

# DIREITO LAW

## Renewable Electricity Generation in Portugal:

the long path for energy transition  
– renewable legislative and  
regulatory framework

### Produção de eletricidade através de fontes renováveis em Portugal

o longo caminho para a transição energética  
- quadro legislativo e regulamentar da  
energia renovável.

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**Abstract**

As oil products and natural gas still account for most of the energy consumed in the country, electricity from renewable endogenous resources makes up for a significant amount of Portugal mainland's generation and consumption. This is the result of abundant renewable resources but also of the overall Portuguese legislative and regulatory stability over the last decades and of public policies that have fostered renewable energy projects since the 90's. Such public policies have set ambitious targets encompassed with stable support schemes based on feed-in tariffs.

The country has however refrained from more favorable measures during the recent economic crisis, only to realize that the decrease in technologies' cost – in particular, for solar energy projects – would allow the operation of power plants using renewable energy under market conditions.

Although Portugal is not – and cannot – solely relying on private investment and on energy market functioning to meet its ambitious goals on renewable electricity generation and consumption, the current and envisaged support schemes are mostly designed to respond to market price signals or destined to innovative technologies and self-consumption.

This article intends to assess the long path of Portugal's energy transition in renewable electricity generation as built so far while understanding how the country is paving the steep road to come.

**Keywords:** renewable energy, electricity, energy, energy transition, energy law, renewable law.

**Resumo**

*Ainda que os produtos petrolíferos e o gás natural representem a maior parte da energia consumida no país, a eletricidade proveniente de recursos endógenos renováveis corresponde a uma quantidade significativa da produção e consumo em Portugal continental. Tal é o resultado de abundantes recursos renováveis, mas também da estabilidade legislativa e regulatória portuguesa que, em geral, marcou as últimas décadas e de políticas públicas que fomentaram os projetos de energias renováveis desde os anos 90. Tais políticas públicas estabeleceram metas ambiciosas, abrangidas por apoios públicos baseados em tarifas feed-in.*

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*O país, no entanto, absteve-se de medidas mais favoráveis durante a recente crise financeira, apercebendo-se gradualmente que a redução do custo das tecnologias – em particular para projetos de energia solar – permitiria a operação de centrais renováveis em condições de mercado.*

*Embora Portugal não dependa – e não possa depender – exclusivamente do investimento privado e do mercado para cumprir as suas ambiciosas metas de produção e consumo de eletricidade renovável, os regimes de apoio atuais e os que se encontram projetados estão desenhados para responder aos sinais dos preços de mercado ou destinam-se essencialmente a tecnologias inovadoras e ao autoconsumo.*

*Este artigo pretende avaliar o longo caminho da transição energética já percorrido até ao momento por Portugal, no que respeita à produção de eletricidade renovável, e entender como o país está a construir o troço íngreme que está por vir.*

**Palavras-chave:** *energia renovável, eletricidade, energia, transição energética, direito da energia, direito das energias renováveis.*

In Portugal, oil products and natural gas account for most of the energy consumed in the country<sup>3</sup>, mainly due to the use of such resources in transportation, industries and the energy sector.

As Portugal is not a fossil fuels producer, all oil and natural gas are imported and domestic generation represents roughly a third of all final energy consumed in the country<sup>4</sup>.

Portugal has been promoting electricity generation through endogenous renewable resources since the 90's both to decrease external energy dependence and to reduce greenhouse gas emissions.

In terms of electricity generation – despite the intermittence of renewable resources and the lack of storage solutions – most of all electricity generated in Portugal is no longer fossil fuel based. In 2018, out of the global electricity generation approximately 51% was renewable energy generated<sup>5</sup>. In 2019, renewable electricity corresponded to 53.25% of all electricity generated in Portugal mainland.<sup>6</sup>

This has been a result of an energy policy, at times influenced by the European Union's legislation and goals, that favored the development and use of endogenous renewable resources to generate electricity. This policy and, therefore, the development of renewable energy, has relied mainly on the approval of public remuneration schemes that guaranteed stability and long-term predictability of return to private investors.

The successful implementation of these schemes has, however, contributed to a significant tariff deficit<sup>7</sup>, not only in Portugal but in other countries of the European Union (to which the economic crisis may have also

3 Data from 2017, available at Relatório do Estado do Ambiente ([www.rea.apambiente.pt](http://www.rea.apambiente.pt)), shows a consumption of 9,041 Mtep of oil products and 5,438 Mtep of natural gas against 1,583 Mtep of electric energy, which is also partially generated through nonrenewable resources such as natural gas and coal.

4 Source Relatório do Estado do Ambiente, available at [www.rea.apambiente.pt](http://www.rea.apambiente.pt).

5 Plano Nacional de Energia e Clima (PNEC 2030), paragraph 1.4.8. Setor Elétrico.

6 Source Portuguese Renewable Energy Association (APREN), available at <https://www.apren.pt/pt/energias-renovaveis/producao>.

7 Cfr. Economic Papers 534 | October 2014 Economic and Financial Affairs ISSN 1725-3187 (online) ISSN 1016-8060 (print) Electricity Tariff Deficit: Temporary or Permanent Problem in the EU?, Asa Johannesson Linden, Fotios Kalantzis, Emmanuelle Maincent, Jerzy Pienkowski: A high share of renewable energy has also proved to have a positive influence on the likelihood of a tariff deficit. This reflects the existence of support systems for renewable electricity, which in many cases have proven very costly. As the deployment of renewables has been more rapid than expected (in some cases, due to overcompensation), the costs related to these systems have also increased fast to large sums. As a result, it has proved difficult for the regulatory authorities to raise tariffs and prices to ensure that the support costs are duly covered in the energy system. Again, the result is losses and deficits of some of the operators in the system.



played a relevant role), as a result of which no further wide-spread public remuneration schemes designed to incentivize renewable energy (feed-in-tariff) have been approved in Portugal since 2012.

Further to that the cost of renewables having fallen significantly<sup>8</sup>, the European Commission fostered the idea that support schemes should adjust to such falling cost<sup>9</sup> while protecting the stability and certainty deemed essential for investor confidence.

Market for renewables was becoming both a necessity and a reality.

Most recently, the newly approved (recast) Renewable Directive<sup>10</sup> determined that support schemes for electricity from renewable sources should be designed so as to maximise the integration of electricity from renewable sources in the electricity market and to ensure that renewable energy producers are responding to market price signals and maximise their market revenues. To that end, with regard to direct price support schemes, support shall be granted in the form of a market premium, which could be, inter alia, sliding or fixed (Article 4, no. 3)

Focus is on transparent criteria and reliable market price signals combined with the required stability of the financial support (Article 6)<sup>11</sup>.

And now that we have reached the (in)famous 2020 mark, the binding overall Union target for 2030 is set at 32 %: at least 32% of the Union's gross final consumption of energy in 2030 should originate from renewable sources (Article 3).

What will be Portugal's performance in electricity renewable generation going forward and how is the country designing its policies to secure the intended and required contribution to the European global efforts is what we intend to assess here in below.

## A. Portuguese renewable legal framework and policy – evolution and most significant features of the support schemes

Understanding the evolution of the Portuguese legal framework and the manner in which it has been responsible for the aforementioned successful results is essential to assess the prospects of the renewable electricity generation in Portugal.

8 According to the latest report from the International Renewable Energy Agency (IRENA), renewable power would be the cheapest source of electricity in many parts of the world already today. Cfr. <https://www.irena.org/newsroom/pressreleases/2019/May/Falling-Renewable-Power-Costs-Open-Door-to-Greater-Climate-Ambition>.

9 In November 2013, guidelines have been approved by the European Commission which addressed the need for reform (Commission Staff Working Document «European Commission guidance for the design of renewables support schemes», Brussels, 5.11.2013) and in June 2014, the guidelines approved by the European Commission on State aid for environmental protection and energy 2014-2020 have defined as conditions to apply from 1 January 2016 to all new aid schemes and measures, one of which would be that aid would be granted as a premium in addition to the market price (premium) whereby the generators sell its electricity directly in the market.

10 Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources.

11 1. Without prejudice to adaptations necessary to comply with Articles 107 and 108 TFEU, Member States shall ensure that the level of, and the conditions attached to, the support granted to renewable energy projects are not revised in a way that negatively affects the rights conferred thereunder and undermines the economic viability of projects that already benefit from support. 2. Member States may adjust the level of support in accordance with objective criteria, provided that such criteria are established in the original design of the support scheme. Member States shall, at least every five years, assess the effectiveness of their support schemes for electricity from renewable sources and their major distributive effects on different consumer groups, and on investments. That assessment shall take into account the effect of possible changes to the support schemes. 4. The indicative long-term planning governing the decisions of the support and design of new support shall take into account the results of that assessment. Member States shall include the assessment in the relevant updates of their integrated national energy and climate plans and progress reports in accordance with Regulation (EU) 2018/1999.

Electricity generation in Portugal is currently divided into two legal regimes: an ordinary regime (*regime ordinário*) and a special regime (*regime especial*). Special regime generation comprises (i) the generation activity subject to a specific legal framework, such as electricity generation through cogeneration (renewable or non-renewable) or endogenous resources (e.g. wind, solar, biomass, biogas), small scale generation and generation without network injection, as well as (ii) generation of electricity using endogenous resources, either renewable or non-renewable, which is not subject to a specific legal framework. Ordinary regime generation includes all remaining generation activities that are not subject to specific legal regimes, as well as power plants i) operating under power purchase agreements entered into under the legal framework that was approved in 1995, ii) benefiting from compensations that were legally granted to the relevant producers when such agreements were terminated in the context of the system's liberalization, and iii) benefiting from capacity remuneration mechanisms<sup>12</sup>.

From a legislation standpoint, Decree-Law no. 189/88, of 27 May ("DL 189/88")<sup>13</sup> was, for over 20 years, the general framework of the support scheme applicable to special regime electricity generation<sup>14</sup>. This did not however correspond to the initial scope of such Decree-Law, which was enacted with a view to create conditions for small producers that operated power plants with a maximum installed apparent power of 10,000 kVA to access the activity of electricity generation<sup>15</sup>, using renewable resources, national fuels or industrial, agricultural or urban waste, or generation through cogeneration power plants with no power limitation.

DL 189/88 laid out the provisions that granted small producers a guaranteed remuneration (*tarifa de venda*) determining that they were to invoice the electricity supplied to the grid on a monthly basis, according to the defined feed-in tariff, for a period of 8 years.

The limitation in the installed power of power plants was later partially eliminated by Decree-Law no. 313/95, of 24 November, which, in the context of a legislative package approved in 1995<sup>16</sup>, amended DL 189/88 and established that it applied to electricity generation through renewable resources, national fuels or industrial, agricultural or urban waste, and only hydroelectric power plants should remain subject to the installed apparent power limitation of 10 MVA<sup>17</sup>.

In terms of support schemes, DL 189/88 distinguished between power plants with a maximum connection power of 10 MVA and other power plants:

<sup>12</sup> As per Articles 17 and 18 of Decree-Law no. 29/2006, of February 15 ("DL 29/2006").

<sup>13</sup> Amended by Decree-Law no. 168/99, of 18 May, Decree-Law no. 312/2001, of December 10, 339- C/2001, of 29 December; Decree-Law no. 33-A/2005, of 16 February; and Decree-Law no. 225/2007, of 31 May.

<sup>14</sup> Even though DL 189/88 has been the basis of the support scheme for renewable electricity, special regimes governing electricity generation through specific energy sources have been approved by other legislative acts – in particular, Decree-Law no. 132-A/2010, of 21 December (public tender to grant grid capacity for photovoltaic projects), Decree-Law no. 126/2010, of 23 November (small hydroelectric power plants) and Decree-Law no. 5/2011, of 10 January (biomass power plants).

<sup>15</sup> The reference to small-scale electricity generation and to the self-generator was initially made in Law no. 2002, of 26 December 1944, concerning the country's electrification, in Decree-Law no. 502/76, of 30 June, which created the Public Electricity Company (*Empresa Pública de Electricidade*) and in Decree-Law no. 20/81, of 28 January, which promoted electricity self-generation.

<sup>16</sup> In July 1995, a package of legislation was approved, containing the new framework for the electricity system. The basis of such system was established by Decree-Law no. 182/95, of 27 July.

<sup>17</sup> Under the terms of paragraph 1 of article 3 of Decree-Law no. 182/95, of 27 July, the National Electricity System was divided into the Public Service Electricity System (*Sistema Eléctrico de Serviço Público*) and the Independent Electricity System (*Sistema Eléctrico Independente*), which, in turn, included:

- The Unbound Electricity System (*Sistema Eléctrico Vinculado*);
- Electricity generation by hydroelectric power plants with an installed apparent power of 10 MVA or lower;
- Electricity generation through renewable resources, except for hydro; and
- Electricity generation by cogeneration power plants.

The organization of the National Electricity System was later rearranged in 2006 and references to the Public Service Electricity System and the Independent Electricity System were eliminated.

- i) the energy supplied by the former was invoiced on a monthly basis with a guarantee, during the return on investment period or during the first 8 years of operation, whichever was lower, of a revenue corresponding to 90% of the revenue that would be obtained if market prices would apply;
- ii) the energy supplied by the remaining power plants would be purchased as follows: the first 10 MVA would be valued according to the criteria applicable to smaller power plants and supplementary supplies would be remunerated for 15 years according to total avoided costs.

The reference to fuels made under DL 189/88 was eliminated by Decree-Law no. 168/99, of 18 May ("DL 168/99"), which reduced its scope by referring only to power plants using renewable resources or industrial, agricultural or urban waste. In 1999, the support scheme was also amended and pursuant to such amendment power plants would benefit from the public grid's obligation to purchase all energy generated during the full licensing period and benefit from a feed-in tariff (that would change after the first 144 months of operation).

Decree-Law no. 339-C/2001, of 29 December ("DL 339-C/2001") amended DL 189/88 and pursuant to such amendment the coefficient (Z) used to determine the applicable feed-in tariff would be differentiated by primary energy. A variable amount would apply to electric energy generated by wind farms according to the operation hours: the coefficient would take on a higher number during the first two thousand hours and the energy generated within the period after the first two thousand hours would be remunerated at lower values. Hydroelectric and wave power plants would benefit from a fixed coefficient, whereas photovoltaic power plants' coefficient would depend on the installed capacity.

DL 339-C/2001 was also responsible for other two relevant amendments: i) it created an obligation, applicable only to the holders of operation licenses for wind farms, to pay a rent to the municipality where the power plants are located; and ii) it removed time limitations to the power plants' operation, due to their permanent contribution to the environment.

Pursuant to Directive 2001/77/EC, of the European Parliament and of the Council, of 27 September 2001, on the promotion of electricity produced from renewable energy sources in the internal electricity market<sup>18</sup>, Portugal established the indicative target of 39% for electricity generation based on renewable resources to be reached in 2010<sup>19</sup>.

By the late 90's, 90% of renewable electric energy was generated by large hydroelectric power plants and the estimation was that, in order to fulfill the referred 39% target, new hydroelectric power plants with a capacity higher than 10 MW would have to be built and other renewable capacity, only possible with financial state aid, would have to increase at an annual rate eight times higher than has occurred until then<sup>20</sup>.

The wind sector was more suited to fulfill this goal, given the economic availability of the resource and the use of more mature and competitive technologies. As such, the Portuguese government approved new guidelines

18 Article 3 established that Member States had to take appropriate steps to encourage greater consumption of electricity produced from renewable energy sources in conformity with the national indicative targets for future consumption of electricity produced from renewable energy sources in terms of a percentage of electricity consumption for the next 10 years that had to be adopted by Member States.

19 The Directive established a reference value of 39% for Portugal's indicative target for electricity produced from renewable energy sources. The intention to promote renewable electricity generation was reinforced on Resolution of the Council of Ministers no. 59/2001, of 30 May and Resolution of the Council of Ministers no. 154/2001, of 19 October, and Resolution of the Council of Ministers no. 169/2005, of 24 October.

20 Report from the Directorate General for Energy and Geology, available at [http://escoladaenergia.abae.pt/investiga/docs/pdf/MetasProducaoElectricidade\\_FontesRenovaveis.pdf](http://escoladaenergia.abae.pt/investiga/docs/pdf/MetasProducaoElectricidade_FontesRenovaveis.pdf) and footnote 4 of the Annex in Directive 2001/77/EC.

for energy policy through Resolution of the Ministers' Council no. 63/2003, of 28 April, establishing the intention to go from 101 MW of wind power installed capacity in 2001, to 3,750 MW in 2010. According to such Resolution, in 2001, Portugal had a hydro installed capacity of 4,209 MW, which was expected to reach 5,000 MW by 2010, and solar power plants represented only 1 MW with the intention of reaching 150 MW by that year.

In 2005, the timing restriction of the feed-in tariff came to be reinstated by Decree-Law no. 33-A/2005, of 16 February, which also set specific coefficients for each primary energy (the highest being solar energy, due to the cost of technology at the time) and a maximum energy to be injected into the grid at the applicable feed-in tariff or, alternatively, a maximum period for the power plants to benefit from such feed-in tariff (in most cases, 15 years, which, depending on the primary energy used, could be extended), whichever occurred first. Upon reaching either one of these limits, the energy generated by renewable energy projects and injected into the grid would be remunerated at market prices.

The National Strategy for Energy approved by Resolution of the Ministers' Council no. 169/2005, of 24 October, clearly stated that the hydro and the wind components would be essential to meet the established target for renewable electricity generation as the generation cost was lower and would thus have less impact on the average tariffs charged to the end consumers. This Resolution also increased the target for wind power generation to 5,100 MW by 2010.

The acceleration in wind energy investment – and, at a much lower rate, in solar energy – was also triggered by the launch of public tenders that would establish specific remuneration schemes for the selected projects<sup>21</sup>.

In fact, according to IRENA, the most significant increase of wind power installed capacity in Portugal took place between 2004 and 2009. During this time more than 500 MW was installed annually<sup>22</sup>.

The support scheme defined by DL 189/88 came to be lastly amended by Decree-Law no. 225/2007, of 31 May, with a view to reflect the measures approved by the aforementioned National Strategy for Energy with regards to the evaluation of the remuneration criteria according to the specificities of each technology and to environmental criteria.

In May 17, 2011, amidst an economic crisis, the Portuguese authorities, the European Union and the International Monetary Fund agreed to a Memorandum of Understanding in the context of the Financial Assistance Program to Portugal, which included the following measures:

- i)* Review the efficiency of support schemes for co-generation and propose possible options for adjusting downward the feed-in tariff used in co-generation (reduce the implicit subsidy);
- ii)* Review in a report the efficiency of support schemes for renewables, covering their rationale, their levels, and other relevant design elements;
- iii)* For existing contracts in renewables, assess in a report the possibility of agreeing a renegotiation of the contracts in view of a lower feed-in tariff;
- iv)* For new contracts in renewables, revise downward the feed-in tariffs and ensure that the tariffs do not over-compensate producers for their costs and they continue to provide an incentive to

21 According to IRENA's report on wind power in Portugal, the reference tariff offered in the context of wind power public tenders was determined under DL 189/88 (as amended by DL 33-A/2005), but each of the bid winners gave discounts, which ranged between 5% for phases A and B of the procedure, to a maximum of 23% for one of the projects in phase C (meaning a bid of only €57/MWh (cfr. footnote 161 of the report, available at [https://www.irena.org/documentdownloads/publications/irena\\_gwec\\_windreport\\_portugal.pdf](https://www.irena.org/documentdownloads/publications/irena_gwec_windreport_portugal.pdf)).

22 Report on wind power in Portugal available at [https://www.irena.org/documentdownloads/publications/irena\\_gwec\\_windreport\\_portugal.pdf](https://www.irena.org/documentdownloads/publications/irena_gwec_windreport_portugal.pdf).

reduce costs further, through digressive tariffs. For more mature technologies develop alternative mechanisms (such as feed-in premiums);

- v) Decisions on future investments in renewables, in particular in less mature technologies, will be based on a rigorous analysis in terms of its costs and consequences for energy prices. International benchmarks will be used for the analysis and an independent evaluation will be carried out;
- vi) Reduce the delays and uncertainty surrounding planning, authorization and certification procedures and improve the transparency of administrative requirements and charges for renewable energy producers (in line with Article 13 and 14 of EU Directive 2009/28/EC). Provide evidence of the measures taken to this end.

In this context, the Portuguese government approved Decree-Law no. 25/2012, of 6 February, which suspended the licensing procedures for new capacity. The goal was to implement the ambitious reform agenda set out by the Memorandum, to regain economic growth and to restore investor confidence. The reason for such suspension being essentially the so-called over cost of renewable energy generation which represented a significant cost to the electricity price and a large portion of the tariff deficit.

This suspension was revoked in the same year by Decree-Law no. 215-B/2012, of 8 October ("DL 215-B/2012") which, on its turn, revoked DL 189/88.

Despite the revocation of DL 189/88, the feed-in tariff support scheme defined therein would remain applicable to power plants whose licensing rights were granted i) in the context of public tenders, ii) under DL 33-A/2005 (in accordance with its own transitional period rules as amended by DL 225/2007), or iii) prior to the entry into force of DL 215-B/2012 or within the specific time limits counted as of such entry into force (paragraph 5 of Article 15).

In fact, in general, within the successive changes made throughout time to the feed-in tariff regime, the applicability of new feed-in tariffs was set by reference to the moment in which the producers had obtained their licensing rights so as to protect the investment decision made and to protect legal certainty and safeguard investors' confidence<sup>23</sup>. With the exception of the reduction of the feed-in tariff period applicable to electric energy generated by small hydroelectric power plants (as referred hereinbelow), renewable energy support schemes in Portugal have been fairly stable and, whenever amended, transitional provisions have been defined<sup>24</sup>.

DL 215-B/2012 introduced significant changes to Decree-Law no. 172/2006, of 23 August<sup>25</sup> ("DL 172/2006"), which establishes the legal framework applicable to the activities of electricity generation, transmission, distribution and supply, as well as the logistics for switching suppliers, markets organization and the procedures to access such activities.

Upon the enactment of DL 215-B/2012 and the revocation of DL 189/88, DL 172/2006 became the framework for special regime generation (Chapter III).

23 For a view of the arbitral decisions rendered in the arbitrations initiated by foreign investors against Spain, the Czech Republic and Italy as States which approved withdrawal measures in the renewable energy sector, cfr. Round-Up of Arbitrations in the Renewable Energy Sector: Lessons for Portugal, Filipe Vaz Pinto, and Joana Granadeiro, in e-Pública Vol. 6 No. 2, Setembro 2019 (073-113), available at <https://www.e-publica.pt/volumes/v6n2/pdf/a6n2v6.pdf>.

24 For example, Article 4 of DL 33-A/2005.

25 Amended by Decree-Law no. 264/2007, of 24 July, Decree-Law no. 23/2009, of 20 January, Decree-Law no. 104/2010, of 29 September, Decree-Law no. 215-B/2012, of 8 October, by Law no. 7-A/2016, of 30 March, by Decree-Law no. 38/2017, of 31 March, and Decree-Law no. 152-B/2017, of 11 December, by Law no. 114/2017, of 29 December, and by Decree-Law no. 76/2019, of 3 June.



Until 2012, a support scheme based on a feed-in-tariff (along with subsidies granted with European funds<sup>26</sup>) and on an obligation of the last resort supplier as public service off taker to purchase all the energy generated were the corner stone of the renewables policy. DL 215-B/2012 inaugurated the licensing regime for merchant renewable energy projects.

As per Article 33-G of DL 172/2006, as amended by DL 215-B/2012, special regime generation (including renewable) could now be carried out in the context of one of the following support schemes:

- i) general regime (regime geral) – whereby producers trade the generated electricity under organized markets or by executing bilateral agreements with end customers or electricity suppliers, including market aggregators;
- ii) guaranteed remuneration regime (regime de remuneração garantida) – whereby the electricity generated is sold to the supplier of last resort against the payment of a feed-in tariff.

However, even though the new rules applicable to renewable electricity generation established that a guaranteed remuneration could be granted to these projects, such a support scheme lacked additional regulation which, to this date, has not materialized.

In 2013, during the execution of the Financial Assistance Program, the Portuguese government approved Decree-Law no. 35/2013, of 28 February (“DL 35/2013”), which established a set of new rules affecting small hydroelectric power plants and windfarms in operation.

As per Article 3 of DL 35/2013, small hydroelectric power plants subject to the support scheme set out under DL 189/88, as in force prior to the enactment of DL 33-A/2005, would only benefit from such remuneration scheme for a period of 25 years as of the date of the operation license or upon expiry of the title that allows the use of hydro resources (título de utilização dos recursos hídricos), whichever occurred first. After such period, the electric energy generated by these hydroelectric power plants would be sold under market rules<sup>27</sup>.

DL 35/2013 also contained legal provisions affecting the support scheme applicable to wind farms under operation licensed between the entry into force of DL 33-A/2005 (i.e. 17 February 2005) and the entry into force of DL 215-B/2012 (i.e. 7 November 2012). Among these provisions, an alternative remuneration regime was defined allowing certain wind energy producers to, once the period of the initial remuneration scheme had expired, choose an additional support scheme. According to this scheme, producers would sell electricity at a set price, corresponding to the average market price of the previous twelve months, subject to a floor of €74/MWh and a cap of €98/MWh or to a reference value with a minimum limit of €60/MWh, for a period of either five or seven years following the initial 15-year term, against the payment of a compensation, to be

26 Other measures created to finance renewable electricity generation projects were also relevant to boost this activity. One of those measures was created in the context of the Incentives Program for the Modernization of Economy (“PRIME”), approved by Resolution of the Council of Ministers no. 101/2003, of 8 August. PRIME’s main goal was to promote Portuguese economy’s productivity and competitiveness by supporting company’s strategies that would allow for a sustainable development and reinforce their competitiveness. The Support Measure for the Use of Energy Potential and the Rationalization of Consumption (“MAPE”) was regulated by Ministerial Order no. 394/2004, of 19 April and included renewable electricity generation as one of the projects that could be selected and the benefit from MAPE’s refundable or nonrefundable incentives. Additionally, these projects could also be eligible to benefit from the incentives granted under the System for the Promotion of Rational Use of Energy (Sistema de Incentivos à Utilização Racional da Energia – “SIURE”), created by Decree-Law no. 188/88, of 27 May to finance projects in the energy sector. The incentives were a direct financial co-funding of the investment. Ministerial Order no. 334/88, of 27 May established the application’s procedure, as well the percentages of the co-funding applicable to each type of project.

27 These changes to the support schemes of small hydro power plants under operation, as they may be deemed to entail a decrease of the feed-in tariff period, raise serious questions of compatibility with the Portuguese Republic Constitution (Constituição da República Portuguesa) in particular with i) the principle of proportionality (Article 18); ii) the principle of trust and good faith; and iii) the property right (Article 62).

paid between 2013 and 2020, corresponding to €5,000 or €5,800 per MW of installed capacity, respectively. The goal of the aforementioned compensation would be to contribute to the sustainability of the National Electricity System<sup>28</sup>.

On 24 June 2014, a new regime was approved for the placement of additional energy and for the overpowering (*sobreequipamento*) of existing wind farms (i.e., increasing the installed capacity of existing wind farms by installing additional wind turbines up to 20% of the respective connection power) which was further regulated by Ministerial Order no. 102/2015 of 7 April. Out of the measures approved by this regime, the most relevant would be that such additional energy as well as the energy produced by wind turbines pertaining to the overpowering would be remunerated at a feed-in tariff of €60/MWh, which would be applicable until the end of the feed-in tariff period of the existing wind farms.

Ministerial Order no. 246/2018, of 3 September, however, compromised the applicability of this regime by determining that the licensing entity should always obtain a prior favorable opinion of ERSE (Entidade Reguladora de Serviços Energéticos – the Portuguese Regulatory Authority for Energy Services). This Ministerial Order further determined that such favorable opinion should be refused in case the overpowering is considered detrimental to the public interest and to the consumers' interests. On 31 January 2019, the impact of this requirement came to be softened by Ministerial Order no. 43/2019 which determined that the opinion of ERSE would not be required if the applicant explicitly accepted that the feed-in tariff applicable to the energy generated in connection with the wind farm repowering would be €45/MWh (instead of the referred €60/MWh).

Recently Decree-Law no. 76/2019, of 3 June ("DL 76/2019") amended DL 172/2006. This amendment focused mainly on the licensing procedures of (renewable) electricity generation projects, as there is growing interest in merchant solar projects which generated a shortage of grid capacity to allow the installation of all projects.

In fact, in the years following 2012, there was a certain halt in the investment in the renewable sector. There were no widespread support schemes for renewable energy investment and several concerns were raised around the impacts that could have in the long run for the country. However, a few years ago, a rampant interest in the deployment of solar energy in Portugal emerged. This interest persisted even without a support scheme and the requests for the attribution of generation licenses exceeded the available grid capacity.

As a result, the government approved Ministerial Order no. 62/2018, of 2 March, which determined that grid capacity for merchant projects would be granted by means of allotments. That was the case in 6 April 2018. Projects that were not granted grid capacity would be ranked and generation licenses would be granted as soon as further investment in grid expansion would be made.

Pursuant to DL 76/2019, the generation license now depends upon the prior reservation of grid capacity, which can be secured by means of a) a permit issued by the relevant system operator, as per the applicant's request, b) an agreement entered into by and between the applicant and the relevant system operator, whereby the former undertakes to pay the costs of the grid's construction or reinforcement, or c) a permit issued by the relevant system operator under the terms established by the corresponding competitive procedure. After obtaining the grid capacity reservation permit or agreement, upon the provision of a bond by

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<sup>28</sup> On 23 July 2020, the parliamentary group of Bloco de Esquerda submitted draft bill no. 478/XIV/1.<sup>3</sup> to the Parliament, which intends to revoke DL 35/2013. This initiative is influenced by the report that was prepared by the Parliamentary Inquiry Commission that was created by Resolution of the Portuguese Parliament no. 126 /2018, of 11 May, to ascertain whether there are excessive rents in the electricity generation sector, in particular in the remuneration of both the ordinary regime and the special regime generators (feed-in tariffs), and, if so, to establish any responsibility of political officeholders who had influence over the definition of the energy rents.

the applicant to guarantee that it obtains the relevant generation license<sup>29</sup>, the applicant shall initiate the procedure to obtain the corresponding generation license, including, in particular, securing the land, confirming if there are any environmental or land use constraints that need to be addressed with the relevant authorities and concluding the power plant's project.

Special regime generation may still benefit from a guaranteed remuneration regime (feed-in tariff support scheme); however exclusively i) in the context of a competitive procedure to new power plants, ii) in the case of power plants with an installed capacity of up to 1 MW, iii) in the case of overpowering or iv) in the case of generation units that are installed within a preexisting power plant and use a different primary energy source (hybrid systems).

Therefore, special regime generators are currently remunerated either through market prices or through guaranteed remuneration support schemes. From 2012 to 2019, since no guaranteed remuneration scheme was approved for new projects (other than for small scale/self-consumption, cogeneration and biomass projects), renewable energy projects in Portugal either benefited from a feed-in tariff granted under a legislative framework prior to 2012, selling energy to the supplier of last resort, through a power purchase agreement ("PPA") which content is determined by a regulation<sup>30</sup>, or were licensed after 2012 under a market regime (either organized markets or bilateral agreements).

Without a traditional PPA with the public service off-taker and a reliable and determinable financial long-term return, renewable energy producers experience additional challenges in structuring financing for the projects, venturing into the new world of the so-called virtual PPAs, as a way to mitigate the price volatility risk of spot-market sales and increase cash-flow stability. This, however, does not seem to have been significantly detrimental to national and foreign investors in solar energy projects in Portugal.

Actually, as referred hereinabove, the high number of licensing requests for utility-scale solar energy projects under a market regime resulted in a shortage of available grid capacity which created the need for establishing new rules to obtain a generation license when the requested capacity exceeded the grid capacity (governed by the aforementioned Ministerial Order no. 62/2018, of 2 March). These rules were then revoked by DL 76/2019 which, conversely, approved new rules for dealing with the mentioned scarcity and granting licenses for electricity generation projects and opening the door for PV auctions.

On 6 June 2019, the Dispatch 5532-B/2019 launched an auction to grant grid capacity at specific points of dispatch, amounting to 1,400 MW for solar energy projects. The auction was managed by OMIP (Operador do Mercado Ibérico de Energia (Pólo Português)) – a regulated market operator that provides a trading platform for energy products – and potential candidates had to submit proposals until 7 July. Each participant submitted proposals either to benefit from a guaranteed remuneration (feed-in tariff) or to trade electricity under market conditions, against the payment of a contribution to the National Electricity System. Price bids were placed in tandem with the respective quantity by the participants for each remuneration arrangement. The quantities incorporated in the bid corresponded to the volume, in MW, of the dispatch capacity the participants intended to acquire within the corresponding batch. The price incorporated in the bid corresponded,

29 The amount of the bond varies according to the procedure and the reservation title that the applicant intends to obtain. As such, if the applicant has submitted a request and has been granted a permit issued by the relevant system operator, it must provide a bond in the amount of €10,000 per MVA. Where grid reservation has been established by an agreement between the applicant and the relevant system operator, the bond shall correspond to either 5% of the costs to be borne by the applicant or €10,000 per MVA, whichever is higher. Where the applicant has been granted a permit by the relevant system operator in the context of a competitive procedure, the amount shall be established by the documentation of such procedure.

30 There are also some projects that have benefitted from a feed-in tariff granted prior to 2012 and that have very recently reached the end of the feed-in tariff period and therefore have transitioned into a market regime, selling energy under organized markets or through bilateral agreements.

in the case of a guaranteed remuneration, to a discount (expressed as a %) on the reference feed-in tariff (set, in this specific auction at €45/MWh), and, in the alternate case of a “general remuneration”, to a compensation amount (expressed in €/MWh) to be paid to National Electricity System. Both remuneration schemes are in place for a period of 15 years.

The final results of the solar auction were announced by The Directorate General for Energy and Geology (Direção Geral de Energia e Geologia, “DGEG”) on 7 August 2019: 24 projects were selected with feed-in tariffs ranging from €14.76/MWh to €31.16/MWh and compensations of roughly €45/MWh. It was deemed a record-low result<sup>31</sup> and an all-around success by the Portuguese government.

After being postponed by the Portuguese Government during the public presentation of the procedure to grant grid capacity to solar energy projects held on 27 March, the 2020 solar auction was launched by Dispatch no. 5921/2020, of 29 May, of the Secretary of State for Energy. Applications were submitted until 31 July 2020.

According to the auction’s documents, the following remuneration schemes are available:

- a) variable premium over the daily market’s closing price in the Portuguese area of MIBEL (prémio variável por diferenças);
- b) pure market remuneration in which a fixed compensation to the National Electricity System (compensação fixa ao Sistema Elétrico Nacional) is paid as a compensation for the reserve capacity title granted under the auction;
- c) flexibility fixed premium, applicable exclusively to power plants with an integrated storage infrastructure (prémio fixo por flexibilidade), against the payment to the National Electricity System of an insurance that covers the risk of market prices being higher than the established activation limit.

Even though general rules for renewable energy generation are established by DL 172/2006, several special legal regimes have been approved throughout the years to tackle small-scale generation or specific technologies (such as, cogeneration, biomass power plants), or even the abovementioned legal regime applicable to overpowering of windfarms.

In fact, despite the general intermission in support schemes for new renewable projects since 2012, the Portuguese government continued to foster distributed renewable energy projects as a way to contribute to the fulfillment of the national targets.

Decree-Law no. 153/2014, of 20 October (“DL 153/2014”), further regulated by Ministerial Orders nos. 14/2015 and 15/2015, of 23 January, and Ministerial Order no. 60-E/2015, of 2 March, defined the legal regimes concerning renewable and non-renewable generation for self-consumption and small-scale renewable generation activities.

Ministerial Order no. 15/2015, of 23 January, set the reference feed-in tariff to be applied in 2015 to the electricity produced by small scale generation to €95/MWh and determined the percentages to be applied to the reference feed-in tariff, according to the energy source used by those generators: 100% for PVs, 90% for biomass and biogas, 70% for wind farm and 60% for small hydro. These tariffs have been yearly extended since 2015<sup>32</sup>.

With regards to the self-consumption legal regime approved by DL 153/2014, the intention was to boost the installation of power plants closer to the producers’ consumption facilities as a way to promote the energy

<sup>31</sup> Cfr. <https://www.forbes.com/sites/dominicdudley/2019/10/17/cheapest-solar-energy-in-the-world/#453862214772>.

<sup>32</sup> The latest extension was approved by Ministerial Order no. 115/2019, of 15 April.



generated by such plants. Although the framework did not intend for this to be an economic activity, it did allow for producers to inject excess energy to the grid (at a price slightly below market price). This energy would be purchased by the last resort supplier if the power plant used renewable energy and had an installed capacity lower than 1 MW.

Pursuant to the enactment of DL 76/2019, the licensing of new renewable energy projects based on one single generation technology with a maximum installed capacity of 1 MW with the purpose of selling all electricity generated to the grid is now governed by DL 172/2006. The remuneration scheme is identical to the one established under DL 153/2014, i.e., it is based on a competitive bidding where applicants offer discounts to the reference tariff established by the Portuguese government. Alternatively, applicants may choose to sell electricity under a market regime provided, however, that, until the attribution of the market facilitator's license, the last resort supplier must purchase the electricity generated by special regime generation power plants with an injection power no higher than 1 MW operating under the general regime at a pre-established tariff.

DL 76/2019 has repealed the provisions of DL 153/2014 in what concerns renewable small-scale generation units where the grid connection capacity is equal to or less than 250 kW and which output is to be entirely delivered to the grid and a new framework for small scale renewable generation has recently been approved.

On 25 October 2019, Decree-Law no. 162/2019 established a new legal framework for self-consumption through renewable energy generation units ("UPAC"), by individual or collective consumers and by energy communities ("CER")<sup>33</sup>. This Decree-Law revoked DL 153/2014<sup>34</sup> and partially transposed Directive (EU) 2018/2001, of the European Parliament and of the Council, of 11 December 2018, on the promotion of the use of energy from renewable sources.

UPAC shall use exclusively renewable primary energy. The producer no longer relies on the supplier of last resort to sell excess energy from the UPAC and must trade such energy under an organized or bilateral market, through market participants against the payment of a price determined by the parties, or through the market aggregator.

Of particular relevance to the setting up of energy communities is the fact that UPACs may now provide electric energy to more than one consumption facility<sup>35</sup>.

On 30 December 2019, DGEG published Order no. 46/2019 approving the rules for the operation of the relevant IT platform and technical rules applicable to self-consumption projects. After conducting a public consultation on self-consumption's regulation until 4 February 2020, ERSE approved Regulation no. 266/2020,

33 Decree-Law no. 162/2019 shall be effective on 1 January 2020, for individual self-consumption and collective self-consumption or CER projects, with smart metering systems and that have been installed at the same voltage level, but only on 1 January 2021, for other self-consumption projects.

34 DL 153/2014 shall however continue to apply to self-consumption non-renewable energy generation units that have been licensed under the terms of such diploma and to power purchase agreements that have been entered into by consumers operating renewable energy generation units for self-consumption and the supplier of last resort.

35 UPACs may be operated by:

- i) individual self-consumers, i.e., the end consumer that generates electricity for its own use;
- ii) collective self-consumers, organized as condominiums in buildings and groups of self-consumers whose consumption facilities are located in the same building or apartment/house area, in neighbourly relations, in industrial, commercial or agricultural units; and
- iii) CER, which are profit or non-profit legal persons to which members, partners or shareholders voluntarily adhere to, and the latter may be individual or legal persons, of private or public nature, including, in particular, small and medium enterprises and local authorities.

The members or participants of CER must be located close to the renewable energy projects or carry out activities related to the corresponding CER's projects. In addition, the relevant renewable energy projects must be owned and operated by the CER whose overall purpose is to provide its members or the community environmental, economic and social benefits, instead of financial benefits.

of 20 March, which governs individual and collective electric energy self-consumption. In terms of support schemes, the legal framework applicable to the generation of electricity through cogeneration established by Decree-Law no. 23/2010, of 25 March<sup>36</sup> (“DL 23/2010”) also continued to be in force beyond 2012.

The terms of the applicable remuneration schemes (granted both to renewable and non-renewable energy generation) depend on the time the licensing procedure was carried out. For cogeneration power plants operating at the time of its entry into force, DL 23/2010, as amended by Law no. 19/2010, of 23 August, established a transitional regime, allowing for generators with an operation license to choose between the previous remuneration scheme (for a maximum period of 15 years from the beginning of the operation license or, if earlier, 10 years after the entry into force of DL 23/2010) and the remuneration scheme approved by said decree-law.

The terms for the calculation of the reference tariff and the efficiency, renewable and market participation premiums, as well as the provisions regarding the transition into the remuneration scheme approved by DL 23/2010, were then enacted by Ministerial Order no. 140/2012, of 14 May, as amended by Rectification no. 35/2012, of 11 July, and Ministerial Order no. 325-A/2012, of 16 October.

In 2015, amendments were introduced, by Decree-Law no. 68-A/2015, of 30 April, setting out a more expeditious regime for obtaining a license for generation of electricity through cogeneration, a new way of calculating the reference tariff payable to cogenerators, as well as new rules on the transitional remuneration scheme.

The remuneration mechanism is currently based on two methods subject to the choice of the cogeneration generator: a general regime, where the compensation is either defined by market value, or, if the injection capacity is less than or equal to 20 MW and the energy is self-consumed, a feed-in tariff based on market value and paid by the last resort supplier; and a special regime that is only available for generators with an injection capacity lower than or equal to 20 MW, defined by a temporary reference tariff plus an efficiency premium and a renewable premium, if applicable. The values of the reference tariffs are defined quarterly by Directorate General for Energy and Geology.

Even though renewable energy has historically been supported by successive governments, not only the general intermission in the support schemes since 2012 but also some measures approved throughout the recent years imposing financial contributions on renewable generation projects raised occasional concerns around investor confidence in the sector.

Up to very recently, only a few financial contributions were specifically applicable to renewable generation. Decree-Law no. 424/83, of 6 December established a payment obligation of an annual rent to the municipalities affected by a power plant's catchment area (“zona de influência de centro produtor de energia elétrica”) and DL 189/88 established, since 2001, the obligation of wind energy producers to pay a rent to the municipalities where the windfarms are installed (corresponding to 2.5% of the monthly payment made by the supplier of last resort to the producers).

In 2010, the Portuguese government approved the application of a discount to the low voltage access tariff paid by consumers – the electricity social tariff. This social tariff was established by Decree-Law no. 138-A/2010, of 28 December, as amended by Decree-Law no. 172/2014, of 14 November, and by Law no. 7-A/2016, of 30 March. Such discount – which is, in essence, a social measure to protect low income families – is borne by the private sector: the electricity producers in the ordinary regime and producers operating hydroelectric power plants with an installed capacity above 10 MVA. The rate of discount of the social tariff is established annually by order of the member of the government responsible for energy affairs.

<sup>36</sup> As amended by Law no. 19/2010, of 23 August, Decree-Law no. 68-A/2015, of 30 April (the latter amended by the Rectification no. 30-A/2015, of 26 June) and by Law no. 71/2018 of 31 December.

Further to that, Decree-Law no. 74/2013, of 4 June (“DL 74/2013”), amended by Decree-Law no. 104/2019, of 9 August<sup>3738</sup>, provided for the establishment of a mechanism designed to restore the competitive balance in the wholesale electricity market in Portugal, after the pool market price is impacted by “off-market events” – the clawback. In particular, the clawback aims at capturing the alleged windfall profits reaped by power plants located in Portugal caused by higher pool prices following the introduction of taxes on power plants located in Spain. This mechanism applies to: (i) ordinary regime generators, except to the ones operating power plants that are still trading electricity under a power purchase agreement that has been executed according to Decree-Law no. 183/95, of 27 July; (ii) generators operating hydroelectric power plants with an installed capacity equal or higher than 10 MVA; and (iii) generators that do not benefit from a guaranteed remuneration scheme (feed-in tariff), except the ones that are under the obligation to pay compensations to the National Electricity System in the context of a competitive procedure launched under the terms of Article 5-B of Decree-Law no. 172/2006 and have an installed power lower than 5 MW<sup>39</sup>.

The 2014 State Budget Law (Law no. 83-C/2013, of 31 December, as amended by Law no. 33/2015, of 27 April) introduced an extraordinary contribution applicable to the energy sector (contribuição extraordinária sobre o sector energético, hereinafter “CESE”), with the purpose of implementing mechanisms that promote the energy sector systemic sustainability, through the establishment of a fund – the Systemic Sustainability Fund for the Energy Sector – intended to finance social and environmental policies and to contribute to the reduction of the tariff debt of the National Electricity System. CESE corresponds to a contribution on the net assets of the energy operators that develop the following activities: (i) generation, transport or distribution of electricity; (ii) transmission, distribution, storage or wholesale supply of natural gas; (iii) refining, treatment, storage, transport, distribution and wholesale supply of crude oil and oil products.

Power plants using renewable sources are exempted from CESE, except for power plants benefitting from feed-in tariff and hydroelectric power plants with an installed capacity of 20 MW or higher, provided those power plants were not licensed in the context of a public tender. Since then, CESE has been approved yearly by the successive State Budget laws. Up to the 2019 State Budget Law power plants using renewable sources were generally exempted from CESE save for hydroelectric power plants with an installed capacity of 20 MW or higher and renewable cogeneration. Since 2019, in certain circumstances, power plants using renewable sources are also due to pay CESE.<sup>40</sup>

37 The main amendments introduced by Decree-Law no. 104/2019, of 9 August, relate to the procedure to follow in setting the value to be paid by generators per MWh injected in the network, the possibility of power plants under the CMEC Mechanism being eligible to pay for clawback, and the possibility of an upfront payment of an amount to be determined on a yearly basis by means of an order of the member of the government responsible for the energy affairs.

38 DL 74/2013 was regulated by Ministerial Order no. 288/2013, of 20 September, amended by Ministerial Order no. 225/2015, of 30 July, which established procedures to study the impact on pool prices of off-market measures and events registered within the European Union and the redistributive effects impacting electricity tariffs. It also established the partitioning of CIEG (i.e., costs of general economic interest or “custos de interesse económico geral”) to be paid by generators in the ordinary regime and other generators that are not included in the guaranteed remuneration regime, and the deduction of these amounts of CIEG to be recovered by the UGS tariff (i.e., tariff for the global use of the system or “tarifa de uso global do sistema”). Ministerial Order no. 288/2013, of 20 September was revoked by Ministerial Order no. 282/2019, of 30 August, which establishes the procedure for the preparation of ERSE’s study, as well as the mechanism to determine the amount of the payment per account and the compensation due by generators that had unexpected benefits as a result of off-market events. According to Ministerial Order no. 282/2019, of 30 August, ERSE shall prepare the study on the impact on pool prices of off-market measures and events registered 2018, within 15 days from the date of entry into force of such ministerial order. Additionally, the Secretary of State issued Order no. 895/2019, of 23 January, acknowledging the suspension, for a 6-month period from 1 October 2018, of measures with tax impacts over power plants in Spain and thus determining that the unit value of the parameter that reflects the impact of off-market measures and events registered within the European Union, and which is included in the mathematical formula used to calculate the amount to be paid by generators under the terms of DL 74/2013, is zero during the period of such suspension.

39 Prior to the enactment of Decree-Law no. 104/2019, of 9 August, the clawback mechanism was applicable to ordinary regime producers, to hydroelectric power plants trading electricity under a market regime and to windfarms that chose not to adhere to the alternative support schemes established by DL 35/2013.

40 Pursuant to article 377 of Law no. 2/2020, of 31 March, which approves the State Budget Law for 2020, the Government was authorized to amend the CESE regime during a period of 90 days to reduce the rates, having as limit the percentage corresponding to the reduction of the tariff debt as proposed by ERSE for 2020 and establish a CESE exemption for power plants that use urban waste operated by waste management entities. However, no amendment was approved.

In 2017, the publication of Order no. 9955/2017, of 31 October, forbade the consideration of the social tariff and CESE as national off-market events in evaluating the net competitive advantage of Portuguese generators for the purposes of the clawback (as set by DL 74/2013). Furthermore, Order no. 9371/2017, of 10 October, determined the retroactive refund of the amounts related to the allegedly illegal passing of the social tariff and CESE costs to consumers in 2016 and 2017.

Finally, also in 2017, Ministerial Order no. 69/2017, of 16 February, determined that the supplier of last resort would be under the obligation to deduct the amounts received by producers that benefited from guaranteed remuneration along with other public incentives destined to promote and develop renewable energy. In order to do so, the Secretary of State for Energy should approve a dispatch, upon a proposal from DGEG, identifying the amounts due by each power plant and its respective unit value, which has never occurred<sup>41</sup>.

## B. Portuguese renewable legal framework and policy – targets, projections and trends

Despite the stagnation following 2012 and the financial contributions or burdens which were recently imposed on renewable electricity generation, the overall stability of the Portuguese regulatory and legislative framework and the strong support schemes designed in a very early stage to sponsor renewable generation of electricity have certainly contributed to a very satisfactory performance of the country as regards the compliance with the 2020 target for electricity generation.

Between January and November 2019, renewable resources in Portugal generated 23.0 TWh of electricity, amounting to 53% of all electricity generated<sup>42</sup>.

However, according to the available data<sup>43</sup>, the renewable endogenous potential is far from exhausted and the targets established by the government are ambitious and key for meeting the European Union intended nationally determined contribution (INDC). Member States have jointly committed to a binding target of at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990, to be fulfilled jointly, as set out in the conclusions by the European Council of October 2014.

Resolution of the Council of Ministers no. 20/2013, of 10 April<sup>44</sup>, set two main policy plans for the energy sector, the National Plan of Action for Energy Efficiency 2013-2016 (the “PNAEE 2016”) and the National Plan of Action for Renewable Energies 2013-2020 (the “PNAER 2020”). These plans of action established the means to comply with the international commitments assumed by Portugal in matters of energy efficiency and the use of renewable resources, without losing sight of the need to ensure adequate levels of energy prices, which do not harm the competitiveness of the Portuguese companies or the minimum living standards of the general population. PNAEE 2016 and PNAER 2020 focused primarily on the reduction of the country's energy dependence, the increase in the generation of electricity from RES and the promotion of energy efficiency and sustainable development, namely by: (i) ensuring the continuance of measures that guaranteed the development of an energy model with sustainable energy costs; (ii) ensuring a substantial improvement

41 However, the Parliamentary Inquiry Commission created by Resolution of the Portuguese Parliament no. 126/2018, of 11 May, to assess whether there are excessive rents in the electricity generation sector concluded, in its final report, that the Portuguese government should carry out the relevant actions to ensure that such measure is implemented.

42 Source: APREN, available at <https://www.apren.pt/pt/energias-renovaveis/producao>.

43 Cfr. *Electricidade Renovável no Sistema Energético Português 2015-2050*, Relatório Global, 22.12.2017, P. FORTES, S. G. SIMOES, F. MONTEIRO, J. SEIXAS, CENSE - Center for Sustainability and Environmental Research, FACULDADE DE CIÊNCIAS E TECNOLOGIA, UNIVERSIDADE NOVA DE LISBOA, available at <https://www.apren.pt/contents/files/relatorioglobalapren-final-editada-ilovepdf-compressed-1.pdf>.

44 Which replaced the Resolution of the Council of Ministers no. 29/2010, of 19 March.



in the country's energy efficiency; and (iii) reinforcing the diversification of primary energy sources, while re-evaluating the investments made in renewable technologies and presenting a new remuneration model for more efficient and prominent technologies.

On 4 December 2018, the Portuguese government presented its Roadmap to Carbon Neutrality ("RCN 2050") which was submitted to the United Nations on September 2019 to comply with the obligations of the Paris Agreement<sup>45</sup>.

RCN 2050 defines very ambitious targets, setting electricity generation from renewable sources at 80% in 2030 and 100% in 2050. Other than the targets, the projections on the installed capacity for renewables by 2050 are also very demanding: Portugal estimates to have, by 2050, a 13 GW installed capacity of centralized solar PV, a 13 GW installed capacity of decentralized solar PV and up to 21.49 GW installed capacity of hydrogen storage<sup>46</sup>.

The main decarbonisation drivers identified by Portugal in the RCN 2050 for the energy generation sector are:

- i) evolution to a production base that uses solar (centralised and decentralised), wind (onshore and offshore) and hydroelectric (with and without pumping);
- ii) end of electricity production based on coal by 2030 and, in a second phase, end of electricity production based on natural gas after 2040;
- iii) new storage solutions (batteries and hydrogen);
- iv) greater network intelligence and flexibility.

RCN 2050 has been approved by Resolution of the Council of Ministers no. 107/2019, of 1 July.

Further to the RCN 2050, the Clean Energy Package, a very extensive legislative package adopted between 2018 and 2019 to update the European Union energy policy<sup>47</sup>, includes a reform of the Regulation on the Governance of the Energy Union (Regulation (EU) 2018/1999), which calls for each Member State to prepare a National Energy and Climate Plan ("NECP") for the period 2021-2030, covering all the five dimensions of the Energy Union and taking into account the long-term perspective. These NECPs are to be comparable throughout the European Union and should include a description of the national objectives, targets and contributions for each of the dimensions, the policies and measures foreseen to meet them, and an assessment of the estimated impacts.

The Portuguese government submitted a preliminary NECP to the European Commission on December 2018 (the Plano Nacional Energia e Clima) ("PNEC 2030")<sup>48</sup>, which was presented on 28 January 2019 and subject to a public consultation until 5 June 2019.

On 18 June 2019, the European Commission published a Communication assessing the 28 draft NECPs as a whole, together with specific recommendations and a detailed "Staff Working Document" for each country, in order to help Member States finalize their plans by the end of 2019, and to implement them effectively in the years to come.

45 Available at <https://www.portugal.gov.pt/download-ficheiros/ficheiro.aspx?v=aa27c4c9-dac3-47c3-96ae-4ca86183635d>.

46 Cfr. RCN 2050, page 33.

47 Available at <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>.

48 Available at [https://ec.europa.eu/energy/sites/ener/files/documents/portugal\\_draftnecp.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/portugal_draftnecp.pdf).

PNEC 2030, which will replace PNAEE 2016 and PNAER 2020, was finally approved by Resolution of the Council of Ministers no. 53/2020, of 10 July.

One of the national goals for the 2030 horizon is the reinforcement of the bet in renewable energies and the reduction of the energy dependency.

PNEC 2030 estimates that renewables will contribute at least 80% to the electricity generation in Portugal by 2030, with emphasis on hydro with around 22%, wind with around 31% and solar with around 27%, which is expected to be the technology with the biggest growth in the next decade<sup>49</sup>. The percentage of renewable energy in the final gross electricity consumed in Portugal is also estimated to be 80% and the overall percentage of renewable energy in the final gross consumption of energy is estimated to be 47% by 2030. PNEC 2030 further estimates that one of the largest contributions for such results will come from solar PV, which is estimated to reach 9 GW by 2030 matching onshore wind and surpassing hydro in the evolution of installed capacity<sup>50/51</sup>.

Two main tools are identified as accelerators of the development of solar PV capacity in Portugal: (i) auctions for allocation of grid injection capacity<sup>52</sup> and (ii) the possibility for producers to develop, together with the grid operator, the reinforcement of grid capacity (ideally for large projects). Decentralized energy production from renewable energy sources and the energy communities are also expected to have a very significant growth in the coming decades.

As regards onshore wind, PNEC 2030 considers that Portugal still has significant untapped wind potential, while attention needs to be paid to current wind farms, enabling them to become more competitive (incentivizing overpowering and repowering).

Phasing-out of coal is planned through the decommissioning by 2023 of the two power plants that are currently operating in mainland Portugal. Natural gas, on the other hand, is expected to play an important role in the energy transition acting as a backup of the power system, remaining in the system for the next two decades, and the gradual reduction of its use is expected in the medium to long term<sup>53</sup>.

Other than the focus on solar and wind onshore/offshore, Portugal intends to boost decentralized generation, reinforce and optimize transmission and distribution networks and promote innovative demonstration projects (concentrated thermal solar, geothermal and wave energy) and energy storage.

The increase of storage capacity should originate mostly of reversible pumping and later from batteries and hydrogen, a significant part of which should be associated with wind and solar generation power plants. Some of the measures of PNAC 2030 in connection with storage are, until 2025, defining a Storage Roadmap to be updated every 5 years considering technology evolution and costs and promoting demonstration projects which connect renewable generation and storage<sup>54</sup>.

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49 PNEC 2030, page 49.

50 Cfr. PNEC 2030, page 49.

51 As regards the renewable overall contribution to the energy consumption, worthy of note is the expected contribution of biogas and hydrogen (renewable gases) to the cooling and heating which currently amounts to zero and that the Portuguese Government is expecting will represent 50 ktep by 2030 (cfr. page 40).

52 In the short term, PNEC 2030 refers to the launch of two new grid injection capacity auctions which will result in the allocation of at least 2 GW of new renewable capacity, including dispatch (cfr. page 36).

53 Cfr. PNEC 2030, page 49.

54 Cfr. PNEC 2030, page 92.

The following are some of the most relevant policies and measures identified by Portugal in the PNEC 2030 to achieve national contribution to EU-level 2030 binding target for renewable energy in what concerns electricity generation:

- i) promote decarbonization of the electricity system, including by means of the decommissioning of the coal power plants in Portugal mainland by 2023 and reconversion of the coal plants into renewable plants (steam/hydrogen) and the decommissioning of the fuel oil plants in Madeira and Azores;
- ii) accelerate electricity generation from renewable energy sources, not only through auctions for allocation of grid injection capacity and the reinforcement of the grid capacity (with costs being borne by producers), but also promoting renewable hybrid systems, overpowering and repowering of wind farms (which, in the case of repowering, shall imply the adoption of the relevant regulation), renewable cogeneration, ocean energy, geothermal (in Azores), demonstration renewable projects (in particular, solar thermal power plants with storage) and a certificate of origin system;
- iii) promote decentralized generation, self-consumption and energy communities;
- iv) optimize, simplify and revise the legal and regulatory framework associated with licensing;
- v) encourage R&D&I, particularly in the field of storage, low carbon technologies, hydrogen and other 100% renewable fuels.

In what concerns financing for the measures or policies addressing the renewable electricity generation and energy transition in general, the financing options indicated by PNEC 2030 seem to either be private sector or public funds based.

In the electricity generation sector, it is anticipated that more than half of the necessary investment will be made in the installation of solar capacity, in a first phase more focused on centralized solar plants and in a second phase in decentralized production (eg roofs of residential and service buildings) of photovoltaic energy and the energy communities. Also noteworthy are significant investments in wind production, which is primarily focused on onshore wind, also through repowering and overpowering, and later on offshore systems<sup>55</sup>.

At European level, the Multiannual Financial Framework 2021-2027, still under discussion, is identified as one of the main sources of funding for the decarbonisation of the economy and, at national level, the National Investment Plan (Plano Nacional de Investimento) 2030 establishes the decarbonization of the economy as one of the structuring areas, covering more than 60% of the investment in areas that contribute to these objectives.

In terms of sustainable financing, PNEC 2030 highlights the creation in 2019 of the Portuguese initiative Sustainable Finance Reflection Group (Grupo de Reflexão para o Financiamento Sustentável), coordinated by the Ministry of Environment and Energy Transition in partnership with the Ministry of Finance and the Ministry of Economy which led to the execution, in July 2019, of the “Letter of Commitment for Sustainable Financing in Portugal”.

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<sup>55</sup> Cfr. PNEC 2030, page 136.

As regards the European Union budget, the following schemes may be of relevance to the investment in renewable energy generation: LIFE Program - Environment and Climate Action Program<sup>56</sup>, the InvestEU program, Connecting Europe Facility (CEF) Energy, Innovation Fund (NER 450) and InnovFin Energy Demo Projects (European Investment Bank).

At a national level, out of the funding schemes identified by PNEC 2030, we would highlight the Environmental Fund (Fundo Ambiental), the Innovation, Technology and Circular Economy Fund (Fundo de Inovação, Tecnologia e Economia Circular) and the Innovation Support Fund (Fundo de Apoio à Inovação).

### C. Portuguese renewable legal framework and policy – conclusions

After a period of stagnation followed by relevant burdens imposed on renewable producers, Portugal's renewable policies seem to have found a way to move forward in the age of cost-effective mature technologies shifting support schemes to respond to market signals, as a rampant interest in the solar energy deployment makes headlines.

The approval of the RNCN 2050 and PNEC 2030 have reaffirmed the country's commitment, establishing targets and strategies for the sectors that are mainly responsible for greenhouse gas emissions. The strategy for the energy sector relies heavily on the installed capacity of renewable energy generation projects while the country prepares the decommissioning of the coal power plants and boosts private investment in renewable energy projects by launching competitive bidding procedures that bring support schemes closer to market prices and invests in the expansion of grid capacity to allow the connection of said projects. The upcoming years should show a continuation of the increase of solar installed capacity, the overpowering and repowering of windfarms, the investment in electricity storage infrastructure, in renewable hybrid systems, in smart grids and in innovative technologies such as hydrogen<sup>57</sup> and carbon capture.

According to PNEC 2030, Portugal is the third country of the European Union with the highest level of renewable incorporation. In 2018, the incorporation of energy renewables sources in the final gross energy consumption should reach 30,3%, which means that 98% of the target for 2020 would have been achieved<sup>58</sup>.

Portugal has been consistently supportive of renewable electricity generation, in particular through favourable legal regimes that have guaranteed and protected investment and the acquisition, by the supplier of last resort, of the electricity generated. In this new world of cost-effective and mature technologies, the reasons for supporting renewable generation have not diminished but only grown bigger. The environmental drivers, the climate change emergency and the goal of reducing the energy dependency can now be backed up by cost-effectiveness. Stepping up to the challenges of the Paris Agreement and the European Union binding target requires a continuous path of legal certainty, regulatory stability and consistent policies, without stagnations or interruptions, even in the shadier days.

<sup>56</sup> One of the main elements of the new LIFE programme (2021-2027) is an increased focus on supporting the clean energy transition: a new specific sub-programme will stimulate investment and support activities focused on energy efficiency and renewable energy, especially towards sectors and European regions lagging behind in the transition towards clean energy. ([https://ec.europa.eu/commission/presscorner/detail/en/IP\\_19\\_1434](https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1434)).

<sup>57</sup> The Hydrogen National Plan was approved by Resolution of Council of Ministers no. 63/2020, of 14 August.

<sup>58</sup> Cfr. PNEC 2030, page 15.