



# **Risk-preparedness Plan for the Portuguese Electricity Sector**

*pursuant to article 10 of Regulation (EU) 2019/941*

**Portugal, January 2022**

**(Public version)**



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## INTRODUCTION

Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector, hereinafter referred to as the Regulation, lays down rules to prevent, prepare for and manage electricity crises.

As determined by Articles 6 and 7 of the Regulation, the European Network of Transmission System Operators for Electricity (ENTSO-E) and the Member States identified regional and national electricity crisis scenarios, respectively. Accordingly, the Portuguese competent authority, Direção-Geral de Energia e Geologia<sup>1</sup> (DGEG), submitted the national crisis scenarios to the European Commission (EC) and to the Electricity Coordination Group (ECG) on 3 February 2021. For the identification of those scenarios, DGEG worked in close cooperation with the Portuguese Transmission System Operator (TSO), having also consulted the Distribution System Operator (DSO), the National Regulatory Authority (NRA) and relevant electricity producers (Significant Grid Users - SGU).

Based on the referred regional and national crisis scenarios, and according to Article 10 (1) of the Regulation, after consulting the TSO, DSO, SGU and NRA, DGEG established a Risk-Preparedness Plan (RPP), from which a draft was presented in due time to the EC, the ECG and the Spanish competent authority. After the draft Plan submission, a second round of consultation included, also, the National Cybersecurity Centre and the National Authority for Emergency and Civil Protection. The present document, which includes contributions from the mentioned consultations, is the final version of the RPP.

The RPP was developed in accordance with Articles 10, 11 and 12 of the Regulation and with the template set out in its Annex. It includes, among other relevant information, the national and regional measures that are planned to prevent, prepare for and mitigate electricity crises.

## GENERAL INFORMATION

As notified to the EC and the ECG on 19 November 2019, the competent authority responsible for carrying out the tasks provided for in the Regulation and, in particular, for the preparation of the Portuguese RPP, is Direção-Geral de Energia e Geologia (DGEG).

In accordance with Article 22 of the Regulation, for the purpose of this RPP, region means the Iberian Peninsula, including, therefore, Portugal and Spain. There are agreements between the Portuguese TSO, Rede Eléctrica Nacional (REN), and the Spanish TSO, Red Eléctrica de España (REE), in order to provide mutual support in case of adequacy issues.

In future exercises, after the establishment of the Regional Coordination Centres, the region to consider for the purpose of the RPP will be the Central Europe System Operation Region, established in accordance with Decision No. 10/2020, of the European Union Agency for the Cooperation of Energy Regulators (ACER), of 6 April.

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<sup>1</sup> Directorate-General for Energy and Geology



## 1. SUMMARY OF THE ELECTRICITY CRISIS SCENARIOS

As defined in Article 2 of the Regulation, electricity crisis means “a present or imminent situation in which there is a significant electricity shortage, as determined by the Member States and described in their risk-preparedness plans, or in which it is impossible to supply electricity to customers”.

The RPP “sets out what Member States should do to prevent such crises and what measures they can take should system operation rules alone no longer suffice”, meaning, in particular, that an electricity crisis is a situation in which the electricity system operators do not have the capability and/or means to prevent significant electricity shortage, i.e., the system is no longer capable of meeting the requirement for manual active reserve and there are not sufficient available market-based bids in the neighbouring systems.

According to Articles 6 and 7 of the Regulation, ENTSO-E and the Member States identified regional and national electricity crisis scenarios, respectively. For the identification of the national scenarios, DGEG worked in close cooperation with the Portuguese TSO, having also consulted the DSO, the NRA and relevant electricity producers (SGU).

In fact, according to Article 7(3) of the Regulation, the national electricity crisis scenarios shall be consistent with the regional electricity crisis scenarios identified in accordance with Article 6. Table 1 establishes the correspondence between the Portuguese National Electricity Crisis Scenarios and the (relevant) Regional Electricity Crisis Scenarios as identified by ENTSO-E.

**Table 1 - Correspondence between National and (relevant) Regional Electricity Crisis Scenarios**

National Electricity Crisis Scenarios	Regional Electricity Crisis Scenarios
1. Failure of LNG Terminal	13. Fossil fuel shortage (Fuel supply system failure for technical reasons)
2. Prolonged international failure of gas supply	13. Fossil fuel shortage (Supply limitation due to trade-related or political reasons, weather conditions etc.)
3. Severe wind storm, with strong impact in the littoral area	9. Storm
4. Serious forest fires in the Northern and Central regions	31. Forest fire
5. Cyber attack	1. Cyberattack
6. Earthquake affecting the west coast	30. Earthquake
7. Pandemic	27. Pandemic
8. Physical attack against critical assets	3. Physical attack – critical assets
9. Physical attack against control centres	4. Physical attack – control centres
10. Heavy precipitation and flooding	11. Precipitation and flooding
11. Heat wave and Extreme Drought (long periods)	28. Heatwave  29. Dry period

12. Prolonged disruption of critical supply chains (other than gas)	13. Fossil fuel shortage (Supply limitation due to trade-related or political reasons, weather conditions etc.) 23: Strike, riots, industrial action
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More information on each national crisis scenario, namely about geographical impact, correspondence with ENTSO-E's regional scenarios, risk assessment and crisis management (preventive and emergency measures), can be found in Annex I.

## 2. ROLES AND RESPONSIBILITIES OF THE COMPETENT AUTHORITY

This chapter identifies the entities involved in the RPP and describes their responsibilities and competences. This description is not intended to be exhaustive, focusing on the responsibilities and competences that are relevant to this Plan.

### 2.1. NATIONAL COMPETENT AUTHORITY

As notified to the EC and to the ECG on 19 November 2019, DGEG is the competent authority for the purposes of the provisions of the Regulation. DGEG is the national entity responsible for ensuring, in normal situations, the coordination of the preparation of the National Electricity System for supply shortage situations and, in crisis situations, for the definition of the risk level at each moment and for the implementation of procedures and measures to mitigate or eliminate risks or supply disruptions. It is also DGEG's responsibility to perform the missions that, in the scope of the International Energy Agency (IEA), the EC and the North Atlantic Treaty Organization (NATO), are incumbent on the national organisations responsible for the preparation and execution of measures and procedures for the management of energy crisis situations. DGEG is also responsible for the study and proposal of legislation for the implementation of measures in energy emergency situations.

It is also the competent authority's responsibility to ensure representation at the ECG, chaired by the EC, which has the task of facilitating the coordination of measures relating to the security of electricity supply at European Level, and assisting the EC in those matters (as defined in Commission Decision of 15 November 2012, setting up the Electricity Coordination Group).

### 2.2. OTHER ENTITIES INVOLVED IN THE RPP

The following table presents all the entities involved in the RPP and describes their responsibilities and competences.

**Table 2 - Roles and responsibilities of other entities involved in the Risk Preparedness Plan**

Entity	Roles and responsibilities
European Commission (EC)	In the context of the Regulation, at both Union and regional level, EC is responsible for the ongoing monitoring of the security of electricity supply measures, namely those arising from the risk identification and respective assessment. The ECG should carry out regular monitoring

Entity	Roles and responsibilities
	of the security of electricity supply based on the results of those indicators. According to the Regulation, EC shall publish the risk-preparedness plan on its website.
<b>Government (Council of Ministers/Ministry of Environment and Climate Action)</b>	<p>The Ministry responsible for the energy area is the national authority responsible for managing the energy crises in Portugal, through the powers attributed to DGEG.</p> <p>In case of declaration of an energy crisis, according to Decree Law No. 114/2001<sup>2</sup>, the Ministry responsible for the energy area is responsible for proposing, within the Government (Ministers Council), measures and procedures to deal with the crisis (see more detailed information in section 2.3).</p>
<b>National Energy Regulatory Authority (ERSE)</b>	ERSE is responsible for regulating the electricity sector and sets network tariffs, grid connection costs and the regulated tariff for electricity.
<b>Global Technical Manager of the National Electricity System (GTM/TSO)</b>	The global technical management of the National Electricity System is performed by the electricity TSO, <i>REN - Rede Eléctrica Nacional</i> , which is responsible for the supervision and technical management of the national electricity transmission system, responding to emergency issues, ensuring continuity and security of electricity supply, operating the very high voltage electricity grid and performing the system's global technical management activities.
<b>National Authority for Emergency and Civil Protection (ANEPC)</b>	ANEPC is the umbrella organisation for civil emergency and coordinates emergency response at national level in relation to all strategic resources. ANEPC is also responsible for the planning, and execution of emergency and civil protection policies, namely in the prevention and response to major accidents and catastrophes, including natural and technological disasters that can affect critical electricity infrastructures.
<b>National Cybersecurity Centre (CNCS)</b>	CNCS is the operational coordinator and the national competent authority on cybersecurity, according to Law 46/2018, of August 13, article 7 (1), working with State entities, operators of critical infrastructures, operators of essential services (including energy, for the subsectors of oil, gas and electricity) and digital service providers for the implementation of the cybersecurity legislation, namely the Decree-Law No. 65/2021, of July 30, which regulates the legal regime of cyberspace security and defines obligations on cybersecurity certification according to Regulation (EU) 881/2019 of the European Parliament of 17 April 2019. CNCS is responsible for the implementation of Directive (EU) 2016/1148, concerning measures for a high common level of security of network and information systems across the Union (NIS Directive)

<sup>2</sup> A link to this decree-law, as well as to other legislation or documents mentioned in the Plan can be found in Annex II

Entity	Roles and responsibilities
<b>Significant Grid Users (SGU)</b>	According to Article 11 of the Commission Regulation (EU) 2017/2196, establishing a network code on electricity emergency and restoration, each TSO shall design a system defence plan in consultation with relevant DSOs, SGUs, national regulatory authorities, or entities referred in Article 4(3), neighbouring TSOs and the other TSOs in its synchronous area. For that purpose, REN (as TSO) considers SGU all dispatchable power plant operators connected to the transmission grid.
<b>Global Technical Manager of the National Gas System (GTM Gas System)</b>	The global technical management of the Portuguese gas system is performed by the gas TSO, <i>REN Gasodutos</i> , ensuring gas supply at the network delivery points, namely for electricity generation, and the balance between supply and demand.
<b>Global Technical Manager of the Spanish Electric System (GTM ES)</b>	The global technical management of the Spanish Electric System is performed by the electricity TSO, <i>Red Eléctrica de España (REE)</i> , which is responsible for the operational management of the transmission network, system security and for emergency management in Spain.
<b>Distribution System Operator (DSO)</b>	E-REDES (formerly EDP Distribuição) is the only electricity DSO for the high and medium voltage grid and also holds concessions for operation of most of the low voltage grid.

### 2.3. FUNCTIONAL RELATIONSHIP BETWEEN ENTITIES INVOLVED IN THE RPP

The provisions applicable to the definition of an energy crisis, its declaration and the exceptional measures to be applied in that situation, are laid down in Decree-Law No. 114/2001, of 7 April. The declaration of an energy crisis, its extension or cessation, is under the competence of the Government, and takes the form of a Cabinet Resolution (Council of Ministers resolution<sup>3</sup>). The declaration of an energy crisis occurs in the case of energy supply or distribution constraints that require exceptional measures aimed at guaranteeing essential energy supply to defence, to the functioning of the State, to priority sectors of the economy and to meet the basic needs of the population.

The Minister in charge of the energy sector has the responsibility to propose:

- The general response plan and the measures necessary for the implementation of the plan, and globally coordinate its implementation, in liaison with the other ministers;
- The activation of the crisis structures within the framework of civil emergency planning, namely the Energy Emergency Planning Commission, established by Decree-Law No. 43/2020, which created the National System for Civil Emergency Planning to implement the measures foreseen and to monitor the evolution of the situation at national and international level;

<sup>3</sup> When the energy crisis situation affects exclusively the Autonomous Regions, the declaration of an energy crisis is the responsibility of the respective Regional Government.



- The extension or cessation of the declaration of an energy crisis to the Prime Minister, taking into account the evaluation of the situation and its foreseeable evolution.

Moreover, in case of an energy crisis, the government may adopt exceptional security measures, immediately communicating these measures to the European Commission, which are likely to distort competition and adversely affect the operation markets. Decree Law No. 114/2001, also specifies a set of potential measures, both persuasive and compulsory. Persuasive measures are designed to encourage the population to reduce electricity consumption, and include media awareness campaigns, publication of leaflets and explanatory guides, display of posters in public locations and direct action by state or public administration agents.

The Ministry responsible for the energy area is the national authority responsible for managing the energy crises in Portugal, through the powers attributed to DGEG. The Directorate-General for Energy and Geology (DGEG) stands within the Ministry of the Environment and Climate Action (MAAC). As defined in Decree-Law No. 130/2014, changed by Decree-Law No. 69/2018, DGEG is responsible for the design, promotion and evaluation of policies related to energy and geological and mining resources, in a perspective of sustainable development and to ensure security of supply. DGEG also provides technical support to government decision making on energy and geology issues. DGEG's mission includes the need to make citizens aware of the importance of these policies, in the framework of the economic and social development desired for the country, informing them about the instruments available for the implementation of policy decisions and disseminating the results of their monitoring and implementation.

DGEG, as the competent authority, and the GTM/TSO assume, through their participation on the Electricity Crisis Committee (ECC), the central role in the coordination and implementation of the RPP, ensuring the articulation of the various involved entities (namely those included in table 4).

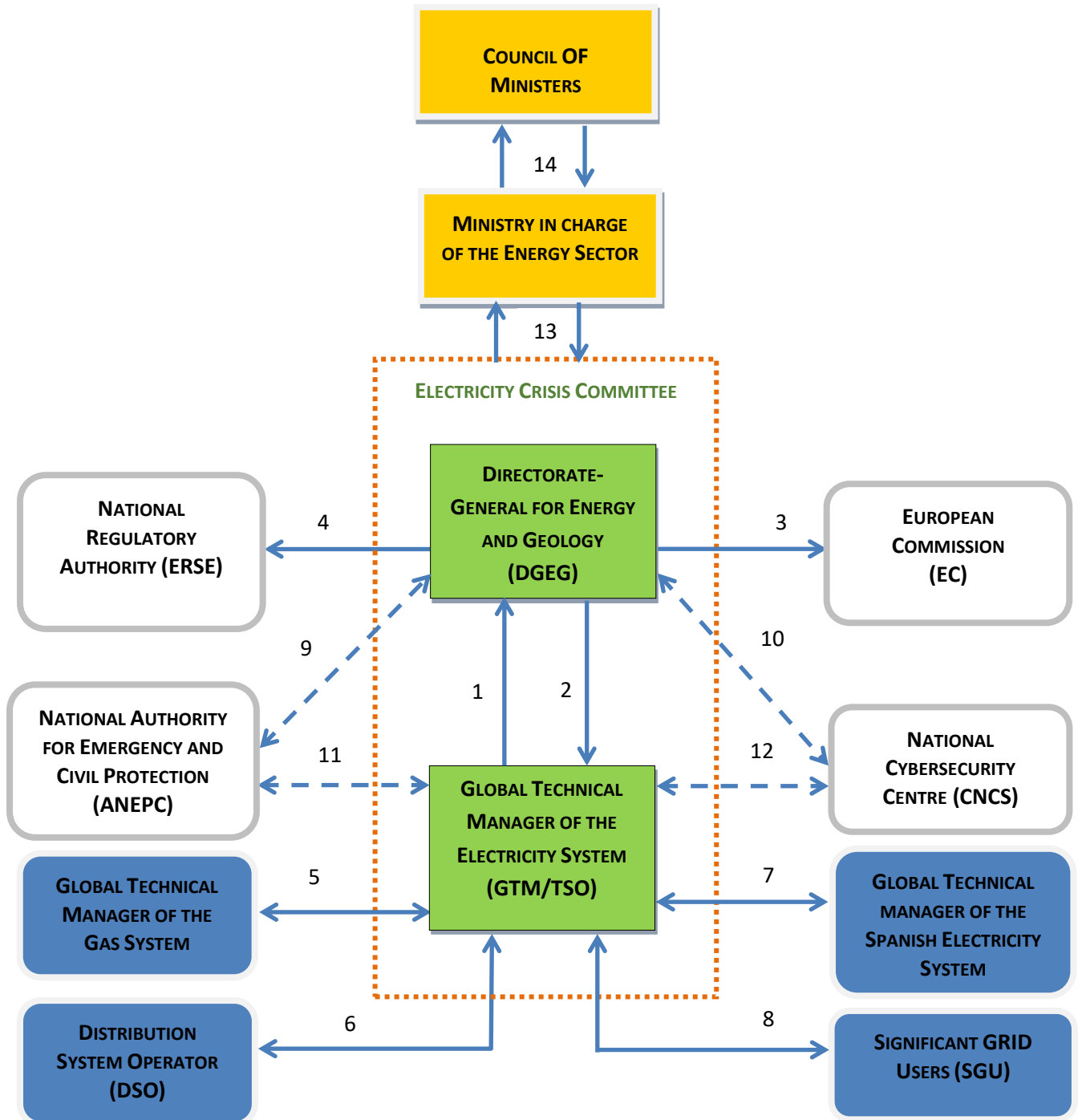
The ECC is activated by DGEG and by the GTM/TSO once a circumstance has been identified which, adhering to any of the scenarios identified in the RPP, requires the crisis/emergency declaration, in order to implement the necessary measures to re-establish normal operating conditions. The procedure for activating the ECC and for coordinating with the other entities involved in each situation must be carried out expeditiously, respecting the urgency required in each situation, using the contacts defined for this purpose by each of the referred entities. In this sense, if the initial communication is established by telephone, the information exchanged must be written at the first opportunity, preferably using email or, alternatively, other available mean of communication.

The stakeholders identified in table 4 should be informed of the approval of the RPP, after which they should inform DGEG and the GTM/TSO of their representative and respective contacts for the purpose of RPP activities. An initial meeting should also be organized to define operating methodologies.

The following figure shows the functional relationship diagram regarding the entities involved in the RPP.



Figure 1 - Functional relationship between entities involved in the RPP



The following table details the content of the information to be exchanged between the entities involved in the Plan, identified in the functional relationship diagram above.

Flow	From	To	Information Flow
1	GTM/TSO	DGEG	<p>The following information shall be made available, on a daily basis, during the occurrence of the emergency level:</p> <ul style="list-style-type: none"> <li>hourly electricity supply and demand forecasts for the following 24 hours;</li> <li>Hourly flow of electricity at all cross-border entry and exit points and at all points connecting the network with DSO network and relevant producers/generators (Significant Grid Users);</li> <li>Hourly information about the assurance of the supply to priority customers<sup>4</sup>;</li> <li>Different scenarios for SEN (National Electricity System) supply, given the situation in question.</li> <li>Existing system restrictions, ongoing repair actions and time estimates for its resolution;</li> </ul>
2	DGEG	GTM/TSO	<p>Instructions and guidelines should be provided within the scope of DGEG's competences, namely:</p> <ul style="list-style-type: none"> <li>Assessment of the national and Iberian/UE electricity supply situation;</li> <li>Information on sectoral problems resulting from the crisis;</li> <li>Stimulation of inter-sectoral cooperation to minimise the effects of the crisis and increase the effectiveness of the measures adopted;</li> <li>Instructions for the activation of interruptible contracts in the case of a serious disruption/non- balance in the electricity system (no balance between supply and demand).</li> </ul>
3	DGEG	EC	<p>When the crisis is declared, DGEG immediately informs the EC through the ECG and provides it with all the necessary information, notably on the causes of the deterioration of the electricity supply situation, the reasons for declaring an electricity crisis, the measures planned or taken to mitigate it and the need for any assistance from other Member States (article 14 of EU Regulation 2019/943).</p> <p>In case of crisis/emergency declaration and in duly justified exceptional circumstances, DGEG may take measures which deviate from those defined in the RPP.</p>

<sup>4</sup> As defined in article 104 of ERSE's Quality of Service Regulation no. 406/2021:

- Customers for whom survival or mobility depends on equipment whose operation is ensured by the electricity grid, and customers who live with people in these conditions, within the scope of the electricity sector.

- Customers that provide fundamental health or safety services to the community and for which the interruption of the electricity or gas supply causes serious alterations to their activity.



			<p>In the event of a Union-wide or regional emergency and at request of the EC, DGEG shall make available without delay at least the following elements:</p> <ul style="list-style-type: none"> <li>• The information referred to in flow 1 of this table;</li> <li>• Information on the measures DGEG plans to implement and on those it has already implemented to mitigate the emergency/crisis, and information on their effectiveness;</li> <li>• The need to adopt exceptional security measures;</li> <li>• The requests made to other (sectorial) competent authorities to take additional measures;</li> <li>• The measures carried out at request of other competent authorities.</li> </ul> <p>Where the EC considers the information provided to be insufficient, it may request the Member State to provide additional information. The EC shall analyse the information, whether the measures taken follow, as far as possible, the actions set out in the RPP. The EC may also request to amend the measures.</p>
<b>4</b>	<b>DGEG</b>	<b>ERSE</b>	<p>The declaration of a crisis/emergency in the electricity sector must be communicated to ERSE, along with the typification of the risk scenario and the reasons that caused it.</p>
<b>5</b>	<b>GTM/TSO</b>	<b>GTM Gas System</b>	<p>Exchange of information on the impact of the operation of the SEN on the SNG and of the SNG on the SEN, namely:</p> <ul style="list-style-type: none"> <li>• Information on the availability of gas to ensure the functioning of Combined Cycle Gas Turbines (CCGT);</li> <li>• Availability and possible generation from CCGT (SGU) and in particular for Tapada do Outeiro CCGT (a power plant that ensures the “blackstart”);</li> <li>• Operating regimes for CCGTs and other customers using gas for electricity generation (e.g. cogeneration).</li> </ul>
	<b>GTM Gas System</b>	<b>GTM/TSO</b>	
<b>6</b>	<b>GTM/TSO</b>	<b>DSO</b>	<p>The GTM/TSO and the DSO shall agree and revise periodically a Load Shedding Plan that will contain the measures needed to ensure the security of the Electrical System in case of need for the interruption of supply points in their networks, in order to guarantee supply to priority costumers. This Plan will be executed automatically according to the setting parameters defined by both network operators.</p> <p>The DSO must inform the GTM/TSO, on the periodic needed basis, of the measures taken to address intervention needs in the respective networks in accordance with RPP. Communication mechanisms between DSO and the GTM should be especially developed and intensified.</p> <p>The DSO should provide the human and physical resources necessary for the execution and control of the exceptional measures taken in case of an</p>
	<b>DSO</b>	<b>GTM/TSO</b>	



			<p>energy crisis declaration (pursuant to Decree-Law No. 114/2001, of 7 April).</p> <p>Other information to be exchanged between the DSO and the GTM/TSO in a crisis situation:</p> <ul style="list-style-type: none"> <li>Information foreseen according to the specific standards for the characterization and guidance of the conduct of manoeuvres of the network elements assigned to the Distribution System;</li> <li>End of the works on electrical installations in the grid, in coordination with the consignment responsible, and the necessary measures for the rapid reestablishment of network elements;</li> <li>Fulfilment of the provisions in the connection agreement with the TSO, within the framework of delivery and reception of electrical energy, and planning and operation of systems, to allow the operation of the electricity market, in safety conditions;</li> <li>Compliance with the Protocols of Operation agreed with the TSO;</li> <li>Compliance with the requirements in the Procedures Manual for the Global Management of the Electricity System, jointly setting up the shedding load plan - last resort to preserve the system operation.</li> </ul>
7	GTM/TSO	GTM ES	<p>Exchange of information on the impact of the SEN's operation on the Spanish Electricity System and of the Spanish Electricity System on the SEN, namely:</p> <ul style="list-style-type: none"> <li>Joint operation of the existing interconnections;</li> <li>The application, and respective measures, of the Mutual Assistance Agreement between REE and REN;</li> <li>Information regarding supply, demand and reserve levels in both electrical systems.</li> </ul>
	GTM ES	GTM/TSO	
8	GTM/TSO	SGU	<p>Information/data related to system defence plan (defined according to Article 11 of the Commission Regulation (EU) 2017/2196):</p> <ul style="list-style-type: none"> <li>hourly electricity generation forecasts for the following 24 hours;</li> <li>Hourly electricity generation produced by the Significant Grid Users (SGU);</li> <li>GTM has access to real time data and controllability over the system operation.</li> </ul>
	SGU	GTM/TSO	
9	DGEG	ANEPC	<p>According to the National Emergency and Civil Protection Plan, DGEG and ANEPC mutually support and exchange information on:</p> <ul style="list-style-type: none"> <li>Assessment of the risks that affect the security of energy supply and mechanisms in place for responding to crisis situations;</li> <li>Assurance of the security of electricity Infrastructures and its possible failure (possible services interruption);</li> </ul>
	ANEPC	DGEG	



			<ul style="list-style-type: none"><li>• Procedures and measures taken according to the emergency situation;</li><li>• Data necessary for decision support;</li><li>• Mechanism in place for public information actions.</li></ul>
<b>10</b>	<b>DGEG</b>  <b>CNCS</b>	<b>CNCS</b>  <b>DGEG</b>	<p>Considering the implementation of Directive (EU) 2016/1148, concerning measures for a high common level of security of network and information systems across the Union (NIS Directive) and other procedures with sectorial public entities:</p> <ul style="list-style-type: none"><li>• Identification of priority agents and companies to contact and all focal points involved;</li><li>• Information on the IT infrastructures/services damaged in electricity sector (TSO, DSO, Generators, ...) or limitation in the operation;</li><li>• Information on the expected recovery period to normal operation of IT systems and the origin of the threat;</li><li>• Information on the procedures adopted and established directly between GTM and CNCS.</li><li>• Implementation of cybersecurity measures.</li><li>• Notification of cybersecurity incidents to the CNCS.</li><li>• Public communication according to the national interest on cybersecurity incidents in the energy sector.</li><li>• Participation of the CNCS on the EU CSIRT Network and European network CyCLONE for crisis response.</li></ul>
<b>11</b>	<b>GTM/TSO</b>  <b>ANEPC</b>	<b>ANEPC</b>  <b>GTM/TSO</b>	<p>According to the National Emergency and Civil Protection Plan, GTM/TSO and ANEPC exchange information with the aim to:</p> <ul style="list-style-type: none"><li>• Ensure the rapid restoration of the electricity transmission network, the balance between production, consumption and electricity transits in the interconnections;</li><li>• Ensure as soon as possible the replacement of the service that has been affected at the delivery points to the distribution network and customers;</li><li>• Coordinate with electricity producing companies the availability of the respective generator sets designated as SGU, depending on the needs of the electricity system;</li><li>• Coordinate with DSO the needs of the distribution network in high, medium and low voltage;</li><li>• Maintain updated information on the global functioning of the electrical system and on the situation of the transmission network, in coordination with DGEG;</li><li>• Carry out a survey of any damages caused.</li></ul>



12	GTM/TSO  CNCS	CNCS  GTM/TSO	<p>Considering the implementation of Directive (EU) 2016/1148, concerning measures for a high common level of security of network and information systems across the Union (NIS Directive) and other procedures with sectorial private entities, according to Law No. 46/2018 and Decree Law No. 65/2021:</p> <ul style="list-style-type: none"><li>• Initial notification on the type of information security incident including the date of when the incident started or was detected, description of the incident, root cause category and produced effects, within 2 hours of assessing if incident impact is high or foreseen to be high;</li><li>• Initial notification on impact estimation or foreseen considering number of users affected, duration of the incident and geographical distribution of affected areas, including cross-border impact;</li><li>• Provide information requested by the CNCS related to reported incidents;</li><li>• Notification on the end of high impact of the incident including updated information, implemented measures to mitigate de incident and current impact;</li><li>• Identification of operators of essential services.</li><li>• Establishment of protocols for the exchange of information and harmonization of operation procedures.</li><li>• Providing of training and capacity building mechanisms.</li><li>• Offers a set of guidelines based on international cybersecurity standards, the National Cybersecurity Framework and complementary instruments for the implementation of cybersecurity measures.</li></ul> <p>Final notification within 30 days after the end of the incident including date of when the high impact started and ended, impact description, root cause and produced effects, implemented measures, current residual impact and whenever applied, statement if the incident was communicated to competent authorities.</p>
13	Ministry Energy  ECC (DGEG)	ECC (DGEG)  Ministry Energy	<p>To support the management of the general plan of response to an energy crisis/emergency:</p> <ul style="list-style-type: none"><li>• Information on the state of play of the evaluation of the situation and its foreseeable evolution (different scenarios for SEN supply, given the situation in question);</li><li>• Information with hourly data related to: electricity supply and demand forecasts for the following 24 hours; hourly flow of electricity at all cross-border entry and exit points of TSO and DSO networks; hourly information on the assurance of the supply to the priority customers and information about the activation of interruptible contracts;</li><li>• Information on sectoral problems resulting from the crisis;</li></ul>



			<ul style="list-style-type: none"><li>• Proposal of exceptional measures, as defined in Decree Law No. 114/2001.</li></ul>
14	<b>Council of Ministers</b>  <b>Ministry Energy</b>	<b>Ministry Energy</b>  <b>Council of Ministers</b>	<p>Considering the need to evaluate the situation and take decisions on measures and procedures:</p> <ul style="list-style-type: none"><li>• Implementation of the general plan of response to the situation and the measures necessary for the implementation of the plan;</li><li>• The activation of the crisis structures within the framework of civil emergency planning, to implement the measures foreseen and monitor the evolution of the situation at national and international level;</li><li>• The need to adopt exceptional security measures, according to Decree Law No. 114/2001;</li><li>• The decision to declare the energy emergency/crisis, according to Decree Law No. 114/2001, or decision on the extension or cessation of the declaration, to be validated by the Prime Minister.</li></ul>



### 3. PROCEDURES AND MEASURES IN ELECTRICITY CRISIS

#### 3.1. NATIONAL PROCEDURES AND MEASURES

##### 3.1.1. PREVENTIVE MEASURES

###### 3.1.1.1 GENERAL APPROACH

For the national electricity system players, especially for the TSO and DSO, the preventive and preparatory measures for electricity crisis situations are based on:

- Internal risk management for operators and internal audit policy;
- Preventive maintenance of infrastructures;
- Investment choices;
- Training, mentoring and coaching of personnel.

On the above-mentioned points, the players in the national electricity system are structuring their approaches in coordination and according to a common plan which consists of:

1. Anticipating from known events;
2. Adapting the programmed evolutions of the network accordingly;
3. Defining the sizing criteria for electricity networks;
4. Defining criteria for resource adequacy;
5. Ensuring a permanent surveillance of the electricity sector;
6. Planning and anticipating crisis management as much as possible.

###### **Anticipate from known events**

The government and operators have technical and historical data on past events. These data allow to document the exposure of the territories and are used to model the potential consequences of regular or exceptional events.

For the government, these data are the basis of the natural risk prevention, the technological risk prevention policy and the specific risk prevention policy, all three of which are managed by the Ministry of Environment and Climate Action (through DGEG). These policies are part of national and European regulations and strategies, adapted to a local scale according to the risk considered. They influence the construction rules applicable to all buildings, or the technical regulations of the electricity sector, or the choices of land use, or all three.

Operators' own data is analysed and processed through their internal risk management system, which can be linked to budgetary control. Cost optimization contributes to the reduction of expenses to be incurred for each repair and the timely replacement of equipment likely to fail, which have positive impacts on the resilience of the system.



Except for the GTM/TSO quality of service report, these data are not published.

### **Adapt the programmed evolutions of the electricity network**

The TSO and the DSO draw up a forecast balance sheet for electricity supply and demand in their respective service areas.

Pursuant to Article 51 and Article 32 of Directive (EU) 2019/944 on common rules for the internal market for electricity, respectively, the TSO and the DSO draw up a network development plan for the network under its management.

The choice of input data for the various models determines the capacity of the network to be resilient in certain situations. The TSO carries out simulations based on exceptional weather scenarios in order to validate its security of supply projections.

Development plans are also tools that can be used to strengthen the resilience of certain areas, either by creating new structures or by adapting existing ones. In terms of adaptation, the relocation of transformers from flood-prone areas in substations outside flood-prone areas is an example.

Investment decisions on the networks are made in articulation between the TSO and DSO, where this dialogue makes it possible to adapt decisions to the specific characteristics of each region.

### **Defining the sizing criteria for electricity networks**

The rules for the technical dimensioning of power system facilities, in particular for the electricity sector, are defined by national regulations and regulatory framework:

- Regulation No. 557/2014 amended by the Regulation No. 621/2017, on the Operation of the Electric Sector Networks;
- Procedures Manual for the Global Management of the Electricity System, approved by ERSE, through Directive No. 10/2018, amended by Directives No. 14/2018, No. 7/2019, No. 9/2020, No. 4/2021, No. 13/2021 and No. 16/2021;
- Decree-Law no. 172/2006, amended by Decree-Law no. 76/2019, which, among other topics, establishes the procedures for the Ten-Year Network Development Plan for Transmission (PDIRT) and for the Five-Year Network Development Plan for Distribution (PDIRD).

The network operators and SGU establish sizing criteria, within the limits of the regulatory provisions, according to the characteristics of the territories in which they operate and according to their company strategy. The criteria for sizing the facilities are included in the technical reference documentation of each operator, namely the PDIRT for the TSO and the PDIRD for the DSO.

### **Defining criteria for resource adequacy**

The methodologies and rules for resource adequacy are defined by both European regulatory framework and it is also considered in national legislation:

- Regulation (EU) 2019/943 on the internal market for electricity, namely the methodology to be used under the European Resource Adequacy Assessment (ERAA);
- Decree-Law No. 76/2019 on the activities of generation, transport, distribution and supply of electricity and the organization of electricity markets, namely the national Security of Supply Monitoring Report (RMSA, that considers adequacy assessment monitoring).

National reliability standards shall be defined by each Member-State for the development of ERAA based on the “Methodology for calculating the value of lost load, the cost of new entry and the reliability standard”. In case of need for capacity mechanisms the methodology “Technical specifications for cross-border participation in capacity mechanisms” shall be used. Both methodologies were approved by ACER.

### **Permanent Surveillance of the electricity sector**

The Surveillance of the electricity sector is ensured by the GTM/TSO and DSO in particular by their dispatch centres which monitors permanently the functioning transmission and distribution networks.

These centres report permanently information to other departments of the company, in particular those departments in charge with emergency/crisis issues. The information flow beyond that, is defined in figure 1 of section 2.3, about the functioning of Electricity Crisis Committee.

### **Plan and anticipate crisis management**

At all levels, public and private players in the electricity sector are prepared to deal with various hazards. The measures and procedures in force are detailed in Annex I. For governmental entities, the framework arrangements for preparing for a crisis in the electricity sector are those specified in section 2.3.

Anticipation is the possibility for government entities, network operators and other players in the electricity sector to increase their vigilance and pre-position human resources or equipment to deal with certain situations. For example, in the event of an exceptional meteorological event, the TSO and DSO pre-position their teams and technical resources within their jurisdiction, in particular the fast intervention teams.



### 3.1.1.2 SPECIFIC APPROACH

The Government (through respective/specific entities) and the operators of the sector take specific prevention or crisis management measures for certain scenarios. These measures are detailed in Annex I, which are related with specific crisis scenarios (for each scenario, with its definition, evaluation and management measures (preventive and reactive in case of emergency/crisis).

### 3.1.2. EMERGENCY MEASURES

#### 3.1.2.1 GENERAL APPROACH

As indicated in the diagram in section 2.3, the sector's players are the first to take measures relating to crisis management. These measures are defined as market-based measures or "non-market" based measures. Depending on the situation, the Government (by its entities) complete these measures with those under their jurisdiction.

#### **Market-based measures activated by system operators**

In the first instance, managers use the following market-based measures to adapt system operation to the inherent hazards of power system operation and to mitigate the consequences of any event. These measures are:

- Redispatching as defined in Article 213 of Regulation (EU) 2019/943 on the internal electricity market and under the conditions defined by the European regulation.
- The use of frequency containment, restoration and replacement reserves:

The frequency containment and automatic replacement reserves (known as "frequency system services") are activated automatically to contain the frequency deviation, restore the frequency to 50 Hz and bring the energy exchanges at the borders back to their planned value.

The frequency containment reserve, activated in a decentralized manner at the level of each generation unit shall comply with the following requirements:

- a) the activation of FCR shall not be artificially delayed and begin as soon as possible after a frequency deviation;
- b) in case of a frequency deviation equal to or larger than 200 mHz, at least 50 % of the full FCR capacity shall be delivered at the latest after 15 seconds;
- c) in case of a frequency deviation equal to or larger than 200 mHz, 100 % of the full FCR capacity shall be delivered at the latest after 30 seconds;
- d) in case of a frequency deviation equal to or larger than 200 mHz, the activation of the full FCR capacity shall rise at least linearly from 15 to 30 seconds; and

- e) in case of a frequency deviation smaller than 200 mHz the related activated FCR capacity shall be at least proportional with the same time behaviour referred to in points (a) to (d).

The frequency containment must be able to respond to the simultaneous loss of the two largest generating units, i.e., a capacity of 3,000 MW at the Continental European level. The automatic frequency restoration reserve in the Portuguese system is around 300 MW. All producers enabled to participate in this service are required to participate.

Unlike the frequency containment reserve and automatic frequency restoration reserve, the manual frequency restoration and the replacement reserves are activated manually by a TSO/GTM dispatcher. It is used to supplement the automatic frequency restoration reserve if the latter is exhausted or insufficient to cope with an imbalance, but also to replace the frequency containment and automatic restoration reserve or anticipate a future imbalance.

The manual restoration and the replacement reserves can also be used to resolve constraints on the transmission system resulting from a local excess or shortage of generation. Producers and consumers, as well as foreign agents, using the trans-European platforms, can participate in the balancing mechanism. All conventional producers connected to the transmission system are required to offer their available power to TSO/GRM. In addition, consumers and foreign players, using the trans-European platforms, can, on a voluntary basis, make offers on the balancing mechanism.

### **Non-market-based measures activated by system operators**

Non-market-based measures that can be activated in a crisis situation are, in order of activation:

- The call for citizen action (*depending on the event and if the event management timeframe allows it*);
- Interruptibility;
- Reduction of the voltage level on the distribution network (*depending on the event and if the event management time allows it*);
- automatic load shedding by frequency relays or manual load shedding ordered by the dispatch centre of the TSO;
- planned and automatic actions included in the GTM/TSO defence plan and restoration plan of SEN.



### The call for citizen's gestures

In the event of an anticipated shortfall in generation, system operators and Government entities may invite consumers to reduce their consumption and defer all non-essential consumption on the day(s) when a shortfall is anticipated.

The measure is considered active when the communication refers to a specific day corresponding to an alert from the network managers.

The communication system is adapted to the anticipated deficit. At its peak, it involves all the players in the electricity sector, government departments and local authorities so that the messages are relayed to a maximum number of consumers within a limited timeframe.

### Interruptibility

Interruptibility is a measure established by Ordinance No. 41/2017, and further detailed by Ordinance No. 592/2010, which provides, in particular, when the normal operation of the public transmission system is threatened in a serious and immediate manner or requires calls on mobilizable reserves. In those cases, the TSO proceeds, on its own initiative, to the instantaneous interruption of final consumers consumption connected to the public transmission system and to the instantaneous interruption profile.

In its current format, the measure/mechanism is composed of a volume that depends on the “interruptible contracts” made for that purpose (depending on the number of contracts and respective dimension/volumes involved). This mechanism can be activated according to the following criteria:

- Simultaneous activation of all the sites via an frequency relay, based on the criterion of a very rapid drop in frequency.
- Manual activation by GTM/TSO national dispatching office, site by site according to local needs, in order to avoid implementing the load shedding plan.

The system provides assurance to the Portuguese electricity system, and consequently to the European system, for its stability in critical periods. This system is distinguished by the high level of responsiveness, availability and reliability of interruptible capacities.

The interruptibility device is designed as a first defence barrier to act upstream of the defence barrier corresponding to a much more degraded state of the power system, i.e., the frequency-metric load shedding of customers connected to the public distribution network.

Designed to stem a rapid drop in frequency, it requires a high level of reliability. Because of the expected level of reliability, only certain manufacturers are able to provide the expected guarantees.

On October 29, 2021, Ordinance No. 230-A/2021 was published, revoking Ordinance No. 592/2010, and establishing the automatic extension, until December 31, 2021, of the active interruptibility service contracts as of October 31, 2021. Interruptibility mechanism is likely to evolve in the coming months.

### Reduction of the voltage level on the distribution network

In the event of insufficient generation to meet a daily consumption peak, the network operators can reduce the voltage on the distribution. This measure, which has not been implemented in recent decades, could save a part of Power demand (in winter during daily consumption peaks). The measure is considered relevant for a few hours.

### Manual load shedding

System operators may initiate manual load shedding under the conditions set out in Article 22 of Regulation (EU) 2017/2196 establishing a network code on emergency and restoration of the electricity network, and within the limits of the provisions of some national legislation/regulatory framework that set out the general instructions for load shedding on electricity networks (see next section about “” Planned and automatic actions – Defence Plan of SEN).

### Planned and automatic actions (Defence Plan for SEN)

The electricity system operators implement load shedding mechanisms to ensure the safe operation of the electricity system in damaged situations. These devices are established in compliance with the safety rules drawn up by the TSO mentioned in the specifications provided in national legislation/regulatory.

The list of priority customers is defined in article 104 of ERSE’s Quality of Service Regulation no. 406/2021 (see also the reference in the table about information flows in section 2.3 of this Plan).

The criteria for triggering load shedding are:

- decreases in the frequency of electricity networks below 49 Hz;
- voltage drops such that at certain points of the 400 and 220 kV networks the voltage drops below the respective values of 360 and 198 kV;
- abnormal overloads on transmission or distribution facilities without the possibility of redispatch or transferring load to other facilities;
- more generally, the impossibility of ensuring normal operating conditions, including the obligations resulting from agreements between interconnected systems.

In Portugal, REN’s (GTM/ TSO) current "Defence Plan" has been defined by application of EU Regulation No. 2017/2196. The actions foreseen in the above-mentioned plan are of 6 types:

1. Automatic load shedding on low frequency,
2. Frequency deviation management
3. Voltage deviation management
4. Powerflow management



5. Support procedures
6. Manual load shedding procedures

The 1st action corresponds to the provisions of Article 15 of EU Regulation No. 2017/2196 on the state of emergency and restoration of the electricity network.

The 2nd action falls under the provisions of Articles 18 EU Regulation No. 2017/1485 which establish a guideline on electricity transmission system operation.

The third and 4th actions fall under the provisions of Article 25 of EU Regulation No. 2017/1485 which establish a guideline on electricity transmission system operation.

The 5th action corresponds to the provisions of Article 107 of EU Regulation No. 2017/1485 which establish a guideline on electricity transmission system operation.

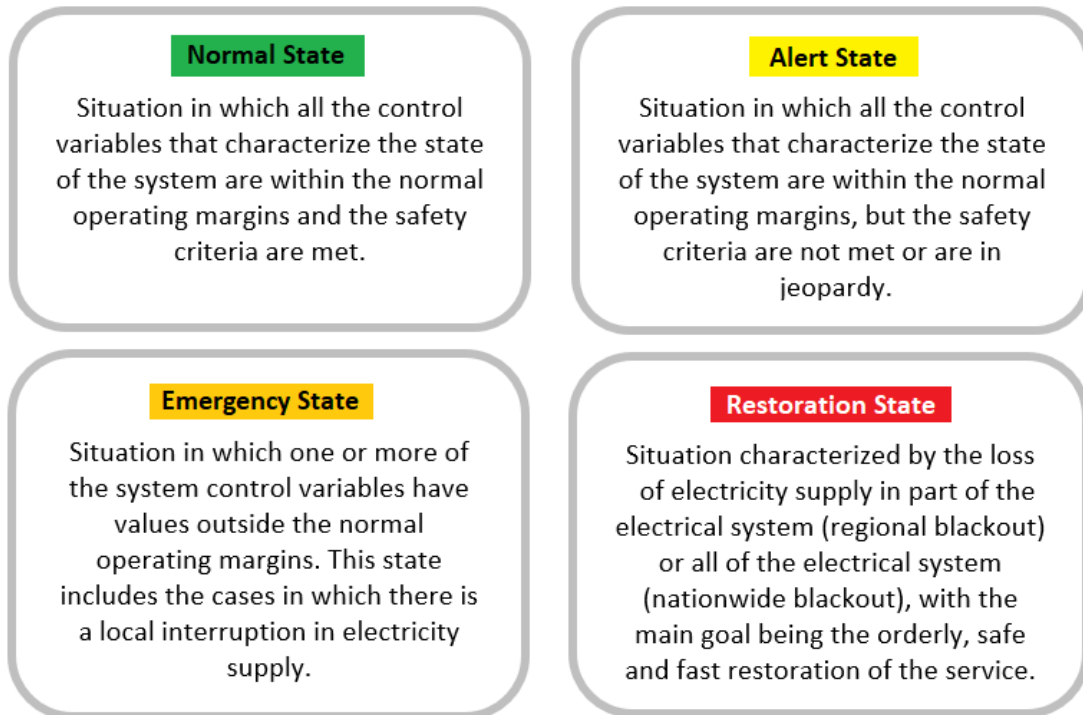
The 6<sup>th</sup> action corresponds to the provisions of Article 22 of EU Regulation No. 2017/2196 on the state of emergency and restoration of the electricity network.

The activation of the crisis levels shall be accompanied by the activation of the Electricity Crisis Committee (ECC) and communicated to the entities involved in this Plan, namely those referred to in table 4. This will be the first step to implement for any of the crisis levels, initiating the cooperation and exchange of information referred to in chapter 2.

The Network Code on electricity emergency and restoration (Regulation (EU) 2017/2196) and the national Procedures Manual for the Global Management of the Electricity System defined the system defence plan and the system restoration plan, which were sent by the TSO to the NRA and DGEG.

The System Operation Guidelines (Commission Regulation (EU) 2017/1485) defines the classification of the system states (Figure 2). REN as the TSO may declare an emergency state whenever there are situations likely to endanger the maintenance of adequate electric system security levels.

Figure 2 - The possible electricity system states



In the case of major disruptions, DGEG, REN and E-REDES cooperate through legislatively established procedures designed to ensure security of supply or restore normal operations. The mentioned designed is established in the Portuguese network code (as defined in “Procedures Manual for the Global Management of the Electricity System”, approved by ERSE, through Directive No. 10/2018, lastly amended by Directive No. 16/2021), with the operational measures defined in specific protocols established between the TSO and the DSO.

The main emergency measure included in the defence plan is a load shedding scheme that aims to minimise overall disruptions while maintaining the supply of electricity to as many consumers as possible.

Law No. 46/2018, of August 13, which transposes the Directive (EU) 2016/1148 (concerning measures for a high common level of security of network and information systems across the Union - Directive NIS), establishes notification requirements of cybersecurity incidents for Critical Infrastructure Operators and Operators of Essential Services. Thus, REN and E-REDES, as such operators, are required to notify the CNCS of any incidents with a relevant impact on the security of networks and information systems.

#### **Mechanisms used to inform the public in the event of an electricity crisis.**

Alerting and informing the population are decisions made by the Government. Some measures and rules are defined in Decree-Law No. 114/2001, that defines general measures to deal with an energy crisis.





The communication involves keeping the population informed about the problems of the sector and should focus on the essentials, informing about initial preventive measures to be implemented (if necessary). Examples of information to be provided

- Explaining the current situation and the events that caused it, as well as what may happen next (without creating alarmism) and the measures the Government is taking in this context;
- Where up-to-date information on the event can be found.

In general, this kind of alerts and actions are set out by the National Authority for Emergency and Civil Protection (Ministry of Internal Affairs), as “umbrella” entity for Emergency and Civil Protection. Should also be referred that on the communication to the public regarding cybersecurity incidents in the Energy sector and transborder incidents information to other Member States, the CNCS coordinates with DGEG for the criteria and procedures of communication

### **3.1.2.2 SPECIFIC APPROACH**

The Government (through respective/specific entities) and the operators of the sector take specific prevention or crisis management measures for certain scenarios. These measures are detailed in Annex I, which are related with specific crisis scenarios (for each scenario, with its definition, evaluation and management measures (preventive and reactive in case of emergency/crisis).

## **3.2. REGIONAL AND BILATERAL PROCEDURES AND MEASURES**

According to article 12 (1) of the Regulation, regional measures shall be agreed within the region concerned between Member States that have the technical ability to provide each other assistance. REN (Portuguese TSO) has two relevant agreements with REE (Spanish TSO) that are last resource measures of the Portuguese system operator to maintain the continuity and the security of supply.

The first agreement is a preventive one that establishes a procedure, outside of the existing balancing market products and mechanisms, which defines the terms and conditions to be used in cases where one of the systems needs energy support from the other system. This agreement can be triggered by:

- short-term adequacy issues (lack of offer to satisfy the consumption needs);
- exhaustion of operational reserve;
- real time impossibility of balancing the system.

The TSO that has the need asks the other TSO a support (x MW during y hours) and the second TSO confirms that the support can be granted if and only if its system has enough internal reserves to supply their own consumption. The agreement also defines the settlement rules that are applied to the energy supplied in those situations (outside the market rules). The price of

the energy is calculated taking into consideration the reserves markets of the country providing support.

The second agreement is a reactive one that establishes a set of operational procedures and actions in case of emergency state after an incident with large cut of consumption resulting from a regional or total black-out of the electricity system.

The supporting TSO will do its best to grant the support if technically possible without endangering the security of its internal system. These measures are integrated in the restoration plan of the Portuguese electricity system.

#### 4. CRISIS COORDINATOR

As defined in Article 2 (13) of the Regulation, the crisis coordinator is a person, a group of persons, a team composed of the relevant national electricity crisis managers, or an institution tasked with acting as a contact point and coordinating the information flow during an electricity crisis. Having that in consideration and for the purposes of Article 11 (1)(d), the national crisis coordinator is the Electricity Crisis Committee (ECC) team, whose functions will be to manage and coordinate crisis response, namely operationalizing the measures to be taken by the various entities involved in the system, as well as collecting and processing the information needed to perform those functions. The ECC has also the responsibility to support the Government (Ministry in charge for the energy sector) for the coordinating and aligning the external communication strategy of the various entities involved in crisis response.

As defined in chapter 2 of the RPP, the ECC is composed by DGEG, as the national competent authority, and REN, as GTM/TSO.

**Table 3 – Roles, responsibilities and contact details of the Crisis Coordinator**

Crisis Coordinator	Roles and responsibilities	Contact Details
<p><b>Directorate General for Energy and Geology (DGEG)</b></p>	<p>Through the powers attributed by the Ministry responsible for the Energy area, and as notified to the EC and the ECG, DGEG is the National Competent Authority responsible for managing electricity crises in Portugal.</p>	<p><b>Name:</b> Maria José Espírito Santo  <b>Function:</b> Deputy Director General for Energy  <b>Email:</b> (restricted information)  <b>Phone:</b> (restricted information)</p> <p><b>Name:</b> Manuela Fonseca  <b>Function:</b> Director of Energy Planning and Statistics Department  <b>Email:</b> (restricted information)  <b>Phone:</b> (restricted information)</p> <p><b>Name:</b> Filipe Pinto  <b>Function:</b> Director of Electricity Department  <b>Email:</b> (restricted information)  <b>Phone:</b> (restricted information)</p>

Crisis Coordinator	Roles and responsibilities	Contact Details
<p><b>Global Manager of the National Electricity System – (REN)</b></p> <p><b>Technical of the Electricity GTM/TSO</b></p>	<p>The global technical management of the National Electricity System is performed by the TSO (REN), which is responsible for the operation of the very high voltage electricity grid and for the system’s global technical management activities.</p> <p>These activities aim to ensure the electricity supply at the network delivery and reception points and the balance between supply and demand. The GTM/TSO guarantees systemic coordination of the National Electricity System infrastructures to ensure their integrated and harmonized operation, as well as to ensure the security and continuity of the electricity supply. Under the RPP, this entity has the right to demand strict compliance with the instructions issued for the correct operation of the system, in order to ensure adequate coverage of demand.</p>	<p><b>Name:</b> Rui Marmota  <b>Function:</b> Director of Electricity System Operator  <b>Email:</b> (restricted information)  <b>Phone:</b> (restricted information)</p> <p><b>Name:</b> Paulo Marques  <b>Function:</b> Head of Dispatch Control Room  <b>Email:</b> (restricted information)  <b>Phone:</b> (restricted information)</p>

## 5. STAKEHOLDER CONSULTATIONS

As determined by Article 10 (1), for the establishment of the RPP, contributions from different stakeholders shall be taken into consideration, namely from relevant electricity producers, relevant organisations representing the interests of electricity customers, the regulatory authority, the transmission system operators, and relevant distribution system operator.

Considering its know-how and expertise in the management of National Electricity System, for the elaboration of the RPP, DGEG collaborated directly with the Portuguese TSO (REN). The Portuguese DSO (E-REDES), the National Regulatory Authority (ERSE), and relevant electricity producers (Significant Grid Users, as defined in the Network Codes) were directly involved and consulted throughout the process. For this purpose, it was also consulted the National Centre for Cybersecurity (CNCS) and National Authority for Emergency and Civil Protection (ANEPC).

## 6. EMERGENCY TESTS

For both national and regional levels, the measures, actions and procedures in the RPP shall be tested with a view to verifying their effectiveness. In this section the conditions for carrying out emergency tests/exercises and scenarios are described.

Performing emergency exercises, with the simulation of electricity crisis situations of different levels and real time response, will allow the validation of a set of information and actions to be carried out, their need and effectiveness, exposing the system to a scenario of failure/disruption of electricity supply, that would otherwise be difficult to test properly. Through simulations it is



possible to assess the response capacity of all entities involved, if an electricity supply limitation or interruption occurs. It is also possible to identify the type of information to be made available to different entities and whether, in emergency situations, it is easy to access it and make it available quickly. There are still other aspects that can be monitored during the exercises/test, namely:

- Communication, at different levels, between entities/actors;
- Any changes to the limits for the exploitation of the infrastructures;
- Identification of critical indicators to be controlled in a crisis;
- Identification of tools and applications that may be useful to control and monitor the control variables;
- Identification of interdependences between industry and public sectors, and relevant players, and their impact on managing the emergency;
- Update of procedures, instructions, flowcharts and action lists;
- Update of contact and entity lists.

According to Article 7 (3) and Article 10 (8), in articulation with Article 12 (1), of the Regulation, in order to ensure that the RPP is always up to date and is effective, at least one simulation test shall be carried out between the updates of the Plans (which occurs every four years, or more frequently if circumstances warrant, or at the request of the Commission), for medium and high impact crisis scenarios and real-time responses. Each test must be carried out within a maximum of two years after the publication of a new version of the Plan. Subsequently, the results of these tests are communicated and presented to the ECG.

The emergency tests will involve, at least, the entities presented in defined in chapter 2. At regional level, regarding regional cooperation, at least the Spanish National Competent Authority (NCA), TSO, DSO, GTM, and NRA can be contacted to be involved in the emergency test. If relevant, other member-states can be contacted/involved, or other entities from Spain, could be also involved, depending on the design of test/testing conditions and their availability and respective validation from Spanish NCA.

At the end of each simulation, a report shall be elaborated identifying the weaknesses and strengths of the exercise, the difficulties felt and the opportunities for improvement, to be introduced in the update/revision of the Plan.



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# **ANNEX I**

## **NATIONAL SCENARIOS - SPECIFIC APPROACH**

(RESTRICTED INFORMATION)



## **ANNEX II**

### **REFERENCE DOCUMENTS AND LEGISLATION**

## REFERENCE DOCUMENTS AND LEGISLATION

Legislation/Documents	Source
<p><b>Decree-Law No. 114/2001</b></p> <p>Establishes the provisions applicable to the definition of an energy crisis, to its declaration and to the exceptional measures to be applied in such a situation.</p>	<p><a href="https://dre.pt/dre/detalhe/decreto-lei/114-2001-362687">https://dre.pt/dre/detalhe/decreto-lei/114-2001-362687</a></p>
<p><b>Decree-Law No. 43/2020</b></p> <p>Creates the National System for Civil Emergency Planning.</p>	<p><a href="https://dre.pt/dre/detalhe/decreto-lei/43-2020-138461839">https://dre.pt/dre/detalhe/decreto-lei/43-2020-138461839</a></p>
<p><b>Decree-Law No. 130/2014</b></p> <p>Approves the organizational law of the Directorate-General for Energy and Geology.</p>	<p><a href="https://files.dre.pt/1s/2014/08/16600/0458104586.pdf">https://files.dre.pt/1s/2014/08/16600/0458104586.pdf</a></p>
<p><b>Decree-Law No. 69/2018</b></p> <p>Amends and republishes Decree-Law No. 130/2014.</p>	<p><a href="https://files.dre.pt/1s/2018/08/16400/0435004368.pdf">https://files.dre.pt/1s/2018/08/16400/0435004368.pdf</a></p>
<p><b>Decree-Law No. 65/2021</b></p> <p>Establishes the provisions and legal framework applicable to the cyberspace security</p>	<p><a href="https://files.dre.pt/1s/2021/07/14700/0000800021.pdf">https://files.dre.pt/1s/2021/07/14700/0000800021.pdf</a></p>
<p><b>ERSE's Regulation No. 406/2021</b></p> <p>Approves the Quality of Service Regulations for the Electricity and Gas Sectors</p>	<p><a href="https://files.dre.pt/2s/2021/05/092000000/0020500324.pdf">https://files.dre.pt/2s/2021/05/092000000/0020500324.pdf</a></p>
<p><b>ERSE's Regulation No. 557/2014</b></p> <p>Approves the Network Operation Regulations for the Electricity Sector, amended by Regulation No. 621/2017</p>	<p><a href="https://files.dre.pt/2s/2014/12/245000000/3202032043.pdf">https://files.dre.pt/2s/2014/12/245000000/3202032043.pdf</a></p>
<p><b>ERSE's Regulation No. 621/2017</b></p> <p>Amends Regulation No. 557/2014</p>	<p><a href="https://files.dre.pt/2s/2017/12/241000000/2848028493.pdf">https://files.dre.pt/2s/2017/12/241000000/2848028493.pdf</a></p>
<p><b>Procedures Manual for the Global Management of the Electricity System</b></p> <p>Approved by ERSE, through Directive No. 10/2018, amended by Directives No. 14/2018, No. 7/2019, No. 9/2020, No. 4/2021, No. 13/2021 and No. 16/2021.</p>	<p><a href="https://www.erse.pt/media/z5hnhvjv/mpggs_20211202.pdf">https://www.erse.pt/media/z5hnhvjv/mpggs_20211202.pdf</a></p> <p><a href="https://files.dre.pt/2s/2018/07/131000000/1888019009.pdf">https://files.dre.pt/2s/2018/07/131000000/1888019009.pdf</a></p>
<p><b>Decree-Law No. 172/2006</b></p> <p>Develops the general principles regarding the organisation and operation of the national</p>	<p><a href="https://files.dre.pt/1s/2006/08/16200/61186156.pdf">https://files.dre.pt/1s/2006/08/16200/61186156.pdf</a></p>



electricity system (SEN), regulating the legal scheme applicable to the exercise of the electricity production, transport, distribution and trade activities and to the organization of the electricity markets.	
<b>Decree-Law No. 76/2019</b> Amends and republishes Decree-Law No. 172/2006.	<a href="https://dre.pt/dre/detalhe/decreto-lei/76-2019-122476954">https://dre.pt/dre/detalhe/decreto-lei/76-2019-122476954</a>
<b>Ordinance No. 41/2017</b> Establishes the remuneration system for the security reserve provided to the National Electricity System (SEN) through availability services provided by electricity producers and other market agents.	<a href="https://files.dre.pt/1s/2017/01/02000/0052700533.pdf">https://files.dre.pt/1s/2017/01/02000/0052700533.pdf</a>
<b>Ordinance No. 592/2010</b> Establishes the conditions applicable to the interruptibility service, to be provided by an electricity consumer.	<a href="https://files.dre.pt/1s/2010/07/14600/0288602891.pdf">https://files.dre.pt/1s/2010/07/14600/0288602891.pdf</a>
<b>Ordinance No. 230-A/2021</b> Repeals Ordinance No. 592/2010 and establishes a transitory regime.	<a href="https://files.dre.pt/1s/2021/10/21101/0000200003.pdf">https://files.dre.pt/1s/2021/10/21101/0000200003.pdf</a>
<b>Law No. 46/2018</b> Establishes the legal framework for cyberspace security, transposing Directive (EU) 2016/1148.	<a href="https://files.dre.pt/1s/2018/08/15500/0403104037.pdf">https://files.dre.pt/1s/2018/08/15500/0403104037.pdf</a>
<b>Decree-Law No. 65/2021</b> Regulates the legal Regime of Cyberspace Security and defines obligations on cybersecurity certification under Regulation (EU) 2019/881 of the European Parliament of 17 April 2019.	<a href="https://dre.pt/dre/detalhe/decreto-lei/65-2021-168697988">https://dre.pt/dre/detalhe/decreto-lei/65-2021-168697988</a>
<b>Preventive Action Plan for the National Gas System</b>	<a href="https://www.dgeg.gov.pt/Media/3n1n2cxq/preventive-action-plan_portugal_revision_april2020.pdf">https://www.dgeg.gov.pt/Media/3n1n2cxq/preventive-action-plan_portugal_revision_april2020.pdf</a>
<b>Emergency Plan for the National Gas System</b>	<a href="https://www.dgeg.gov.pt/Media/uoppkhn1/emergency-plan_portugal_revision_april2020.pdf">https://www.dgeg.gov.pt/Media/uoppkhn1/emergency-plan_portugal_revision_april2020.pdf</a>
<b>Resolution of the Council of Ministers No. 56/2015</b> Approves the National Strategy for Climate Change Adaptation 2020.	<a href="https://files.dre.pt/1s/2015/07/14700/0511405168.pdf">https://files.dre.pt/1s/2015/07/14700/0511405168.pdf</a>
<b>Resolution of the Council of Ministers No. 53/2020</b> Approves the National Energy and Climate Plan 2030 (PNEC 2030).	<a href="https://files.dre.pt/1s/2020/07/13300/0000200158.pdf">https://files.dre.pt/1s/2020/07/13300/0000200158.pdf</a>

<p><b>Resolution of the Council of Ministers No. 45-A/2020</b> Approves the National Plan for Integrated Rural Fires Management</p>	<p><a href="https://www.agif.pt/app/uploads/2020/12/DR_PNGIFR.pdf">https://www.agif.pt/app/uploads/2020/12/DR_PNGIFR.pdf</a>  <a href="https://www.agif.pt/app/uploads/2020/12/20-30_NPIRFM_littledoc.pdf">https://www.agif.pt/app/uploads/2020/12/20-30_NPIRFM_littledoc.pdf</a></p>
<p><b>Resolution of the Council of Ministers No. 92/2019</b> Approves the National Strategy for Cybersecurity.</p>	<p><a href="https://files.dre.pt/1s/2019/06/10800/0288802895.pdf">https://files.dre.pt/1s/2019/06/10800/0288802895.pdf</a></p>
<p><b>Market and Security of Supply Monitoring Report for the National Oil System</b></p>	<p><a href="https://www.dgeg.gov.pt/media/5tuijqcms/rmmsa-p-2020.pdf">https://www.dgeg.gov.pt/media/5tuijqcms/rmmsa-p-2020.pdf</a></p>
<p><b>Law 27/2006 amended by Decree-Law 1/2011 and by Law 80/2015</b> Approves the Civil Protection Law</p>	<p><a href="https://files.dre.pt/1s/2015/08/14900/0531105326.pdf">https://files.dre.pt/1s/2015/08/14900/0531105326.pdf</a></p>
<p><b>Decree-Law 134/2006 amended by the Decree-Law 114/2011 and by Decree-Law 72/2013</b> Creates the Integrated System for Prevention and Relief Operation</p>	<p><a href="https://files.dre.pt/1s/2013/05/10500/0319003199.pdf">https://files.dre.pt/1s/2013/05/10500/0319003199.pdf</a></p>
<p><b>Resolution of the Council of Ministers No. 87/2013</b> Approves the National Civil Protection Emergency Plan</p>	<p><a href="http://planos.prociv.pt/pages/plano.aspx?plano=678">http://planos.prociv.pt/pages/plano.aspx?plano=678</a></p>