indebtedness was based on the consequences of the COVID-19 pandemic.
- **Croatia** introduced a moratorium on existing tax obligations and rescheduled new tax obligations. The tax measures included deferral of payment of corporate income tax, personal income tax liabilities and social security contributions. The deferral was granted for three months, with a potential extension of an additional three months. Taxpayers could also request payment in instalments. In addition, grants to self-employed individuals to alleviate the effects of the pandemic were not regarded as taxable receipts (i.e. they were not subject to personal income tax). Similarly, companies did not have to pay corporate income tax on pandemic-related grants.
- In response to changes in the wholesale energy market, the projected lower electricity market price and the rising public service obligations' (PSO) price, authorities in **Lithuania** set lower public electricity price caps for household customers for the second half of 2020. The price caps were limited to natural persons purchasing electricity for personal, family or household needs not related to business or profession. In addition, for the second half of 2020, VERT, the Lithuanian NRA, re-calculated and set a lower variable part of the natural gas tariff for household consumers, resulting in a 15-23 % reduction per cubic metre.
- In **Italy**, non-domestic users connected to the low-voltage network benefitted from a reduction of the fixed components of transport, distribution and metering tariffs and general charges for a total amount of 600 million EUR. In addition, a fund was set up with the Energy and Environmental Services Fund (CSEA), with resources amounting to 1.5 billion EUR, to finance regulatory measures that support consumers and users.
- **Slovenia** introduced an exemption from payment of a fixed part of the network charge as well as a reduction of the contribution to RES and CHP support for a three-month period (March-May 2020).
- **Slovakia** allowed companies to apply for a temporary freeze of energy-tax payments due to the effects of COVID-19.

- In the **Netherlands**, businesses could apply for a temporary freeze of (energy) tax payments due to the effects of the COVID-19 pandemic.
- Others such as **Italy, Spain and Belgium** facilitated the access to social tariffs by relaxing the timeframes to apply, granting automatic extensions or extending social tariffs to additional categories of consumers.
- In some countries (**Spain, Portugal**), businesses could temporarily reduce their contracted capacity or suspend their energy supply to reduce costs.



## 4 Energy suppliers

Energy companies faced a number of issues due to the COVID-19 pandemic. As many countries imposed restrictions on social and economic life (see section 2.1 above), there was a decrease in sales due to the fall in industrial activity. Customers also delayed their payments, or stopped paying at all, while being protected from losing their energy supply by disconnection bans. The costs of most utilities also rose due to additional expenditure, for instance for safety precautions and power purchase obligations. Suppliers continued to provide energy safely and reliably. NRAs did not report any bankruptcies of energy suppliers during the pandemic period in 2020 and until mid-2021. However, the sharp increase in market prices since the summer of 2021 has been of greater concern.

### 4.1 Effects on energy suppliers

Overall, NRAs did not report any significant problems for suppliers due to unpaid energy bills. **Austria, Sweden and Lithuania** only noted limited effects of the pandemic in this regard. In Belgium, however, it appears that for the Brussels region, the crisis had significant impacts on energy suppliers who were faced with the combined drop in volume and prices and, at the same time, had to accept the risk of non-payment in the non-household consumers segment due to more flexible repayment procedures. For the Flanders region, the sudden drop in energy prices, reduced consumption in general, and the possibility for residential and small business consumers to change suppliers easily forced utilities to sell their hedged positions at a loss. The utilities also faced a steady (though now levelling off) increase in bad debt with their customers. The Flemish regulator, VREG, now fears that energy suppliers may go bankrupt or face liquidity problems.

### 4.2 Measures taken to support energy suppliers

Most governments introduced state subsidies or grants for businesses which energy suppliers could also access in some cases. The following chart shows an overview of the measures reported by NRAs.

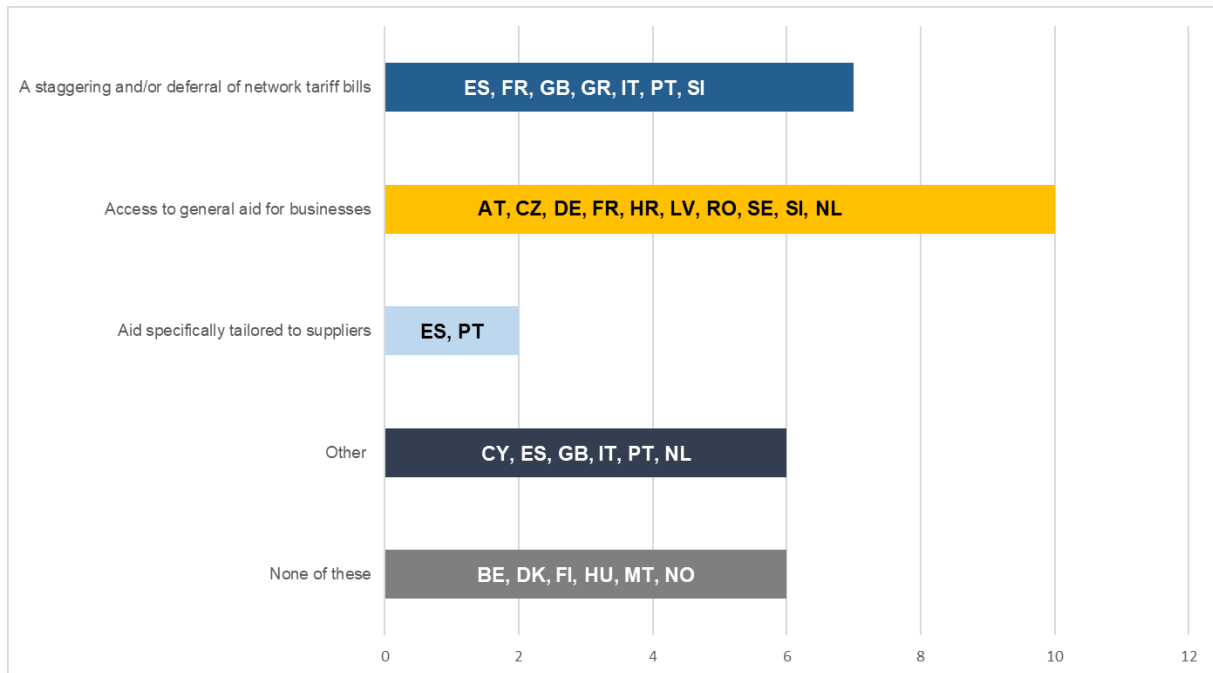


Figure 4: Measures to support suppliers reported by NRAs

#### 4.2.1 Staggering and/or deferral of network tariff bills

**France, Greece, Portugal and Slovenia** introduced measures of staggering and/or deferral of network tariff bills.

- In a ruling on 26 March 2020, **France's** CRE asked network operators to grant a staggering or deferral of network tariff bills to those suppliers which had granted a staggering or deferral of energy bills to their customers.
- In **Greece**, on the NRA's recommendation, the government allowed network operators to grant suppliers the deferral of 30% of the network tariff, RES and PSO levies payment. According to Legislative Act 13.04.2020/2020 (Gazette A' 84/13.04.2020), the suppliers could repay the remaining 30% in four equal monthly instalments without any additional burden/interest. The electricity and gas suppliers were able to use this provision between 13 April 2020 and 31 May 2020.
- In **Spain**, suppliers were allowed to delay the payments for both network access tariffs and taxes until consumers paid their bills. Consumers could not switch retailers until the repayment of their bills in the six months after the end of the state of alarm had ended (21 December 2020). Suppliers did not have to pay indirect taxes until they received the total debt from the consumer's bill, or until after six months following the end of the state of alarm. More recently, CNMC modified the rules of the day-ahead and intraday markets of the voluntary advanced payment mechanism. According to this development, suppliers are allowed to anticipate their settlement payments partially or fully and, therefore, reduce the amount of the required guarantees to operate in the electricity wholesale market.
- In **Great Britain**, Ofgem supported network companies in putting in place a support scheme for non-investment grade (smaller and medium-sized) energy suppliers and shippers. This enabled them to defer up to three months' worth of charges relating to gas transportation, electricity distribution and electricity transmission.

#### 4.2.2 Aid for businesses (subsidies, loans, guarantees, etc.)

Many NRAs reported that their governments introduced measures to support businesses with subsidies, loans or guarantees. In general, these support schemes were not specific to the energy sector, although some energy market participants were able to access them. In most countries, generic support included compensation for businesses' lost revenue or wage subsidies, while there was also a suggestion of tax deferrals or financial support for businesses to develop their operations to endure the consequences of COVID-19.

- In **France**, suppliers had access to the government's state guarantee scheme if they met the relevant eligibility conditions. The state guarantee backed new loans granted by financial institutions to French businesses between 16 March 2020 and 31 December 2020. No repayment was required in the first year and the company was able to choose to amortise the loan over a maximum period of five years.
- **Latvia** introduced measures such as a downtime allowance and an allowance for employee salary subsidies, a three-year tax deferral for individuals and companies, and an increase in loans and guarantees for companies via the state-owned development agency.
- In **Spain**, the government established a special line of credit guarantees to reduce liquidity problems of suppliers and distributors who could use them to cover temporary bill suspensions.
- In the **Czech Republic**, the government decided to waive fines notably for the late submission of tax returns and for the late payment of several taxes. Furthermore, companies that could prove that their liquidity problems were connected to the COVID-19 pandemic were entitled to compensation with regard to their employees.
- In **Italy**, in order to help suppliers to cope with the costs related to the COVID-19 pandemic, they were given the possibility to defer some payments. As suppliers are responsible for collecting all the energy charges applied to their clients, they were allowed to postpone the payment of 30% of the electrical charges in April, May and June 2020 and make the relevant payments in October, November and December 2020.
- In **Germany**, as already mentioned above, the insolvency filing requirement was temporarily suspended until April 2021. That measure only applied to cases in which the insolvency or over-indebtedness were based on the consequences of the COVID-19 pandemic.

**Belgium, Denmark, Finland, Malta, Hungary and Norway** confirmed that no additional measures were taken to support energy suppliers.

## 5 Impacts on network operators

In the interim report, the COV WG found that the pandemic's primary impact, as regards network operators, affected their business continuity. As the lockdowns of spring 2020 put a halt to the operations across the economy in several CEER countries, network operators re-prioritised their tasks, focused on the most urgent and critical ones and delayed non-essential activities. This had repercussions on network development and smart meter rollout<sup>40</sup>.

Since the interim report, CRE concluded an evaluation on the effects of the COVID-19 pandemic on infrastructure operators in **France**, notably TSOs and DSOs. The evaluation focused on the pandemic's repercussions on operators' activities, notably during lockdown periods, on their revenues (which were mostly preserved by the regulatory framework), on their investment programmes for network development (between 5 and 20% of projects scheduled for 2020 being delayed, depending on the operator), on their net operating costs (cost overruns having been limited due to savings on other items), and on performance indicators. CRE concluded that the regulatory framework for network operators proved fit for purpose. As a consequence, only minor adjustments to quality-of-service indicators pertaining to activities that had suffered delays due to lockdown measures were necessary.

### 5.1 How the pandemic impacted network operators

#### 5.1.1 Losses in tariff revenue

Given that electricity and natural gas consumption declined substantially over the lockdown periods (see tables 1-4 and section 2.2 above), and given that in several countries, consumers were allowed to defer or stagger the payment of their energy bills, the question was whether network operators would face a fall in tariff revenue (albeit temporarily).

In **Austria, Belgium, and Germany**, the relevant NRAs reported that such losses from unpaid tariff bills had not yet materialised, at least not in significant proportions. BNetzA noted that the German regulatory framework allows a certain amount of costs related to unpaid bills to be included in the allowed revenues.

In **France**, all network operators noted a drop in tariff revenues in 2020, partly due to the fall in consumption caused by the pandemic restrictions, but mostly because of the milder weather conditions.

- Lower electricity consumption in 2020 led to a drop in tariff revenues of about 2-3% in volume for the DSOs and of 3.5% for the TSO. This reduction mainly stemmed from the industry and the tertiary sector, which are directly dependent on the economic activity that was curtailed by lockdowns. However, the level of reduction is comparable to other variations in tariff revenue linked to climatic conditions. In any case, it is fully covered by the annual tariff adjustment (given that a mechanism adjusting the balance of income and expenditures is integrated in the tariff).
- For gas, CRE also registered a decrease in TSOs' revenues: The larger of the two gas TSOs, GRTgaz, reported a drop in subscriptions from industrial consumers and CCGTs. The smaller TSO, Teréga, which operates in the South-West of France, noted a decrease of subscriptions on the main network as well as a drop in short-term capacity bookings on the Pirineos interconnection (between France and Spain). Finally, the main gas DSO

---

<sup>40</sup> CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 23 ff.

GRDF considered that the drop of revenues in 2020 was mainly due to the mild climate and that the pandemic only accounted for 16% of the drop.

ANRE, the **Romanian NRA**, noted that the non-collection of final customers' energy bills was felt in cascade by all the parties involved in the supply chain, considering that about 90% of the amounts suppliers collected from final customers represent pass-through costs to DSOs, TSOs and generators.

### 5.1.2 Delays in network development and similar works

Several countries were placed under lockdown in the first half of 2020. In other countries, people were required or encouraged, to telework. In many sectors, work on site was temporarily discontinued. As a result, the restrictions delayed many network development operations of TSOs and DSOs.

CRE reported that in **France**, network operators' network development programmes were indeed delayed by the first lockdown (March to May 2020), even though the operators did not issue any major warning about this. Electricity and natural gas TSOs and DSOs reported project delays which ranged from 5 to 20% of their respective annual investment budget. The delays led to a decrease in capital charges for 2020. However, it is expected that TSOs and DSOs will be able to catch up with the delays in the coming years. The delays had an impact on meeting predefined deadlines, some of which are subject to incentive regulation. Network operators also incurred additional costs and longer work periods associated mainly with demobilising and re-mobilising work teams and with the implementation of stricter health protection measures.

As regards **Germany**, BNetzA did not find any significant delays in network development. This was due to the fact that the German parliament passed a special law (*Planungssicherstellungsgesetz*, PlanSiG) to ensure that planning and approval procedures for important infrastructure projects continued during the COVID-19 pandemic. The law provided for alternative participation methods for permit granting processes, such as online consultations and online conferences. The rules introduced by the PlanSiG were originally limited in time until the end of March 2021 but were extended until 31 December 2022.

In **Great Britain**, in April 2020, Ofgem advised network companies that they may temporarily de-prioritise (i.e. suspend or postpone) certain lower priority works and services, in response notably to government advice on social distancing. As a result, network companies prioritised work to focus on what was most important, including power cuts, gas leaks and urgent safety issues. They continued with critical maintenance and repair work needed to maintain a safe and reliable supply of energy. They reviewed new connection projects – both gas and electricity – on a customer-by-customer and project-by-project case, prioritising critical national infrastructure.

### 5.1.3 Delays in smart-meter rollout

Some NRAs reported delays in the roll-out of smart meters because the pandemic restrictions prevented technicians from installing new meters for consumers. Such temporary delays occurred for instance in **Belgium (Flemish region), France, Great Britain and Lithuania**. However, most DSOs were able to compensate consumers for the delay, sometimes by accelerating the roll-out. CRE noted that in **France**, equipment providers also experienced shortages in electronic components and raw materials. This caused a 3-month delay for the gas smart meter roll-out, while electricity smart meters were not significantly impacted.

#### 5.1.4 Falling short of performance indicators

The **Lithuanian** NRA indicated that some network operators lagged behind on some performance indicators. In 2021, the DSO reported an increase in the time needed to connect new customers. This was attributed to ongoing changes in the metals market (as a knock-on effect of the COVID-19 pandemic), but also delays in design and contracting due to increased investment activity and numerous new customer requests to connect to the distribution system. In **France**, the effects on network operators were relatively limited. Hence, only minor adjustments to certain quality of service indicators were necessary, e.g. for on-site activities that had been delayed due to the lockdowns, such as meter reading and smart meter rollout.

#### 5.1.5 Other consequences, notably on costs

In **France**, network operators declared that they faced additional costs due to new hygiene and safety rules (additional costs for cleaning the premises, etc.), necessary upgrades to their IT systems, purchase of equipment (adapting to home office) and social measures (such as COVID-19 benefits). However, they also incurred savings, notably on representation costs (events, travel, etc.), trainings that were not carried out and purchases that fell through due to the interruption of activity. Many operators indicated that the impacts on operating costs in 2020 or 2021 will balance out overall. Similarly, in **Lithuania**, the gas TSO reported additional costs for the acquisition of security equipment and due to other organisational measures to protect employees (including continuous on-call time of the staff assigned to the system management centre).

### 5.2 Measures taken to support network operators

#### 5.2.1 Inclusion of some crisis-related costs in the tariff

In **Lithuania**, the regulatory framework was amended so that some pandemic-related costs could be taken into account in the setting of regulated electricity prices. This notably concerned the costs stemming from the bad debt arising from the deferral or staggering of payments in cases where consumers went bankrupt, interest payments of short term loans needed to ensure working capital, as well as the costs of health protection measures (e.g. the procurement of masks, the isolation and accommodation of key operational staff, etc.). The electricity TSO informed the NRA of their plans of requesting that such costs be considered when setting the regulated prices. As for the DSO, their pandemic-related costs were already included in the prices for 2021.

For the **Czech Republic**, ERU expects that all justified costs will be reflected in the price regulation regardless of the reason of their origin. In the case of **Germany**, BNetzA deems it very likely that some crisis-related costs will be included in the gas tariffs. As for electricity, there will be an assessment of the costs that occurred in 2021 as a basis for the upcoming regulatory period (2024-2028). If any pandemic-related (necessary and efficient) costs are found, they will be included in the allowed revenues.

E-Control noted that, in **Austria**, no adjustment of the cost base or the tariffs was undertaken as a result of the pandemic.



## 5.2.2 General aid for businesses and targeted aid for network operators

Network operators usually had access to the general aid governments provided to businesses (such as furlough schemes), as long as they met the eligibility conditions. In **Austria**, some operators asked for investment support. In **Lithuania**, the DSO obtained partial funding for the modernisation and the development of the distribution networks from the government's COVID-19 recovery plan. **Latvia** reported that network operators had access to aid that was generally available to all businesses, i.e. the downtime allowance and the allowance for employee salary subsidies, as well as to a 3-year tax deferral for individuals and companies and to loans and guarantees for companies via the state-owned development agency. In **France**, CRE indicated that none of the network operators (i.e. operators of transmission or distribution networks, LNG terminals, and gas storage facilities) requested funding under the government's furlough scheme (*chômage partiel*).

On the basis of the information received from NRAs, it seems there is no aid available which is specifically tailored to network operators.

## 5.2.3 Other measures

In the **Czech Republic**, given that the continuity of electricity supply indicators in 2020 was partially affected by the COVID-19 pandemic, there was a reduction and subsequently a postponement of planned works and related planned interruptions. Therefore, the DSOs were asked to quantify the impact of these changes in planning. On the basis of their input, the NRA subsequently adjusted the indicators of the continuity of electricity supply which enter into the incentive quality regulation. In **Italy**, most of the deadlines for the collection of electricity and gas information and data ARERA requested from all operators were postponed. The same happened to the deadlines of 2020 and 2021 on natural gas distribution companies for the installation of smart meters. ARERA's inspections and sanction procedures were suspended during the lockdown period. Furthermore, output-based incentive regulation on the quality of services of DSOs was temporarily modified.



## 6 Internal organisation of NRAs

Regarding NRAs' internal organisation, most Members took measures to adjust their working (21 NRAs), meeting (20 NRAs) and travel arrangements (19 NRAs). 14 NRAs also reported that the pandemic impacted their interaction with stakeholders.

### 6.1 Working arrangements

With most NRAs having introduced mandatory **teleworking** where possible in March 2020<sup>41</sup>, most respondents reported some relaxation measures on the mandatory teleworking scheme in the course of 2021. For example, the **Cypriot NRA** went back to the office full-time in June, **France** and **Spain** introduced new teleworking schemes in September. Some of CEER's Nordic Members (**Denmark, Finland, Norway and Sweden**) as well as **Belgium** continued to work from home to the extent possible throughout October 2021. The Spanish regulator **CNMC** set up a new teleworking scheme which allows non-vulnerable staff to work from office two days per week, while vulnerable employees continue to work from home. **Lithuania** was also amongst the CEER countries who reported a relaxation of teleworking rules in July 2021. However, due to a rise of COVID-19 infections, the Lithuanian NRA had to re-introduce a stricter working-from-home policy in October 2021. In **Romania**, ANRE requires managers to work in the office, whereas other staff work from office or from home, with a 50% presence requirement per department and a limitation to a maximum of three people per office. In **Portugal**, non-vulnerable staff can go to the office, but within the limit of 50% of staff per department and of two people per office.

To enable efficient teleworking, NRAs also had to improve their **IT equipment**. At CRE, the **French** regulator, all staff were already equipped with individual laptops before the pandemic, while at BNetzA, the **German** regulator, staff received new IT equipment during the pandemic. The equipment is likely to be of long-term use for NRA staff (e.g. when part-time teleworking or in external meetings or missions abroad). When analysing the telework and productivity of managers and workers in the Energy Regulators Regional Association (ERRA) network, the OECD found that, on average, productivity had not suffered. Most workers and managers considered the increase in teleworking because of the pandemic to be positive and expected that it would be more prevalent than before<sup>42</sup>. To maximise the benefits and minimise the drawbacks of teleworking, regulators would have to implement organisational changes such as investing in ICT equipment and training their workers on ICT. In addition, other helpful measures could be implemented such as training workers and managers on how to better cope with the new hybrid or virtual working environment<sup>43</sup>.

---

<sup>41</sup> Cf. CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 31.

<sup>42</sup> Cf. Criscuolo, C., Gal, P., Leidecker, T., Losma, F., and Nicoletti, G., "The role of telework for productivity during and post-COVID-19: Results from an OECD survey among managers and workers", 2021, *OECD Productivity Working Papers*, No. 31, OECD Publishing, Paris..

<sup>43</sup> Cf. Criscuolo et. al. (2021).

Other NRAs, such as in **Belgium** and **Croatia**, reported that they relaxed their teleworking rules gradually and introduced “**contact bubbles**”. For these contact bubbles, the employees were divided into teams which worked in the office in alternating rhythms, e.g. every week or on specific days of the week. In case one contact bubble was exposed to a COVID-19 case, members were isolated and asked to work from home for a quarantine period. This allowed for a better management of suspected COVID-19 cases, but also enabled easier enforcement of physical distancing and maximum capacity rules. Both the **Croatian** and the **Spanish** NRAs installed physical barriers in the form of plexiglass shields between desks in the office, and face masks continue to be mandatory in common areas.

## 6.2 Meeting arrangements

Most NRAs reported that they still recommend virtual meetings with both internal and external stakeholders as of October 2021. When it comes to the lifting of restrictions on meeting arrangements, the **Lithuanian** NRA reported that they allowed physical meetings (though subject to appropriate safety requirements) only from 1 July 2021, more than one year after the declaration of the global pandemic in March 2020. Lithuania is not an individual case in this situation, demonstrating regulators’ wariness in returning to pre-pandemic working arrangements too soon. When in-person meetings were re-introduced, most NRAs would simultaneously introduce rules, such as limits to the number of participants, social distancing and a mask mandate to guarantee the wellbeing of their employees.

The **French** regulator CRE noted a positive side effect of the introduction of holding meetings and CRE’s Board sessions virtually: they became accessible for all staff. More employees were able to follow the broadcast and the discussions of CRE’s Board, which was not possible in physical meetings. This allowed the employees to keep informed about issues and topics of other departments, and offered them a better insight into the Board’s decision-making.

Many organisations, including the energy regulators, recognised the importance of hybrid meetings and their place in the post-pandemic work culture. In this regard, the NRA of **Greece**, RAE, took advantage of the pandemic and the prohibition of hosting physical meetings to re-arrange all its conference rooms and to install special IT equipment, to allow also for future hybrid meetings. Furthermore, the Greek government (gov.gr) developed a special platform with high security standards for hybrid meetings. The platform formally authorises all virtual participants and confirms their identity as well as their work status with any Greek government organisation, including RAE.

## 6.3 Interactions with stakeholders

More than 60% of respondents (14 NRAs) confirmed that their organisation adapted their interactions with stakeholders to the pandemic. In most cases, no third parties were allowed on the office premises and thus virtual meetings were introduced. In **Cyprus**, for example, the restrictions on interactions with stakeholders were still in place in October 2021. A side effect of digitalising the working environment and interactions with stakeholders is that the use of electronic documents was accelerated (**Latvia, Romania**). Furthermore, whenever possible, interactions with consumers were moved online. On occasions when personal interactions were still possible or necessary, NRAs were careful to apply social distancing rules and install safety measures (**Malta**).

## 6.4 Travel arrangements

The general travel restrictions imposed by CEER countries were illustrated above in section 2.1.2. Hence, 19 NRAs restricted business trips in line with government rules prohibiting travels to certain countries with a higher COVID-19 case number. For regulatory authority staff in **Cyprus, Finland and Malta**, the measures prohibiting travel still applied in October 2021. The NRAs who have already lifted their travel restrictions can be divided into two groups: 1) those who previously did not allow any domestic and international travel for business meetings, and 2) those who allowed travelling for imperative reasons only and reduced their business travels to a minimum. For instance, NRAs in **Belgium, Italy, Lithuania and Sweden** did not allow any business trips during the height of the pandemic, falling into category 1. The staff of the **Croatian, French, Norwegian, Romanian and Spanish** NRA, on the other hand, were allowed to travel for indispensable meetings but significantly reduced their business travel to a minimum considering the global pandemic (category 2).

It remains to be seen whether the pandemic has had a permanent influence on travel arrangements for NRA staff. While some NRAs are considering structural changes to their mission policy, taking advantage of the lessons learned during COVID-19 and considering that teleworking can contribute to reduce CO<sub>2</sub> emissions<sup>44</sup>, the pandemic has also shown the limits of virtual cooperation, such as the lack of personal and informal interaction. Therefore, a gradual return to a certain level of pre-pandemic travel arrangements can be expected.

## 6.5 Other measures

Three NRAs also introduced other arrangements to continue their operations during the height of the pandemic, guaranteeing the safety and wellbeing of their employees. For example, the NRAs in **Germany, Greece, Portugal and Spain** provided masks for their employees and offered COVID-19 tests free of charge. Furthermore, the **French** and **Portuguese** NRAs mentioned that their organisations remain attentive to their employees' motivation and psychological wellbeing. While teleworking from home has many advantages, it also has its downsides, depending on the family situation, the availability of space, etc. The OECD adds other potential downsides to teleworking, such as lack of social interaction or no separation between work and private life<sup>45</sup>. Limited interactions with colleagues can be difficult, particularly for those who are newly recruited during the pandemic and have no experience of a pre-pandemic work environment.

---

<sup>44</sup> See the IEA's graph on the average change in energy demand and CO<sub>2</sub> emissions from one day of teleworking, as opposed to a car commute: <https://www.iea.org/data-and-statistics/charts/average-change-in-energy-demand-and-co2-emissions-from-one-day-of-home-working-for-a-single-household-with-a-car-commute>.

<sup>45</sup> Cf. Criscuolo et. al. (2021).

## 7 Conclusions

A lot has changed since the declaration of the global pandemic in March 2020. When COVID-19 reached Europe, an unprecedented number of people were put under lockdown<sup>46</sup>. Economic activity slowed down. International travel came to a standstill. Electricity and natural gas consumption in CEER countries plummeted. And prices reached historical lows. Over the summer of 2021, restrictions were alleviated or were phased out completely. At the time of writing, this trend was reversing again in some CEER countries, where a new rise in infection rates has prompted authorities to reintroduce restrictions. However, in the meantime, a large share of the population was vaccinated, and digital certificates enabled business life and travel to resume, at least to some degree. During 2021, economies were recovering. And in contrast to the situation in the first half of 2020, prices for commodities and for electricity increased sharply.

In the field of energy, the current price surge is the most pressing concern for European policy makers and regulators. While it is also an indirect consequence of the depression of economies in 2020, the price surge could easily eclipse the COVID-19 pandemic. Indeed, some of the pandemic's effects and countermeasures taken by public authorities will undoubtedly fade away. However, others may have a long-lasting impact on the energy sector. This chapter will summarise some of the conclusions that NRAs drew after one and a half years of the COVID-19 pandemic.

### 7.1 The resilience of the energy sector

Despite the fall in energy consumption and prices and the impact of lockdowns on operations of various sectors, NRAs concluded that the energy system in CEER countries proved its resilience<sup>47</sup>. Energy supply was upheld, network operators maintained essential operations while enacting business continuity plans and re-prioritising their tasks, and consumers affected by revenue loss or even at risk of energy poverty were shielded from disconnection. In **Spain**, for example, CNMC concluded that the electricity and gas systems provided an excellent quality of service and that consumers did not suffer interruptions or shortages in their energy supply. In **France** and **Ireland**, the operation schedule of certain critical power plants was modified to ensure their availability during the crucial winter period.

Several NRAs were satisfied with the regulatory framework of network operators. When the pandemic hit, it was beneficial that the remuneration scheme of network activities did not depend on demand. In **France**, CRE reported that network operators were reasonably shielded from the crisis and were able to keep the energy system operating without significant delay in their network development, maintenance and smart-meter roll-out activities.

For suppliers whose activity is subject to market risk, the deferral of network bill payments proved to be effective, especially because suppliers bore some of the burden of the measures to support consumers. Various NRAs (**Austria, Belgium, Czech Republic, Cyprus, France, Germany, Italy, Lithuania, the Netherlands, Norway, Spain**) noted that they had no information on supplier bankruptcies that could be directly attributed to the pandemic.

---

<sup>46</sup> According to the IEA, at the end of April 2020, more than half of the world population was under some form of lockdown (IEA, Global Energy Review 2020, p. 5). See also CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 8.

<sup>47</sup> CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 29. On the resilience of supply chains for the energy sector, and on the challenges faced by specific chains, see the European Commission's study, p. 57 ff.

However, while there were no reports of supplier bankruptcies in direct connection with the pandemic, the pandemic may still have constituted a “first blow”. The bankruptcy risk is much greater now in the context of the price surge.

## 7.2 Protecting consumers

While consumers may have benefited from falling energy prices in 2020, they were at risk of income losses, job losses and even increased energy poverty due to the pandemic restrictions that affected economic and social life.

In several CEER countries, governments, NRAs and sometimes the private sector took measures to support consumers. These ranged from protecting their access to energy supply by temporarily prohibiting disconnections, by addressing liquidity issues through the deferral or adjustment of energy bill payments or changes to contracts and prices, or by facilitating or extending access to financial support for households and businesses.

All respondents identified the measures to protect consumers, in particular the disconnection bans, as a key step to mitigate the impacts of the COVID-19 crisis.

Again, the context is different now. Economic recovery may have eased the impact on jobs, but consumers are facing an increase in electricity and natural gas prices. And moratoria could cause more supplier exits if they were to be imposed now as a means to support consumers.

## 7.3 The role of NRAs

NRAs played a key role in managing the impact of the COVID-19 pandemic on the energy system. Across CEER countries, they took measures to support consumers and suppliers and/or complemented or carried out governmental measures to that effect.

The specific competences of the regulator, notably in relation to government authorities, vary from one country to another, which explains differences in the measures reported by NRAs. Nevertheless, some common strands emerge.

In the face of an unprecedented crisis, it was crucial to gather information on what was happening in the energy sector. **NRAs stepped up their monitoring efforts** regarding network operators and energy suppliers by requesting additional information on their situation or by making more frequent requests. **Regulators also coordinated or participated in the close exchange of information** with national governments, network operators and other energy sector stakeholders. **Many regulators provided information and assistance specifically to consumers.** BNetzA for instance created a dedicated website for questions and complaints from consumers.

**Some NRAs took steps to lower the financial burden on consumers and suppliers.** CERA applied reduction to regulated electricity tariffs and network charge components. VERT introduced reductions to electricity price caps and natural gas tariffs. CREG contributed to the Belgian government's decision to extend the eligibility of social tariffs, and ARERA facilitated the access to social tariffs in Italy. ARERA also put in place a moratorium on disconnections for households and small-sized enterprises. NVE-RME allowed DSOs to temporarily lower their network tariffs if necessary. CRE called on network operators to replicate payment deferrals to suppliers who were granting payment deferrals to their clients.



Lastly, **regulators adapted their enforcement practice as well as procedural requirements** to cater for pandemic-related delays. For instance, BNetzA announced deadline extensions for renewable energy projects which may otherwise have faced penalties. ARERA postponed deadlines with respect to information requests and smart meter installation. A detailed list of the measures taken by a selection of NRAs can be found in Annex 3.

#### 7.4 Telework, digitalisation and remote operations

Several NRAs indicated that the pandemic has enhanced remote operations and accelerated the digitalisation of the energy sector. The main activities of energy regulating authorities, such as supervising energy markets, regulating markets and handling complaints, were fully digitalised and did not require a traditional office environment. Moreover, the “new normal” of working also brought some other advantages, such as improving workers’ efficiency and productivity, enhancing flexibility and allowing for cost reductions, e.g. for office rent or transport costs (as highlighted by **CNMC** and also confirmed by the OECD and IEA<sup>48</sup>). The **Belgian** regulator highlighted that, even though teleworking already existed before March 2020, the scheme is now more widely accepted. CNMC and CRE, the **Spanish and French** regulatory authorities, echoed this experience, emphasising that the levels of productivity and staff engagement were widely maintained during strict teleworking periods. Therefore, in the long run, most NRAs expect that their authorities will introduce a hybrid system combining in-person presence in the office with a teleworking scheme. According to the OECD, this is also the option most widely accepted by their staff, particularly by female staff<sup>49</sup>. Similarly, the introduction of virtual meetings had little to no negative impact on the working environment and morale of staff. Nevertheless, a potential downside of increased remote operations is the issue of cybersecurity. Hence, it is crucial to consider cybersecurity aspects which have to evolve in parallel to a digitalised energy sector<sup>50</sup>.

It was not only the working reality of NRAs that changed as new digital tools and processes were adopted throughout the energy sector. In fact, digitalisation of processes and services as well as consumer acceptance of digital solutions progressed in various countries (e.g. in **Croatia, Greece, Luxembourg, North Macedonia, and Romania**). **Latvia** noted that an electronic self-service environment was essential in ensuring business continuity and reducing physical contact (e.g. for the approval of construction designs or the application for system connection upgrades). Moreover, the continued development of smart grids and smart meters will further enable remote operations, e.g. for connections and disconnections. In this regard, NRAs take an important role in enabling the digitalisation of approval and planning procedures in the energy sector.

#### 7.5 Ensuring good and swift information flows between all stakeholders

In its interim report, the COV WG noted that “adequate coordination and swift exchange of information between the government, the NRA, and industry, as well as with stakeholders in neighbouring countries, have been crucial in addressing the impact of the pandemic on both

<sup>48</sup> Cf. Criscuolo et. al. (2021).; IEA website: <https://www.iea.org/data-and-statistics/charts/average-change-in-energy-demand-and-co2-emissions-from-one-day-of-home-working-for-a-single-household-with-a-car-commute>

<sup>49</sup> Cf. Criscuolo et. al. (2021).

<sup>50</sup> Cf. Criscuolo et. al. (2021). For CEER’s positions on this topic see also CEER Consultation on Dynamic Regulation to Enable Digitalisation of the Energy System (2019), CEER Paper on Cybersecurity in the Clean Energy for All Europeans Package (2020) and CEER’s response to the EC Action Plan on the Digitalisation of the Energy Sector (2022).

electricity and gas sectors”<sup>51</sup>. At the time, several NRAs (notably from **Belgium, Finland, and Italy**) flagged good experiences with centralised task forces designed to monitor developments in the energy sector and to coordinate the crisis response. In Finland, for instance, the task force helped identify and solve a problem with border restrictions to the entry of technical personnel who carried out work on energy sector installations. This point was reiterated by NRAs (e.g. **Germany and Malta**) as regards the inclusion of energy industry as key infrastructure stakeholders in local crisis management groups. Relevant stakeholders include national authorities (ministries and NRAs), TSOs, DSOs, industry, and international bodies such as the EU institutions. However, effective communication between stakeholders also requires knowledge flows between staff within regulators, which is key for the efficiency and productivity of the system<sup>52</sup>. Moreover, given that the COVID-19 pandemic was first and foremost a public health crisis, BNetzA considered it crucial for public acceptance of pandemic restrictions to have a central point of scientific expertise on disease surveillance and prevention, such as the Robert-Koch-Institut in **Germany**.

## 7.6 Flexibility and adaptability

Lockdowns and generalised teleworking have changed the way regulators and businesses have interacted during the crisis. Many processes were delayed, and personal contact and physical meetings were greatly reduced. Thus, while NRAs' focus remained on guaranteeing a stable regulation and certainty for consumers and industry alike, they had to adapt some deadlines or obligations and be quick and pragmatic in their reactions<sup>53</sup>. BNetzA gave the example of postponing and extending deadlines where necessary while preserving legal certainty for all actors. In **Great Britain**, Ofgem also took an adaptive approach to regulation in a way that did not involve changing any rules, notably by regularly gathering data from suppliers on how the crisis unfolded and by issuing advice to energy companies on what measures they could take to address it.

---

<sup>51</sup> Cf. CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 29.

<sup>52</sup> Cf. Criscuolo et. al. (2021).

<sup>53</sup> Cf. CEER First Analysis of the COVID-19 Pandemic's Effects on the Energy Sector, p. 30.



## Annex 1 – List of abbreviations

Term	Definition
ACER	EU Agency for the Cooperation of Energy Regulators
CEER	Council of European Energy Regulators
COV WG	CEER COVID-19 Working Group
CWE	Central Western European (region)
DSO	Distribution System Operator
EAC	Electricity Authority of Cyprus
EC	European Commission
EDF	Électricité de France
EEX	European Energy Exchange
ERRA	Energy Regulators Regional Association
EU	European Union
GDP	Gross Domestic Product
HR	Human Resources
IEA	International Energy Agency
LNG	Liquefied Natural Gas
MWh	Megawatt per hour
NER	Network of Economic Regulators
NRAs	National Regulatory Authorities
OECD	Organization for Economic Cooperation and Development
RES	Renewable Energy Sources
SEM	Irish Single Electricity Market
SMEs	Small and medium-sized enterprises
TSO	Transmission System Operator
WHO	World Health Organisation

## Annex 2 – List of the 24 respondents

Country	NRA
Austria (AT)	E-Control
Belgium (BE)	CREG
Croatia (HR)	HERA
Cyprus (CY)	CERA
The Czech Republic (CZ)	ERÚ
Denmark (DK)	DUR
Finland (FI)	EV
France (FR)	CRE
Germany (DE)	BNetzA
Great Britain (GB) / United Kingdom (UK)	Ofgem
Greece (GR)	RAE
Hungary (HU)	MEKH
Italy (IT)	ARERA
Lithuania (LT)	VERT
Latvia (LV)	PUC
Malta (MT)	REWS
The Netherlands (NL)	ACM
Norway (NO)	NVE-RME
Portugal (PT)	ERSE
Romania (RO)	ANRE
Slovakia (SK)	URSO
Slovenia (SI)	AGEN
Spain (ES)	CNMC
Sweden (SE)	Ei

### Annex 3 – Selected NRAs listing main measures taken throughout the pandemic

Austria	For market participants in general, the regulatory authority did not take any direct measures. However, as usual, E-Control continued to inform end users about the current situation and about their possibilities to be active under the specific circumstances.
Belgium	<ul style="list-style-type: none"> <li>- Increased monitoring of the situation with regional regulators and TSOs.</li> <li>- Extension of the social tariff to additional categories of consumers (doubling the number of beneficiaries): the measure was decided by the government. As a regulator, CREG participated in its implementation, advised the government and participated in its monitoring.</li> </ul>
Cyprus	<p>With Regulatory Decision No. 104/2020, after assessing that a reduction in regulated electricity tariffs would not affect competition in the electricity market and would not lead to the exploitation of a dominant position in the electricity market, CERA decided on a 10% reduction on all regulated electricity tariffs and fuel clause rates to be applied to bi-monthly electricity bills from 1 April 2020 and to monthly electricity bills from the end of March 2020. Due to the pandemic situation, the decision was extended until the end of July 2020 (R.D. 141/2020) and continued until the end of September 2020 with another two-month period extension following the R.D. 222/2020.</p> <p>A 65% discount on the regulated network charges component of the electricity retail price was approved following the Regulatory Decision No. 294/2021 of CERA. The reduction was implemented for a total period of four months (November 2021-February 2022).</p> <p>CERA also issued an early warning to the European Commission to inform and provide all relevant information on the possibility of an electricity crisis in Cyprus from 1 June 2020 to 15 September 2020, as well as on crisis prevention measures. For that specific period, the EAC, the vertically integrated electricity generation and supply entity, ensured that the conventional production units which were in working condition were connected to the system and technically available for the TSO whenever required. Throughout that period, the TSO implemented the emergency action plan of the summer 2020 period to ensure the adequacy of the electricity generation and transmission system. At that stage, the assistance of other MS was not required.</p>

France	<p>On 26 March 2020, CRE <a href="#">called</a> on network operators to allow energy suppliers to defer or stagger the payment of their network bills if the suppliers in question granted their own customers the staggering or deferral of their energy bill payments (something which was mandated by governmental measures). This was to allow for burden-sharing between energy suppliers and network operators. In the same ruling, CRE also made changes to the French mechanism on regulated access to EDF's nuclear generation capacity (<i>accès régulé à l'électricité nucléaire historique</i> - ARENH). Under the ARENH mechanism, energy suppliers can procure volumes of EDF's nuclear power production at a regulated price. CRE's March 2020 ruling cancelled a penalty that energy suppliers may otherwise have had to pay, and energy suppliers were granted the possibility to stagger or defer their payments to procure electricity under the ARENH mechanism.</p> <p>In March 2021, CRE <a href="#">concluded</a> an evaluation of the effects of the COVID-19 pandemic on infrastructure operators, notably TSOs and DSOs. The evaluation focused on the pandemic's repercussions on operators' activities, notably during lockdown periods, on their revenues (which were mostly preserved by the regulatory framework), on their investment programmes for network development (between 5 and 20% of projects scheduled for 2020 having been delayed, depending on the operator concerned), on their net operating costs (cost overruns having been limited due to savings on other items), and on performance indicators. CRE concluded that the regulatory framework for network operators proved fit for purpose. As a consequence, only minor adjustments to quality of service indicators pertaining to activities that had suffered delays due to lockdown measures were necessary.</p>
Germany	<p>Consumers: BNetzA created a web portal for consumers enquiries and complaints. The consumer service of BNetzA answered questions related to the COVID-19 crisis, informed consumers about their rights and showed general solutions.</p> <p>Suppliers: Inclusion of some crisis-related costs in the tariff.</p> <p>Gas: The inclusion of crisis-related costs in the tariff has not been a major point of discussion in the ongoing cost assessment between BNetzA and TSOs/DSOs. It is very likely that some crisis-related costs will be included in the tariffs. So far, these crisis-related costs are not so high as to require that specific measures be taken.</p> <p>Electricity: There will be a cost assessment of the costs that occurred in 2021 as a basis for the upcoming regulatory period (2024-2028). If any pandemic-related (necessary and efficient) costs are observed, they will be included in the allowed revenues to ensure remuneration.</p> <p>Well-structured flow of information was observed between industry and the competent public authorities (Federal Ministry of Economic Affairs and Energy (BMWi) and Federal Network Agency (BNetzA)) as well as exchanges within the energy industry.</p>

	<p>The German Renewable Energy Act (<i>Erneuerbare-Energien-Gesetz 2017</i> - "EEG") contains strict deadlines for renewable energy plants and penalties for plant operators under the applicable tariff regime. The COVID-19 pandemic increasingly jeopardised the realisation of renewables projects in Germany, so that many plant operators were faced with the risk of delays in the realisation of their projects and potential penalty payment obligations as a consequence. BNetzA reacted and announced that it will be easing its enforcement practice, in particular by extending realisation deadlines and avoiding penalties.</p> <p>Activity of BNetzA: BNetzA published a new enforcement practice on its website which reacted to COVID-19-related delays in the realisation of renewable energy projects. This new practice concerned tender procedures that have either already been carried out or were currently ongoing, and any upcoming tenders. Moreover, these measures also affected plant operators that were already awarded as well as potential new bidders.</p>
Italy	<ul style="list-style-type: none"> <li>- In order to help suppliers to cope with the costs due to the COVID-19 emergency, ARERA allowed them to defer some payments. In particular, they could postpone from April-June 2020 to October-December 2020 the payment of 30% of the electrical charges applied to their clients (in Italy suppliers are responsible for collecting all the energy charges applied to their clients).</li> <li>- ARERA postponed most of the deadlines for the collection of electricity and gas information and data requests as well as the deadlines of 2020 and 2021 on natural gas distribution companies for the installation of smart meters. Inspections and sanction procedures carried out by ARERA were suspended during the lockdown period. Furthermore, incentive output-based regulation on the quality of services of DSOs was temporarily modified.</li> <li>- Between April and May 2020, ARERA postponed all procedures for the disconnection of households and small-sized enterprises from their electricity, gas and water supply due to payment arrears.</li> <li>- ARERA facilitated the access to social tariffs by relaxing timescales to apply or granting automatic extensions.</li> </ul>
Lithuania	<p><b>Measures to protect consumers: Interventions on prices and taxes (caps, freezes, etc.):</b></p> <p>VERT, in response to changes in the wholesale energy market, the projected lower electricity market price and the rising public service obligations' (PSO) price, set lower public electricity price caps for household customers for the second half of 2020. The public price cap applies only to household customers who are a natural person purchasing electricity for their personal, family or household needs unrelated to any business or profession (e. g. detached houses, buildings on the premises of these houses, apartments or apartments of dormitory type, holiday homes, garden plots, garages for private cars, etc.).</p>

For the second half of 2020, VERT set a lower variable part of the natural gas tariff for household consumers. On average, they paid 15-23 % less per cubic meter for the mentioned period. The fixed part of the tariff (paid monthly, irrespective of gas consumption) did not change. The variable part of the natural gas tariff was decreased for the following main reasons: 1) forecasted 33% lower natural gas import (product) prices: in the second half of 2020, the price included in the tariffs is 11.49 EUR/MWh (in the first half of 2020: 17.17 EUR/MWh); and 2) an amount of EUR 0.72 million was returned to the consumers (due to the higher natural gas import (product) price included in the first half of 2019 for household consumers than the company actually paid for the imported natural gas).

In Lithuania, the growth of electricity prices became more exposed at the end of 2020 and in the beginning of 2021, when the import price rose from 46 EUR/MWh to 54 EUR/MWh. At the beginning of May, the wholesale electricity price reached 50 EUR/MWh, and 78 EUR/MWh in June. VERT presumes this rise had the biggest impact on large energy consumers, such as shopping centres, factories, etc. The impact on household consumers was mitigated by the fact that their prices are set for half a year, which slightly balances the electricity price included in the tariff. It should be noted that some electricity supply companies that have fixed-price contracts with consumers suffered losses because the fixed selling price is lower than the electricity price.

The impact on gas household consumers whose prices are regulated were mitigated by the fact that their prices are set by the regulator for half a year, which slightly balances the wholesale price increase. On the other hand, regulated households already experienced this price increase as for regulated gas consumers in Lithuania the price from 1 July 2021 increased from 26 to 50% (depending on the consumer group). For electricity, the price increased on average by 8%.

In response to avoid a sharp price increase for regulated household consumers, especially for natural gas, the effect of the increase in wholesale prices was spread over an extensive period of time when setting the regulated prices. Amendments to the laws approved in November 2021, which provide for the “freezing” of the growth of electricity and gas prices (spread the increase for electricity until 2027, the increase for gas over 5 years). It established that electricity prices may not grow by more than 21%, gas stoves not more than 20% and gas heating not more than 30%. As from the first half of 2022, VERT will set prices that may not exceed these limits (without such changes in the law, the price of gas used for stoves would increase by 51%, and gas heating by 83%).

**Measures regarding companies: Inclusion of some crisis related costs in the tariff:**

The amendments of VERT regulation foresee that the costs stemming from bad debt that could arise due to payment deferrals/payments in instalments in the case of consumer bankruptcy; interest costs of companies' short term loans needed to ensure working capital; and the costs of protection measures taken by the companies (e.g. masks,

	<p>isolation and accommodation of key operational staff, etc.) could be taken into account when fixing and approving the regulated prices.</p> <p>The electricity TSO and DSO indicated that they used and/or will use the foreseen measures to include crisis related costs in the tariff.</p>
Latvia	<p>With regard to customers and/or utilities, PUC ensures the regulatory process remotely, including consultations with stakeholders, reaching out to consumers and utilities on specific “regional days” in Latvia, working intensively on various issues with NRAs and TSOs within the Baltic region, etc.</p>
Netherlands	<p>ACM maintains oversight of the financial position of suppliers. To this end, ACM sends an annual information request to all licensed suppliers to send their liquidity forecast for the coming 12 months. Because of the pandemic, ACM expanded the request with additional questions about how the pandemic affected their financial position and forecast. With this information, ACM could monitor suppliers more closely for signs of financial distress as a result of the pandemic. Furthermore, no specific external measures have been taken.</p>
Norway	<p>NVE–RME arranged regular, virtual, meetings with the DSOs and the power exchange to closely monitor the situation. The DSOs and the power exchange were also asked to regularly report the economic situation.</p> <p>NVE-RME gave a general dispensation from the tariff regulation in order for the DSOs to temporarily lower the tariffs if necessary.</p>



## **Annex 4 – About CEER**

The Council of European Energy Regulators (CEER) is the voice of Europe's national energy regulators. CEER's members and observers comprise 39 national energy regulatory authorities (NRAs) from across Europe.

CEER is legally established as a not-for-profit association under Belgian law, with a small Secretariat based in Brussels to assist the organisation.

CEER supports its NRA members/observers in their responsibilities, sharing experience and developing regulatory capacity and best practices. It does so by facilitating expert working group meetings, hosting workshops and events, supporting the development and publication of regulatory papers, and through an in-house Training Academy. Through CEER, European NRAs cooperate and develop common position papers, advice and forward-thinking recommendations to improve the electricity and gas markets for the benefit of consumers and businesses.

In terms of policy, CEER actively promotes an investment friendly, harmonised regulatory environment and the consistent application of existing EU legislation. A key objective of CEER is to facilitate the creation of a single, competitive, efficient and sustainable Internal Energy Market in Europe that works in the consumer interest.

Specifically, CEER deals with a range of energy regulatory issues including wholesale and retail markets; consumer issues; distribution networks; smart grids; flexibility; sustainability; and international cooperation.

CEER wishes to thank in particular the following regulatory experts for their work in preparing this report: Frank Heseler, Christina Riegler and Slobodan Vidović.

More information is available at [www.ceer.eu](http://www.ceer.eu).