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## Renewable energy consumption

### ABSTRACT

- Promoting the consumption of renewable energy is one of the key means to reduce carbon emissions from electricity production, heating and transportation, while it also improves energy security and contributes to economic growth;
- Repealing the early Directives 2001/77/EC and 2003/30/EC that aimed to promote renewable sources, Directive 2009/28/EC (2009 RES Directive) established a legal framework for increasing the consumption of energy from renewable sources in the EU to 20 per cent of overall energy consumption by 2020. At that time, Member States were given legally binding national targets for achieving specified levels of renewable energy growth;
- The current Directive EU/2018/2001 (2018 RES Directive) requires States to act in solidarity to achieve collectively a target of 32 per cent renewable energy in energy consumption by 2030, but replaces binding national targets with detailed governance arrangements for scrutinising individual contributions of Member States to the Union target;
- The 2018 RES Directive places greater emphasis on cost-effectiveness than the 2009 RES Directive, for instance by requiring support schemes for renewable electricity to give producers market exposure in most circumstances. It also encourages Member States to seek out lower cost options for increasing renewable energy consumption by allowing them to collaborate through cooperation mechanisms;
- The 2019 Electricity Directive (2019/944) and the 2019 Electricity Regulation require Member States and sectoral actors to enable renewable energy integration in networks and markets by reforming rules on their operation and development;
- The 2018 RES Directive requires Member States to promote the use of renewables in energy consumed for transport, while preventing this and other sources of demand for bioenergy from giving rise to unsustainable fuel production practices;
- Member States employ support schemes to encourage investment in RES production capacity, but legal questions arise over their compatibility with TFEU provisions concerning the free movement of goods and state aid.

### 5.1 INTRODUCTION

This chapter examines the legal framework established by the EU to promote renewable energy consumption. Its main focus is on the Renewable Energy Directive of 2018 (2018 RES Directive) that was adopted to implement the European Union's target of increasing the

proportion of energy from renewable sources in overall energy consumption to at least 32 per cent by 2030.<sup>1</sup>

Section 5.2 introduces the topic of renewable energy by explaining what this is and why the replacement of fossil fuel energy with energy from renewable sources is promoted by the EU and by many of its Member States. Section 5.3 begins by considering the EU's early development of a policy on renewable energy, in the 1990s, and the 2001 Directive on Renewable Electricity and the 2003 Directive on Biofuels that this policy spawned.<sup>2</sup> It examines the limitations of these early Directives for promoting renewables, as well as considering their successor, the Renewable Energy Directive of 2009 (2009 RES Directive), which was enacted to provide stronger support for the sector's growth.<sup>3</sup> Section 5.4 provides an overview of the various respects in which the 2018 RES Directive that replaces it seeks to promote renewable energy consumption and to address both perceived barriers to this and the potential environmental consequences of a major increase in the consumption of biomass-based energy.

Section 5.5 examines legal issues associated with Member States' provision of financial support for renewable energy. Sections 5.5.1 and 5.5.2 explain why financial support, whether provided directly by the public sector or by private sector actors acting in accordance with legal direction, is often needed to secure investment in renewable energy. Sections 5.5.3 and 5.5.4 describe the types of schemes that Member States have typically used to provide support. Section 5.5.5 considers the influence that aspects of EU Treaties have had on the take-up and design of support schemes by Member States. Section 5.6 concludes.<sup>4</sup>

## 5.2 BASICS OF RENEWABLE ENERGY

### 5.2.1 What Is Renewable Energy?

The term 'renewable' is used to describe energy derived from sources that are replenished at the same rate as they are used. This is in contrast to fossil fuels, the consumption of which

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<sup>1</sup> Directive 2018/2001/EU of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources [2018] OJ L 328/82 (the 2018 RES Directive).

<sup>2</sup> Council Directive 2001/77/EC of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market [2001] OJ L 283/33 (the 2001 Directive); Council Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport [2003] OJ L 123/42 (the Biofuels Directive).

<sup>3</sup> Council Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directive 2001/77/EC and 2003/30/EC [2009] OJ L 140/16 (the 2009 RES Directive).

<sup>4</sup> Separate laws have been enacted by the EU on the simultaneous production of electricity and heat from renewable energy sources through 'cogeneration', which is considered in Chapter 6 of this book. The legal provision that has been made in EU law to address grid access challenges for renewable electricity is considered in Chapter 9. Chapter 3 examines the extent to which the overarching principles of EU climate policy are honoured in the EU ETS Directive and what balance has been struck between them.



reduces the stock available for future generations. The principal sources of renewable energy are the sun, the wind, waves, tides, tidal currents, geothermal energy and organic matter (biomass). The majority of these sources are the product, either directly or indirectly, of energy from the sun. The exceptions to this are tidal and geothermal energy, which are derived respectively from the gravitational effect of the moon and from the heat of the Earth's interior. Most of these sources are fully renewable, but biomass and geothermal are only renewable to the extent that consumption does not exceed the capacity of the Earth and its interior to replace them. Technologies have been developed to produce energy from all of these sources. Some of the technologies are well established and widely used for commercial energy production (for example, wind and solar energy) while others are at an earlier stage of development (for example, wave and tidal current energy).<sup>5</sup>

Renewable sources can be used to meet demands for energy for electricity production, heating and transportation. Electricity can be generated from solar energy (including through photovoltaic (PV) units), through the release of water stored behind dams (hydropower and tidal barriers) and through turbines driven by wind, wave and tidal currents and by the burning of biomass. In addition to meeting current demand for services such as lighting, renewable electricity is expected to have a growing role in providing energy for heating and transportation if fossil fuel consumed for these purposes is to be replaced by lower-carbon alternatives. Energy for heating can be attained directly from the sun, including through its heating of the air and water, from the burning of biomass and gases derived from them in boilers, from the capture of heat produced as a by-product of electricity generated from renewable sources in combined heat and power units and through tapping geothermal energy. Fuels derived from a wide variety of biomass feedstocks and from organic waste can be used to power road, marine and air transportation.

A common characteristic of most renewable sources is that carbon dioxide is not emitted during the production of energy from them. The exception to this is biomass, which is described as a 'carbon neutral' energy source because the carbon dioxide that organic matter absorbs during its growth is released into the atmosphere when it is burnt. In practice, there will be some carbon emission associated with all renewable energy production when this is calculated on a life-cycle basis. For example, emissions will be produced through the consumption of electricity during the manufacture of wind turbines or by the production of fertilisers to cultivate biomass. Even so, it is possible to say that carbon emissions associated with renewable energy production tend to be much lower than those produced by fossil fuel combustion.

### 5.2.2 Why Do We Need Renewable Energy?

The growth of renewable energy production has been actively supported by the EU and by many of its Member States since the 1990s. The principal reason for this support is the need to mitigate climate change by securing rapid reductions of greenhouse gas emissions in general,

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<sup>5</sup> For a fuller explanation of renewable sources see G. Boyle, B. Everett and G. Alexander, 'Introducing Renewable Energy' in G. Boyle (ed.) *Renewable Energy: Power for a Sustainable Future* (Oxford: Oxford University Press, 2012, 3rd ed.), pp.14–17.

and particularly those associated with energy consumption. The energy production industry, because of its current dependence on fossil fuels, is the largest sectoral contributor to the EU's greenhouse gas emissions (26 per cent in 2018).<sup>6</sup> Energy consumption as a whole, including for terrestrial transportation and industrial, commercial and domestic consumption, was responsible for a staggering 74.68 per cent of the EU's emissions in 2018.<sup>7</sup> Promoting renewable energy therefore forms a key part – alongside increasing energy efficiency – of the EU's strategy for meeting its political commitments to cut greenhouse gas emissions by at least 40 per cent of 1990 levels by 2030.

The mitigation of climate change provides reason enough for a switch from fossil fuels to lower-carbon renewable energies, but there are also other factors that make the growth of renewable energy consumption a desirable policy objective for the EU. The first is to improve energy security by reducing the EU's dependence on imported fossil fuel energy. The EU imported 58.2 per cent of its energy consumption in 2018, but with reliance on imported petroleum and products and on natural gas at 94.6 per cent and 83.2 per cent respectively.<sup>8</sup> In contrast, renewable energy sources (save for imported feedstocks for some biomass-based energies) are largely indigenous. Their exploitation may also provide a more stable economic base over the long term than relying on fuel sources whose prices are prone to volatility.

Second, the development of specialisations in renewable energy technologies can contribute to job and wealth creation in the EU and enable it to become a world leader in the export of technologies and expertise that are required worldwide in connection with global efforts to mitigate and adapt to climate change. The Commission advised in 2012 that strong renewables growth to 2030 could generate more than three million jobs, and emphasised the value for the EU's global competitiveness of maintaining its leadership in renewable technologies as 'clean tech' industries become increasingly important around the world.<sup>9</sup> Investment in renewable energy during the 2020s is also seen as a key aspect of the EU's COVID-19 crisis recovery plan.<sup>10</sup>

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<sup>6</sup> Commission, *EU Energy in Figures: Statistical Pocketbook 2020* (Publications Office of the European Union, 2020), pp.164–7.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*, p.24.

<sup>9</sup> Commission, 'Renewable Energy: A Major Player in the European Energy Market' COM (2012) 271 final, 2.

<sup>10</sup> Commission, '2020 Report on the State of the Energy Union pursuant to Regulation (EU) 2018/1999 on Governance of the Energy Union and Climate Action' COM (2020) 950 final, 17–22.

## 5.3 THE DEVELOPMENT OF RENEWABLE ENERGY LEGISLATION

### 5.3.1 The Electricity and Biofuels Directives

The Commission made its first formal statement on renewable energy in a green paper of 1996,<sup>11</sup> and followed this in 1997 with a white paper setting out a Community Strategy and Action Plan for renewables.<sup>12</sup> The white paper and following Commission policy documents on renewable energy use the three reasons that are given in section 5.2.2 above to justify intervention in this area at the European level.<sup>13</sup>

The process initiated by the white paper bore fruit in the adoption, in 2001, of the Renewable Electricity Directive.<sup>14</sup> The Directive's goal was to increase the share of electricity from renewable sources to 22.1 per cent of total EU electricity consumption by 2010. Article 3(1) placed an obligation on Member States to 'take appropriate steps to encourage greater consumption of electricity produced from renewable energy sources'. It advised them that this should be done in conformity with national indicative targets which they were required by Article 3(2) to set. Member States had to take account of reference values stated in the Annex to the Directive for renewable electricity consumption when setting national indicative targets, but were not legally obliged under European law to achieve either their reference values or the indicative targets set by them. The 2003 Directive on promoting the consumption of biofuels in transportation took a similar approach, with States being expected to ensure that a minimum proportion of biofuels and other renewable fuels would be placed on the market.<sup>15</sup> Article 3(1)(b)(ii) requires Member States to set national targets for this minimum proportion using a reference value of 5.75 per cent of all petrol and diesel for transport purposes placed on their markets by 31 December 2010, but the Directive does not place an obligation on them under European law to achieve that level of renewable fuels availability.

Member States' performance in relation to their non-binding targets was somewhat patchy. The Commission's 2009 progress report (capturing the position in 2007) records that two Member States had already reached their targets for electricity, but that several States had either made no progress towards them or had seen declines in renewable energy shares due to increasing energy consumption.<sup>16</sup> The 2013 report advises that 15 Member States failed to

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<sup>11</sup> Commission, 'Energy for the future: renewable sources of energy – Green Paper for a Community Strategy and Action Plan' COM (96) 576 final.

<sup>12</sup> Commission, 'Energy for the future: renewable sources of energy – White Paper for a Community Strategy and Action Plan' COM (97) 599 final.

<sup>13</sup> *Ibid.*, 4–6. For example, the justifications are repeated in Commission, COM (2012) 271 final (n 9).

<sup>14</sup> The 2001 Directive (n 2).

<sup>15</sup> The Biofuels Directive (n 2).

<sup>16</sup> Commission, 'The Renewable Energy Progress Report: Commission Report in accordance with Article 3 of Directive 2001/77/EC, Article 4(2) of Directive 2003/30/EC and on the implementation of the EU Biomass Action Plan, COM (2005) 628', COM (2009) 192 final, 3.

reach their indicative 2010 target for the share of renewables in the electricity mix, and that 22 Member States had not achieved the 5.75 per cent target under the Biofuels Directive.<sup>17</sup> This situation of some States free-riding on others that were exceeding their targets led to the view that more intrusive legal measures would be required to ensure that all Member States should contribute, in a spirit of solidarity, to increasing energy consumption in the EU.<sup>18</sup>

### 5.3.2 Renewable Energy Directive 2009

In March 2007, the European Council agreed to increase renewable energy consumption to 20 per cent of overall energy consumption in the EU by 2020.<sup>19</sup> This agreement formed part of the 20/20/20 strategy that sought to reduce the EU's greenhouse gas emissions to 80 per cent of 1990 levels by 2020. The other key plank of this strategy was to increase the efficiency of energy consumption by 20 per cent by 2020. Improving energy efficiency is valuable in itself for reducing emissions from energy production and use. It will also make it easier to achieve the commitment on renewables, as growth in this sector will take place against a backdrop of shrinking demand for energy.

The Commission was invited by the European Council to prepare a legal instrument to implement its political commitments. A new Directive for renewable energy was proposed in January 2008,<sup>20</sup> and was adopted in April 2009 after passing through the European legislative process. It entered into force in June 2009 and Article 27(1) required Member States to transpose it into their national legislations by 5 December 2010. The 2009 RES Directive repealed certain provisions of the 2001 Directive on 1 April 2010, with the Directive and the Biofuels Directive being repealed and replaced in their entirety by the 2009 RES Directive with effect from 1 January 2012. Those parts of the 2009 RES Directive concerned with the promotion of biofuels and bioliquids in energy consumption were amended in 2015, with transposition required by September 2017, in view of difficulties with controlling indirect land use as a consequence of biomass-based energy production (see section 5.4.5 below).<sup>21</sup>

There were two key differences between the 2009 RES Directive and its predecessors. The first was that it imposed upon Member States national targets to achieve increases in renewable energy consumption that were legally binding at the EU level. This was felt to be necessary because of the poor performance by a majority of Member States under the 2001 Directive and the Biofuels Directive.<sup>22</sup> All Member States were thus obliged to contribute to realising the EU's 2020 renewable energy objective by achieving national targets set out in Annex I to

<sup>17</sup> Commission, 'Renewable Energy Progress Report' COM (2013) 175 final, 4.

<sup>18</sup> Commission, 'Renewable Energy: Progressing towards the 2020 target', COM (2011) 31 final, 3–4.

<sup>19</sup> Council of the European Union, 'Presidency Conclusions: 8/9 March 2007', Ref.7224/1/07/Rev.1.

<sup>20</sup> Commission, 'Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources' COM (2008) 19 final.

<sup>21</sup> Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources [2015] OJ L 239/1.

<sup>22</sup> Commission, COM (2011) 31 final (n 18), 3–4.

the Directive. Second, the targets under the 2009 RES Directive addressed increasing the contribution of renewable sources to energy sources for heating and cooling and transportation in addition to electricity. As noted above, the 2001 Directive was concerned with electricity only. It was for Member States to decide on how to reach their targets. Greater weight could be placed on decarbonising electricity than on heating and cooling and transportation, or vice versa. However, all Member States also had a separate legally binding target of achieving 10 per cent of energy from renewable sources in energy consumption for transportation.<sup>23</sup> The Commission's view in proposing a common target was that a concerted effort from Member States would be required to reduce emissions from a sector that is largely dependent on fossil fuel energy.<sup>24</sup> It also felt that the need to reflect national differences in possession of renewable resources for electricity, heating, and cooling was not present for transport, as biofuels are more easily traded than electricity.<sup>25</sup>

Growth of the EU renewables sector under the 2009 RES Directive improved significantly on the progress seen under the 2001 Directive and the Biofuels Directive. In contrast to the failure to meet EU targets under these Directives, the Commission's modelling predicted a renewable energy share in 2020 of 22.8 per cent to 23.1 per cent in total energy consumption for the European Union and of 12 per cent in energy for transport.<sup>26</sup> In 2018, five Member States were assessed as being at moderate (Luxembourg and the Netherlands) or severe (Belgium, France and Poland) risk of failing to meet national renewable energy targets.<sup>27</sup> In all, 11 Member States were expected to fall short of the 10 per cent transport target, but with three missing it by only a very small margin.<sup>28</sup> The figures compare favourably with the 15 and 22 Member States who fell short of indicative national targets under the 2009 RES Directive's predecessors.<sup>29</sup> Member States that fail to meet binding targets under Articles 3(1) and 3(4) of the 2009 RES Directive will be in breach of EU law and infraction proceedings against them can be initiated by the European Commission, potentially leading to the imposition of fines by the European Court of Justice.<sup>30</sup> The Directive gives Member States the opportunity to make up for shortfalls in their national efforts by arranging a statistical transfer (see section 5.4.6) with a State whose proportion of renewable energy in total energy consumption is on track to exceed its national target. Statistical transfers can also be arranged under the 2009 RES Directive of renewable energy consumed in energy for transportation alone in connection with

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<sup>23</sup> 2009 RES Directive (n 3), Article 3(4).

<sup>24</sup> Commission, '2020 by 2020: The Community's Climate Change Opportunity' COM (2008) 30 final, 7–8; Commission, COM (2008) 19 final (n 20), 8.

<sup>25</sup> Ibid.

<sup>26</sup> Commission, 'Renewable Energy Progress Report' COM (2020) 952 final, 9–12.

<sup>27</sup> Ibid., 9.

<sup>28</sup> Ibid., 12.

<sup>29</sup> Commission, COM (2013) 175 final (n 17), 4.

<sup>30</sup> D. Benink, H. Croezen and M. van Valkengoed, *The Accountability of European Renewable Energy and Climate Policy* (CE Delft, April 2011), available at [www.cedelft.eu/en/publications/1143/the-accountability-of-european-renewable-energy-and-climate-policy](http://www.cedelft.eu/en/publications/1143/the-accountability-of-european-renewable-energy-and-climate-policy) accessed 17 June 2021.



the 10 per cent goal.<sup>31</sup> The Commission recorded in its 2020 renewable energy progress report that four such agreements had been made, but that more may be concluded to enable Member States that had fallen behind required rates to make up for their shortfall.<sup>32</sup>

### 5.3.3 Replacing the 2009 RES Directive

The Commission initiated discussion of the policy and legal framework for climate and energy in the period from 2021 to 2030 in January 2014.<sup>33</sup> This led to agreement by the European Council in October 2014 on an EU-wide target of at least 27 per cent energy from renewable sources in overall energy consumption by 2030.<sup>34</sup> The Commission's proposal, endorsed by the Council, called for a different approach from the previous regime. It records the Commission's views that European and national targets may have driven 'strong action by the Member States and growth in emerging industries', but that they did not always fit well with EU policy goals for undistorted competitive energy markets.<sup>35</sup> In addition, the proposal expresses concern over the affordability of energy for consumers and businesses, over the effect of energy costs on the competitiveness of the EU's economy, and at the possibility that binding targets may have been responsible for impairing the cost-effectiveness of national efforts to implement Union climate and energy policy, including by requiring States to develop renewable energy to a specified level even when this was not the most cost-effective means open to them for reducing greenhouse gas emissions.<sup>36</sup>

The Commission's proposal in order to reconcile these concerns with ensuring the further growth of renewable energy was to replace legally binding national targets for Member States with an overall Union target for renewable energy, thereby allowing Member States more flexibility in deciding on how to meet greenhouse gas reduction targets in the most cost-effective way while imposing a collective responsibility for ensuring growth of renewables consumption. The overall Union target would be backed up by rigorous European-level governance arrangements to keep individual and collective progress by Member States towards its achievement under review.

The 27 per cent target was widely criticised as lacking in ambition. The Commission, the Parliament and the Council reached political agreement in June 2018 on a higher target of at least 32 per cent energy from renewable sources in overall energy consumption by 2030.<sup>37</sup>

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<sup>31</sup> Directive (EU) 2015/1513 (n 21), Article 2(4).

<sup>32</sup> Commission, COM (2020) 952 final (n 26), 68.

<sup>33</sup> Commission, 'A policy framework for climate and energy in the period from 2020 to 2030' COM (2014) 15 final.

<sup>34</sup> European Council, 'Conclusion on 2030 Climate and Energy Policy', SN 79/14, 23 and 24 October 2014, available at [www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/145356.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145356.pdf) accessed 17 June 2021.

<sup>35</sup> COM (2014) 15 final (n 33), 1–7.

<sup>36</sup> *Ibid.*

<sup>37</sup> Commission, 'Europe leads the global clean energy transition: Commission welcomes ambitious agreement on further renewable energy deployment in the EU' (14 June 2018, Press Release), available at [https://ec.europa.eu/commission/presscorner/detail/de/STATEMENT\\_18\\_4155](https://ec.europa.eu/commission/presscorner/detail/de/STATEMENT_18_4155).

A proposal for a new renewable energy directive was published by the Commission in November 2016 as part of a wider package of laws to implement climate and energy policy for 2021–30 and beyond under the Clean Energy for All Europeans programme.<sup>38</sup>

## 5.4 THE RENEWABLE ENERGY DIRECTIVE

The 2018 RES Directive received legislative approval in December 2018.<sup>39</sup> Member States are required to have transposed it into national laws by 30 June 2021 (Art. 36). The Directive enshrines the 32 per cent target, but takes note of views that changing circumstances could render it inadequate. It provides that the Commission will review the target (and others set under it) ‘with a view to submitting a legislative proposal by 2023 to increase it’ where change in the cost of renewable energy production, change in the Union’s commitments regarding decarbonisation under international law or decline in the Union’s energy consumption would justify an increase.<sup>40</sup>

### 5.4.1 Core Obligations

The most notable difference between the 2018 RES Directive and its predecessor is that it does not place legally binding national targets on Member States at the European level. Instead, they each have obligations to ‘set national contributions to meet collectively’ the Union target for 2030 and to ‘collectively ensure’ its achievement (Arts 3(1) and 3(2)). The expectation that Member States will achieve a Union target without setting out their responsibilities for ensuring that it is met in European law raises questions about how they can be held to account for any perceived inadequacy of their contributions to its realisation. What prevents failure to achieve the overall EU target or the poor performance of individual States if there are no national legally binding targets at the European level?

The Commission proposed in its policy statement of 2014 to plug the gap left by the absence of national targets by establishing overarching Union governance for all policy areas contributing to its goal of a 40 per cent reduction of greenhouse gas emissions compared to 1990 levels by 2030.<sup>41</sup> A Governance Regulation was proposed as part of the Clean Energy for All Europeans legislative programme,<sup>42</sup> and was adopted in December 2018.<sup>43</sup>

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<sup>38</sup> Commission, ‘Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources’, COM (2016) 767 final.

<sup>39</sup> 2018 RES Directive (n 1).

<sup>40</sup> *Ibid.*, Articles 3(1) and 25.

<sup>41</sup> COM (2014) 15 final (n 33).

<sup>42</sup> Commission, ‘Proposal for a Regulation on the Governance of the Energy Union’, COM (2016) 759 final.

<sup>43</sup> Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and

As a regulation, it had almost immediate direct legal effect. It required each Member State to prepare and submit a draft integrated national energy and climate plan for 2021 to 2030 to the Commission by the end of 2018, with the final plan to be notified to the Commission and published by the end of 2019 (Arts 3 and 9). The Regulation envisages that this process will be repeated every ten years with draft integrated plans and final plans for 2031–40 to be submitted by 1 January 2028 and 1 January 2029 respectively. The plan should state the contribution that the Member State will make to achieving the Union target on renewable energy together with the interim trajectory that will be followed to reach it in line with milestones specified in the Regulation (Arts 4(a)(2) and 5). Detailed prescribed information on national policies and measures that will be pursued and taken to effect the contribution should also be provided (Art. 3 and Annex I). Member States have extensive biennial reporting obligations during the period covered by the plan, including on progress made on increasing renewable energy consumption (Arts 17–28).

The Commission may issue country-specific recommendations for revising draft plans (Arts 9 and 31). If collective ambition is assessed to be inadequate for the achievement of Energy Union goals, the Commission may make recommendations calling on States whose contributions are deemed to be insufficient to increase their ambition (Art. 31). States falling below their expected contribution are to be identified by application of a formula set out in Annex II to the Regulation. Member States must take due account of recommendations when finalising their plans, but are not obliged to follow them (Art. 9(3)). The Commission reviewed and issued recommendations on draft Member State plans for 2021–30 during 2019.<sup>44</sup> Revisions made by Member States and included in their final plans for the period, submitted by the end of 2019, lifted their collective ambition from the 30.4–31.9 per cent shown in the draft plans to 33.15–33.7 per cent.<sup>45</sup>

Recommendations may also be made to a Member State if the Commission concludes through interim review that it is making insufficient progress towards implementing its climate plan, and to all States if it concludes that the Union is at risk of not meeting its target based on an aggregate interim assessment of performance (Art. 32). In addition, the Commission has an obligation, if collective national measures on renewable energy are assessed to be insufficient to achieve the 2030 target, to ‘propose measures and exercise its power at the Union level’ to ensure the target’s achievement (Art. 32(2)).

These extensive requirements for Member State explanation of their climate and energy goals and policies will enable close scrutiny of their performance on renewable energy development. The resulting transparency may, if coupled with pressure from the Commission, from

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(EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council [2018] OJ L 328/1.

<sup>44</sup> Commission, ‘National Energy and Climate Plans (NECPs)’, available at National energy and climate plans (NECPs) | Energy (europa.eu).

<sup>45</sup> Commission, ‘United in delivering the Energy Union and Climate Action – setting the foundations for a successful clean energy transition’, COM (2019) 285 final, 3; Commission, ‘An EU-wide assessment of National Energy and Climate Plans’, COM (2020) 564 final, 2.

other Member States and from civil society, force Member States to improve the ambition of their plans for renewable energy growth when they are found to be wanting, despite there being no legal obligation for them to do so. The Commission's powers when combined performance falls below the trajectory needed for achievement of 32 per cent by 2030 will help with promoting growth of renewable energy in the Union when this is flagging. Even so, there is no clear legal basis under the Directive and the Governance Regulation for compelling Member States to increase the proportion of renewable energy in national energy systems at a rate that will ensure achievement of the Union renewable energy target or for initiating infraction proceedings against them in the event that the 2030 Union target or a staging post towards this are not met. It remains to be seen whether thorough policing of Member State actions and enhanced scope for scrutiny from peers and civil society will be sufficient to avoid the poor performance experienced with the pre-2009 Directives.

Two features of the 2018 RES Directive seek to ensure that some progress is made by Member States beyond the levels of renewable energy development reached by the end of 2020, notwithstanding the lack of national targets. First, Member States commit not to allow the percentage of renewable energy in energy consumption to fall below their targets under the 2009 RES Directive and to take remedial steps if such a decline occurs (Art. 3(4)). Second, the Commission takes on an obligation to 'support the high ambition of Member States through an enabling framework comprising the enhanced use of Union funds' (Art. 3(5)).

The Union target and Member States' contributions to this focus on the overall level of renewable energy in national consumption. Accordingly, there is no repeat of the separate legally binding target for renewable energy in transport under the 2009 RES Directive, perhaps in view of the many difficulties the Union has encountered in terms of meeting this (see 5.3.8 below). Member States are required, however, to provide separate details of estimated sectoral trajectories in their plans. With regard to transport, they must also set an obligation on fuel suppliers to ensure a minimum level of 14 per cent renewable energy in fuel supplies by 2030 (Art. 25(1)). In addition, the 2018 RES Directive makes specific provision, albeit through an obligation of conduct rather than result, for mainstreaming renewable energy in heating and cooling (Art. 23(1)). Member States must endeavour to increase the share of renewable energy in that sector by an indicative 1.3 per cent as an annual average for the periods 2021–25 and 2026–30. They must also lay down the necessary measures to ensure that district heating and cooling systems contribute to this increase (Art. 24).

## 5.4.2 Guarantees of Origin

Guarantees of Origin (GOs) are used to confirm that energy was produced from renewable sources. Their main role under the 2018 RES Directive (as it was under the 2001 Directive and the 2009 RES Directive) is to support the establishment of a 'green' energy market among environmentally conscious consumers by providing officially recognised backing for information given to them about the sources of their energy supplies. Electricity suppliers must provide

information in bills and other documents on the contribution of each energy source to the fuel mix supplied over the preceding year.<sup>46</sup>

Article 19 of the 2018 RES Directive requires Member States to establish a formal procedure for generating documentary proof to back up the claims made by electricity suppliers about the sources from which their supplies are derived. Its sub-clauses give direction on the administrative arrangements that they should put in place to enable the issue and cancellation of GOs, and on the information that they should contain. Time limits and other criteria for the validity of GOs are also specified to prevent their misuse.

The Commission's first draft of the 2009 RES Directive proposed that GOs should also be used to demonstrate Member State compliance with targets for increasing renewable energy consumption and in connection with an EU-wide GO trading scheme. This suggestion was rejected and replaced, following Member State opposition, by mechanisms for interstate cooperation in which GOs serve no purpose. This remains the position under the 2018 RES Directive. Article 18(2) of the 2018 RES Directive, repeating the wording of Article 15(2) of the 2009 RES Directive, advises that 'the Guarantee of Origin shall have no function in term of a Member State's compliance with Article 3'.

It remains possible to trade GOs, but for the limited purpose of proving the inclusion of renewable energy within energy supplies to consumers.<sup>47</sup> In this regard, Member States must recognise GOs issued by each other except in the circumstances stated in Article 18(9). However, national laws that require actors to include a certain amount of renewable energy in energy produced, supplied or consumed by them tend to be associated with national schemes for the issue and trade of certificates that are distinct from GOs. In this regard, Recital 55 advises that it is important to distinguish between green certificates used for support schemes and GOs.

### 5.4.3 Reforming Administrative Procedures

Complexity and duplication in the administrative and regulatory regimes of the Member States has long been seen by the Commission as a constraining factor on the growth of renewable energy production.<sup>48</sup> Article 6 of the 2001 Directive sought to initiate a process that would lead to the eradication of administrative barriers by requiring Member States both to evaluate their existing legislative and regulatory frameworks for authorising renewable energy, and to publish reports by October 2003 stating actions that would be taken in light of the evaluation. It was clear however by the time of the Commission's 2006 review of progress on renewable

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<sup>46</sup> Directive (EU) 2019/944 of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU [2019] OJ L158/125, Article 18(6) and Annex I, paragraph 5.

<sup>47</sup> H.L. Raadal, E. Dotzauer, O.J. Hanssen and H.P. Kildal, 'The Interaction between Electricity Disclosure and Tradable Green Certificates' (2012) 42 *Energy Policy* 419.

<sup>48</sup> Commission, COM (2000) 279 final, 'Proposal for a Directive of the European Parliament and of the Council on the promotion of electricity from renewable energy sources in the internal electricity market', Explanatory Memorandum, Section 2.3, describes 'administrative and planning procedures' as a 'major barrier to the further development of RES electricity in the EU'.



energy that inappropriate or unnecessarily complicated administrative barriers were continuing to limit its expansion.<sup>49</sup> Article 13(1) of the 2009 RES Directive took a stronger line than its predecessor by placing detailed requirements on Member States to improve regulations governing renewable energy development. Its sub-clauses instruct Member States to modify rules for authorising renewable energy developments and related infrastructure with a view to making authorisation processes quicker, less complex and more transparent.

Article 15(1) of the 2018 RES Directive maintains Article 13(1)'s strong line on removing administrative barriers by requiring Member States to ensure that 'any national rules concerning the authorization, certification and licensing procedures' that are applied to plant for renewable energy production, for transforming biomass into energy products and for producing non-organic transport fuels are 'proportionate and necessary and contribute to the implementation of the energy efficiency first principle'. The remainder of Article 15 directs Member States to use regulations in ways that promote renewable energy consumption, particularly in the design and construction of new, and refurbishment of existing, building stock. For example, national buildings and codes should include measures that increase consumption of energy from renewable sources, including by requiring the use of minimum levels of renewable energy in new buildings and those subject to major renovation (Article 15(4)). In particular, they should promote renewable energy heating and cooling systems that achieve significant reductions in energy consumption (Article 15(6)). Article 18 also seeks to promote the diffusion of renewable energy technologies through its various requirements for Member States to ensure that information about renewable energy technologies and public support for their installation is widely available, and to establish arrangements that increase public confidence in their use, including certification schemes for installers.

The 2009 Directive encouraged Member States to streamline permitting regimes by establishing 'one-stop-shop' regimes, with one authority being responsible for awarding the permit.<sup>50</sup> The Commission complained in following progress reports that Member States were being slow to introduce this approach.<sup>51</sup> In view of this and other perceived inadequacies of Member State actions to streamline administrative processes, the 2018 RES Directive places additional obligations on Member States for reforming administrative processes. These are: a requirement to establish designated contact points that will, on an applicant's request, guide and facilitate the entire permit application (Art. 16); a time limitation of permit-granting processes to a maximum of two years for power plants and one year for small-scale electricity generation installations (capacities of less than 150kW) and repowering existing renewable energy plants, all unless 'extraordinary circumstances' justify a longer time-scale (Art. 16(4)–(6)); and simpler grid connection notification processes for low-capacity generating facilities (such as rooftop solar PV panels) (Art. 17).

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<sup>49</sup> Commission, 'Green Paper follow-up action: Report on progress in renewable electricity', COM (2006) 849 final, 17–19.

<sup>50</sup> RES Directive 2009 (n 3), Article 22(3)(a).

<sup>51</sup> Commission, 'Renewable Energy Progress Report', COM (2017) 57 final, 10.

#### 5.4.4 Grid Access<sup>52</sup>

The 2001 Directive and the 2009 RES Directive placed obligations on Member States to address barriers to the expansion of renewable energy related to the operation and development of transmission and distribution systems for electricity in their territories.<sup>53</sup> The 2009 RES Directive also requires them to take steps supporting the integration of renewable gases into pipeline networks and district heating and cooling using renewable sources.<sup>54</sup>

Provisions on grid access in the 2018 RES Directive address the integration of renewable gases into existing infrastructure alone (Art. 20). There are four main reasons for its lack of provision on integrating renewable electricity in networks. First, the Electricity Regulation component of the Clean Energy for All Europeans legislative programme requires Member States to reform existing market structures which make it difficult for electricity systems to accommodate renewable electricity and for renewable generators to participate in system balancing.<sup>55</sup> For example, it mandates the introduction of markets operating in as close to real time as possible across the European Union (Art. 7(2)(c)). Second, the obligation under the 2009 RES Directive for Member States to afford priority or guaranteed access for renewable electricity to networks is, with regard to the former, incompatible with the move away from subsidies which guarantee legally that electricity produced by supported generating plants will be purchased at a set price (see 5.4.2 above) and, with regard to the latter, made unnecessary by duties for transmission and distribution system operators and market operators under the 2019 Electricity Regulation to enable the integration of renewables into electricity networks and trading platforms.<sup>56</sup> Third, provisions under the Electricity Regulation maintain obligations for Member States to prevent dispatch and curtailment by system operators in ways that disadvantage renewable generators unnecessarily (Arts 12 and 16). Fourth, the 2018 RES Directive obliges Member States to ensure that persons who produce and consume their own electricity and communities of those persons are able to do so and to sell their excess production by feeding it into the grid (Arts 21 and 22). These provisions form part of a wider package of measures under the legislative programme, with provisions under the Electricity Regulation and Directive also requiring adaptation of national laws to enable self-consumers and renewable energy communities to take part in energy systems including by selling excess electricity in markets directly or through aggregators.<sup>57</sup> Endorsement of possibilities for the democratisation of energy supplies afforded by renewable energy technologies responds to the problems that this presents for energy systems and related legal frameworks designed around centralised production facilities. It does this by recognising the potential for participation in

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<sup>52</sup> Subject matter covered in this section is also examined in Chapter 10 of this book, 'EU Climate Regulation and Energy Network Management'.

<sup>53</sup> The 2001 Directive (n 2), Article 7; 2009 RES Directive (n 3), Article 16.

<sup>54</sup> 2009 RES Directive (n 3), Articles 16(9) to (11).

<sup>55</sup> Regulation 2019/943 of 5 June 2019 on the internal market for electricity [2019] L158/54

<sup>56</sup> *Ibid.*

<sup>57</sup> Directive (EU) 2019/944 (n 46).

energy production and system management to increase public acceptance of the shift away from high-carbon energy supplies in general, and of renewable energy developments such as onshore wind farms, so often a source of public opposition, in particular.

#### 5.4.5 Sustainability Criteria

The European Commission sees biofuels as the main contributor to the decarbonisation of energy consumed for transportation until other alternatives to petrol such as gas, electricity and hydrogen become more widely available.<sup>58</sup> However, it also recognises that a major increase in the consumption of biofuels, particularly where these are sourced from feedstocks that can also be used as food crops, could have unsustainable outcomes.<sup>59</sup> Particular fears are that this could lead to the degradation of environmentally valuable lands, increases in food prices as land used previously to grow food crops is turned over to the production of transportation crops, and growth of land in cultivation to enable biomass for transport fuels to be produced alongside food. Some biofuels could even be responsible for higher carbon emissions than fossil fuels when the full effects of their production, including direct and indirect changes in land use, are taken into account.

In view of these concerns, the 2009 RES Directive laid down certain ‘sustainability’ criteria that apply both to EU-produced and imported biofuels.<sup>60</sup> The Directive defines biofuels as ‘liquid or gaseous fuel for transport produced from biomass’.<sup>61</sup> Biofuels that failed to meet the criteria could still be imported into and sold in the EU, but Article 17(1) advised that only those which satisfied them would be counted toward the 10 per cent target for renewables in energy consumed for transportation and be eligible for financial support. The criteria also applied to bioliquids, defined in Article 2(h) of the Directive as liquid fuels produced from biomass but used for other purposes than to provide energy for transportation (in other words, electricity, heating and cooling). The Commission felt that this was necessary to prevent biofuels that did not meet the sustainability criteria from receiving subsidies and contributing to Member State targets through the back door by being used as bioliquids instead.<sup>62</sup>

The 2018 RES Directive adopts the regime created by the 2009 RES Directive, which seeks to discourage the production of ‘unsustainable’ biofuels and bioliquids, and expands it to include ‘biomass fuels’, a defined term meaning ‘solid and gaseous fuels produced from biomass’ (Arts 2(27) and 29)). As a result, the sustainability of all biomass-based energy will be considered when assessing whether renewable energy consumption should count towards targets and be eligible to receive subsidies.

<sup>58</sup> Commission, ‘An EU Strategy for Biofuels’ COM (2006) 34 final.

<sup>59</sup> *Ibid.*, 10.

<sup>60</sup> L. Ereimechvili, ‘Greening the Electricity Sector – Developing Markets for Trading Biomass’ in M. Roggenkamp and H. Bjørnebye, *European Energy Law Report X* (Cambridge: Intersentia, 2014), pp.211–57 offers a full account of EU law and policy on sustainability concerns over biomass-based energy.

<sup>61</sup> 2009 RES Directive (n 3), Article 2(i).

<sup>62</sup> 2009 RES Directive (n 3), Recital 67.

Article 29 of the 2018 RES Directive specifies standards that biofuels, bioliquids and biomass fuels should achieve to be able to count towards targets and be eligible for national financial support. First, their consumption should achieve or exceed minimum levels of greenhouse gas emissions savings over fossil fuels. The minimum saving for biofuels, biogas when consumed in the transportation sector and bioliquids starts at 50 per cent where they are produced in installations starting operation on or before 5 October 2015, rising to 60 per cent where they are produced in installations starting operation between 6 October 2015 and 31 December 2020 and then to 65 per cent for installations starting operation on or after 1 January 2021.<sup>63</sup> The Directive also adds to restrictions under its predecessor by laying down minimum savings for electricity, heating and cooling produced from biomass fuels starting operation from 1 January 2021.<sup>64</sup> The electricity savings requirement applies only to installations meeting criteria set out at Article 29(11).

A mechanism for calculating emissions from biofuels, bioliquids and biomass fuels is set out in Article 30. A life-cycle approach is taken in which emissions from cultivation (including from direct land conversion and fertiliser use), from transportation of biomass and from the production, transportation and distribution of biomass, bioliquids and biomass fuels are taken into account.

Second, raw materials for biofuels, bioliquids and biomass fuels made from agricultural biomass must not be obtained from land possessing one or more of the statuses listed in Article 29(3)–(5) as at 1 January 2008 if they are to count towards the Directive's targets or be entitled to support. The listed statuses are collectively described as belonging to: land with high biodiversity value, including primary forests, legally designated areas for nature protection and highly biodiverse grassland (Art. 29(3)); land with high carbon stock, including wetlands, continuously forested areas and other forested areas meeting certain criteria (Art. 29(4)); and peat land (Art. 29(5)). Separate criteria apply for biofuels, bioliquids and biomass fuels produced from forest biomass (Arts 29(6) and 29(7)). Separate criteria and also relaxations of criteria apply for biofuels, bioliquids and biomass fuels and electricity, heating and cooling produced from waste and residues (Arts 29(1) and (2)).

Member States must require that 'economic operators [...] show that the sustainability criteria [...] have been fulfilled', using a methodology set out in Article 30(1). Article 30(4) allows them to prove compliance by participating in voluntary national and international schemes whose validity has been recognised by the EU. The Commission has recognised a number of voluntary schemes for biofuels compliance to date.<sup>65</sup>

Challenges with identifying emissions and environmental harm caused by indirect land use change due to already cultivated land being used for biomass energy crops bedevilled the European Union's attempts to dissuade the production of unsustainable biofuels and

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<sup>63</sup> 2018 RES Directive (n 1), Article 29(10).

<sup>64</sup> *Ibid.*, Article 29(10)(d).

<sup>65</sup> Commission, 'Voluntary Schemes', available at [https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes\\_en?redir=1](https://ec.europa.eu/energy/topics/renewable-energy/biofuels/voluntary-schemes_en?redir=1) accessed 17 June 2021.

bioliquids by applying sustainability criteria under the 2009 RES Directive.<sup>66</sup> Amendments to the 2009 RES Directive adopted in October 2015 responded to these challenges by restricting the use of biofuels derived from sources to which were attached high risks of unsustainable cultivation and low levels of emission reduction.<sup>67</sup> An amendment to Article 3(4) limited the contribution that biofuels from ‘cereal and other starch-rich crops, sugars and oil crops’ could make to meeting the 10 per cent target to 7 per cent of overall energy consumption for transportation in 2020.

The 2018 RES Directive goes further in discouraging unsustainable biomass energy production due to indirect land use change. The cap on the extent to which biofuels, bioliquids and biomass fuels produced from food and feed crops can count towards targets is set at 1 per cent higher than the share of such fuels in energy consumption for road and rail transport in 2020 in the Member State concerned, with a maximum of 7 per cent (Art. 26(1)). The contribution of biofuels, bioliquids and biomass fuels posing a high risk of indirect land use change for which a significant expansion of the production area into land with high carbon stocks is observed is also limited to the level of their consumption in 2019, declining to 0 per cent by 2030 (Art. 26(2)).<sup>68</sup>

The amendments to the 2009 RES Directive also placed further emphasis on promoting biofuels derived from waste, which are viewed as more sustainable because they do not create an additional demand for land. This was done by doubling their energy content when calculating their contribution to the 2020 target for 10 per cent of energy for transport from renewable sources (but not the 20 per cent target for renewable energy as a whole).<sup>69</sup> Member States were also required to set and endeavour to achieve a national target with a reference value of 0.5 per cent of energy content of the share of renewable energy in all forms of transport in 2020 for biofuels from the non-food, waste and algae feedstocks listed in Annex IX of the 2009 RES Directive (as amended) (Art. 3(4)(e)). The 2018 RES Directive maintains its predecessor’s promotion of advanced biofuels by requiring that their share of final consumption of energy in the transportation sector should be at least 0.2 per cent in 2021, 1 per cent in 2025 and 3.5 per cent in 2030 (Article 25(1)).

#### 5.4.6 Cooperation Mechanisms

One of the core objectives of the Commission in drafting what became the 2009 RES Directive was to promote cost-effectiveness in the growth of renewable energy production.<sup>70</sup> The

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<sup>66</sup> Commission, ‘Report on indirect land-use change related to biofuels and bioliquids’ COM (2010) 811 final, 14.

<sup>67</sup> Directive (EU) 2015/1513 (n 21).

<sup>68</sup> The high-risk feedstocks affected by this provision are defined by Commission Delegated Regulation (EU) 2019/807 of 13 March 2019 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council as regards the determination of high indirect land-use change-risk feedstock for which a significant expansion of the production area into land with high carbon stock is observed and the certification of low indirect land-use change-risk biofuels, bioliquids and biomass fuels [2019] OJ L 133/1.

<sup>69</sup> RES Directive 2009 (n 3), Annex IX.

<sup>70</sup> Commission, COM (2008) 30 final (n 24) 5.



Commission's view was that the overall cost of meeting the 2020 target for renewable energy could be reduced if Member States were to cease concentrating on national renewable energy resources and to look instead at possibilities for producing renewable energy in other Member States where this could be done at lower cost.<sup>71</sup> Articles 6–11 of the 2009 RES Directive sought to engender a 'European' mindset towards exploiting renewable energy resources by creating mechanisms that would enable Member State cooperation on meeting their national targets. The 2018 RES Directive also permits Member States to use the four mechanisms established by the 2009 RES Directive, but with some minor modifications to their design. The mechanisms are described briefly in the following sections.

### Statistical transfers

A Member State may agree to transfer to another Member State a specified amount of the renewable energy that counts towards its target under the 2018 RES Directive.<sup>72</sup> This is described as a 'statistical' rather than a physical transfer of energy produced in one State to another State. Statistical transfers agreed independently by Member States become effective after all of the States involved have notified the transfer to the Commission.<sup>73</sup> The Commission is also given a duty to 'facilitate statistical transfers' by establishing a 'Union renewable development platform'.<sup>74</sup> The platform's purpose is to provide a marketplace for statistical transfers of national renewable energy consumption. Member States may, on a voluntary basis, submit annual data on their national contributions to the Union target or benchmarks set for monitoring progress together with statements on the amount by which they expect to exceed or fall short of contributions and the price at which they would accept a transfer of excess renewable energy production from or to another Member State, together with other conditions for transfer. The platform will establish a mechanism for matching requests and offers for transfer. The Commission is empowered to establish the platform and to set conditions for finalising transfers through it.<sup>75</sup> The platform had not yet been established at the time of writing.

### Joint projects

This mechanism, provision for which is made by Articles 9 and 10 of the 2018 RES Directive, involves a statistical transfer of energy produced by a joint project 'relating to the production of electricity, heating or cooling from renewable energy sources' from the compliance account of one Member State to that of another. The project must have become operational after 25 June 2009 or have increased the capacity of an already existing facility after that date through refurbishment. Article 9(1) advises that the cooperation under this mechanism 'may involve private operators'. This means in practice that a private entity may seek support from a Member State for development in another State that is unable to provide sufficient backing

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<sup>71</sup> Commission, COM (2011) 31 final (n 22) 10–11.

<sup>72</sup> 2018 RES Directive (n 1), Article 8.

<sup>73</sup> *Ibid.*, Article 8(5).

<sup>74</sup> *Ibid.*, Article 8(2).

<sup>75</sup> *Ibid.*, Article 8(3).

for a proposed project to be pursued.<sup>76</sup> Control over the use of the mechanism in such circumstances remains exclusively with the States concerned, who must agree on the terms of support and the basis on which the renewable energy is to be shared between them.

### Joint projects with third parties

The EU's strategy for decarbonising energy supplies looks not only to renewable energy production by Member States, but also to collaboration with third countries on generating electricity from their renewable sources. The Directive reflects this by including a mechanism under Articles 11 and 12 for cooperation between Member States and third countries. This allows electricity production in the latter to be counted towards Member States' targets. It is more prescriptive as to the circumstances in which it may be used than is the case for other mechanisms. Electricity can only be counted from installations that entered into operation or whose capacity was upgraded after 25 June 2009 and that were developed or upgraded as joint projects between the Member States concerned and the third country.<sup>77</sup> This is necessary to prevent existing renewable energy capacity being diverted from host States who may then make up the deficit through fossil fuel consumption.<sup>78</sup> The Directive also suggests in places that the new development should produce electricity for consumption domestically as well as in the EU, although this is not an express requirement for their output to count towards Member State targets.<sup>79</sup>

Member States may apply for electricity produced in third countries but not consumed in the EU to be counted towards their targets in the limited circumstances set out in Article 11(3). These describe a scenario in which renewable energy production from a joint project has commenced, but the energy cannot be transported to the EU because it is not possible for the interconnector that will be used to transport it to commence operation by the end of 2030. The exception is further limited by requirements that construction of the interconnector has begun by the end of 2026 and that it must be possible at least for it to become operational before the end of 2032.

### Joint support schemes

The final mechanism, provision for which is made by Article 13 of the 2018 RES Directive, allows Member States that join or partly coordinate their national support schemes to determine how energy supported under the joint scheme is shared between them for the purposes of calculating their contributions to the European Union's 2030 goal. The States concerned may make statistical transfers or may set up a distributional rule for allocating supported energy to their compliance accounts. Distribution rules should be notified to the Commission within three months after the end of the month in which they take effect. Annual notifications of

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<sup>76</sup> Commission, 'Review of European and national financing of renewable energy in accordance with Article 23(7) of Directive 2009/28/EC', SEC (2011) 131 final, 8.

<sup>77</sup> 2018 RES Directive (n 1), Article 11(2)(b).

<sup>78</sup> *Ibid.*, Recital 41.

<sup>79</sup> *Ibid.*, Article 11(5)(d) and Recital 42.

energy produced during the preceding year that is allocated to them under the rule should also be provided by each of the participating States.

This mechanism comes closest to the Commission's original vision of a European-wide trading scheme as it allows the States concerned to focus on improving the cost-efficiency of renewable energy production within the extended territory that the joint scheme covers. It is also likely to be the most difficult mechanism to apply because of the many legal complexities associated with harmonising national approaches sufficiently to provide a common support scheme.<sup>80</sup>

### The use and future of cooperation mechanisms

At the time of writing, limited use had been made of the mechanisms for achieving the target under the 2009 RES Directive. Statistical transfers of national renewable energy production from Lithuania and Estonia to Luxembourg were agreed in 2017.<sup>81</sup> Two additional statistical transfers had been agreed by October 2020, between the Netherlands and Denmark and Malta and Estonia.<sup>82</sup> The Commission expected further transfers to be agreed in view of likely failures by some States to achieve their 2020 targets for renewable energy and for renewables in energy for transportation.<sup>83</sup> Sweden and Norway adopted a joint green certificate scheme for promoting renewable energy in their territories.<sup>84</sup> Norway is not a Member State of the EU but applies the 2009 RES Directive along with Iceland, due to its incorporation in December 2011 into the corpus of EU law that States party to the European Economic Area Agreement agree to apply in their own territories.<sup>85</sup> In addition, Germany and Denmark agreed to a partial opening of their national support schemes to solar PV projects constructed in each other's territories.<sup>86</sup>

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<sup>80</sup> C. Klessmann, P. Lamers, M. Ragwitz and G. Resch, 'Design Options for Cooperation Mechanisms under the New European Renewable Energy Directive' (2010) 38 *Energy Policy* 4687–90.

<sup>81</sup> N. Caldes, P. del Rio, Y. Lechon and A. Gerbeti, 'Renewable Energy Cooperation in Europe: What Next? Drivers and Barriers to the Use of Cooperation Mechanisms' (2019) 12 *Energies* 1–22.

<sup>82</sup> Commission, COM (2020) 952 final (n 26), 6–7.

<sup>83</sup> *Ibid.*, 6–12.

<sup>84</sup> Agreement on a Common Market for Electricity Certificates, Stockholm, 29 June 2011. An unofficial translation of the Agreement is available at [www.regjeringen.no/globalassets/upload/oed/pdf\\_filer\\_2/elsertifikater/agreement\\_on\\_a\\_common\\_market\\_for\\_electricity\\_certificates.pdf](http://www.regjeringen.no/globalassets/upload/oed/pdf_filer_2/elsertifikater/agreement_on_a_common_market_for_electricity_certificates.pdf) accessed 17 June 2021. See O. Boge, 'The Norwegian-Swedish Electricity Certificates Market' in M.M. Roggenkamp and H. Bjørnebye (eds) *European Energy and Law Report X* (Cambridge: Intersentia, 2014), pp.199–210.

<sup>85</sup> European Free Trade Association, 'Directive on the promotion of renewable energy incorporated', 20 December 2011, [www.efta.int/EEA/news/Directive-promotion-renewable-energy-incorporated-1086](http://www.efta.int/EEA/news/Directive-promotion-renewable-energy-incorporated-1086) accessed 17 June 2021. Liechtenstein was exempt from applying the Directive.

<sup>86</sup> Governments of the Federal Republic of Germany and of the Kingdom of Denmark, Agreement on the Establishment of a Framework for the Partial Opening of National Support Schemes to support the generation of energy from solar photovoltaic projects and for the cross-border administration of such projects in the context of a single pilot run in 2016, 20 July 2016, [www.bmwi.de/Redaktion/EN/Downloads/agreement-between-germany-and-denmark.pdf?\\_\\_blob=publicationFile&v=4](http://www.bmwi.de/Redaktion/EN/Downloads/agreement-between-germany-and-denmark.pdf?__blob=publicationFile&v=4) accessed 17 June 2021. D. Dmitruk, 'Danish-German Cooperation on

The Commission speculated, after only one use had been made of the mechanisms by 2013, that Member State reluctance to enter into agreements was due to uncertainty over how to use them.<sup>87</sup> To address this, in November 2013 it produced guidelines for employing mechanisms, including methodologies for price setting, legal and institutional framework conditions and model agreements.<sup>88</sup> However, it also recognised that Member States prefer to concentrate on exploiting resources nationally because of the associated benefits for national economies and employment.<sup>89</sup>

The continued low use of mechanisms since 2013 seems to indicate that such considerations have continued to dominate Member States' thinking on how to go about meeting targets for renewable energy consumption. Despite this, the mechanisms have been given an on-going role in promoting interstate collaboration on renewable energy development under the 2018 RES Directive. The Commission sees particular scope for using them in connection with anticipated significant growth in the offshore wind energy capacity of Member States during the 2020s.<sup>90</sup>

## 5.5 FINANCIAL SUPPORT FOR RENEWABLE ENERGY

### 5.5.1 Why Are Subsidies Necessary?

The enormous investment in technologies for producing and consuming renewable energy that is required if EU targets are to be met is not likely to be stimulated by market prices alone. One reason for this is that prices in markets which remain dominated by long-established fossil fuel incumbents may not be high enough to create confidence that monies invested in facilities for producing electricity and fuels for heating and transport, as well as technologies required for their consumption, will be recovered together with an attractive profit margin through sales of these commodities and products.

Declining costs for electricity produced by better established renewable technologies such as onshore wind and solar PV often, although not always, enable projects using them to compete with fossil fuel generation at market prices.<sup>91</sup> However, newer forms of renewable

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the first Cross-Border Tenders for Renewable Energy: A Blueprint for Future Cross-Border RES Projects?' in M.M. Roggenkamp and C. Banet (eds), *European Energy Law Report XII* (Cambridge: Intersentia, 2018, 1st ed.), pp.113–32.

<sup>87</sup> Commission, 'Staff Working Document accompanying Renewable Energy: A major player in the European Energy Market', SWD (2012) 164 final, 16–17.

<sup>88</sup> Commission, Guidance on the use of renewable energy cooperation mechanisms accompanying the document Communication from the Commission: Delivering the internal energy market and making the most of public intervention', SWD (2013) 440 final.

<sup>89</sup> Commission, SWD (2012) 164 final (n 87), 16–17.

<sup>90</sup> Commission, 'An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future', COM (2020) 741 final, 16.

<sup>91</sup> International Renewable Energy Agency, 'Renewable Power Generation Costs in 2017' (January 2018, report) [www.irena.org/publications/2018/Jan/Renewable-power-generation-costs-in-2017](http://www.irena.org/publications/2018/Jan/Renewable-power-generation-costs-in-2017) accessed 17 June 2021.

electricity production may struggle to compete with the prices attainable by established power-generating companies employing technologies which have become highly efficient through long experience with their use, and which benefit from economies of scale through centralisation. Investor concern that energy sales may not be sufficient to enable cost and profit recovery may also be heightened for all renewable electricity projects, however established the technology may be, by factors such as: the significant proportion of overall project capital costs incurred at the development stage, meaning that substantial confidence in their recovery is needed before development proceeds; the comparatively small scale of many renewable energy developments, again meaning that high confidence is needed in cost recovery up-front; and the difficulties and costs associated with connecting to networks and integrating into energy systems that were designed to transmit and distribute energy from centralised fossil fuel production facilities.

Means of producing renewable energy other than electricity for use in industry, heating, cooling and transportation are also disadvantaged by higher production costs and lower availability compared to fossil fuels such as petroleum and natural gas, which have benefited from several decades of experience with technologies for their production and consumption.<sup>92</sup>

### 5.5.2 Subsidies in EU Law

Member States of the EU have attempted to create investor confidence in renewable energy since they first began promoting its production in the 1980s, either by providing monies themselves from public funds or by placing legal obligations on private actors to support the growth of a renewables sector. The 2009 and 2018 RES Directives recognise that Member State provision of financial backing for renewable energy is required if targets for growth in its consumption are to be met. Both of them advise that Member States may apply ‘support schemes’ in order to reach their targets, defining ‘Support Scheme’ in Articles 2(k) and 2(5) respectively as

any instrument, scheme or mechanism applied by a Member State or a group of Member States, that promotes the use of energy from renewable sources by reducing the cost of that energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased.

The definitions then go on to provide non-exclusive lists of ways in which support for renewable energy can be provided:

The European Commission accepts that the provision of support is made necessary by the EU’s renewable energy policy goals, but regards national subsidies as an undesirable depar-

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<sup>92</sup> International Renewable Energy Agency, ‘Roadmap for a Renewable Future 2016 Edition’, pp.106–20 (March 2016, report) [www.irena.org/publications/2016/Mar/REmap-Roadmap-for-A-Renewable-Energy-Future-2016-Edition](http://www.irena.org/publications/2016/Mar/REmap-Roadmap-for-A-Renewable-Energy-Future-2016-Edition) accessed 17 June 2021.



ture from a preferred status quo of European-wide internal energy markets free of measures that distort competition including by advancing national preferences.<sup>93</sup>

What follows considers the main approaches that Member States have employed to support renewable energy development. These are grouped under measures used to enhance access to funding for development ('investment support') and those used to enable the recovery of development costs once the funded energy production plant is operational ('operating support'). The following text examines how State aid guidelines and provision under the 2018 RES Directive have been used to promote the integration of renewable energy into markets. It also considers legal questions to which Member States' use of support schemes has given rise concerning their compatibility with provisions of the Treaty on the Functioning of the European Union (TFEU) on the free movement of goods and state aid.<sup>94</sup> The section on operating support focuses on electricity as relevant schemes are used primarily to support the growth of renewable electricity production.

### 5.5.3 Investment Support

Financial backing for research and development for early stage renewable energy technologies and for the trialling of pre-commercial prototypes is often hard to obtain because of the high risk that monies invested will not be recovered. Alternatively, investors may only be prepared to provide investment at rates of return that would make it difficult to recover development costs through energy sales without substantial operating support (see section 5.5.4). Member States of the European Union use measures collectively referred to as 'investment support' to make it easier for innovators to develop new renewable energy technologies and to encourage consumers to use them through the provision of public financial support.<sup>95</sup>

Grant schemes provide funding to developers for the development and testing of eligible renewable energy technologies. The provision of long-term public loans enables them to access investment at much lower rates of return than would be available to them through private finance. Alternatively, guarantees of repayment from public bodies in the event that a borrower defaults may enable developers to access private finance more cheaply. Long-term grants are also used to encourage the purchase of renewable technologies by domestic and business consumers. For example, most Member States offer investment grants to promote the take-up of renewable energy heating systems such as biomass boilers.<sup>96</sup>

In addition to making public funds available, governments provide tax exemptions and reductions to support investment by reducing the financial burden on developers. More

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<sup>93</sup> Commission, European Commission guidance for the design of renewable support schemes – Accompanying the document 'Communication from the Commission: Delivering the internal market in electricity and making the most of public intervention', SWD (2013) 439 final.

<sup>94</sup> Treaty on the Functioning of the European Union [2008] OJ C115/47.

<sup>95</sup> Commission, SEC (2011) 131 final (n 76), 4–6; Commission, SWD (2013) 439 final (n 93), 11–12.

<sup>96</sup> Commission, SEC (2011) 131 final (n 76), 6, 9–10; current information on Member State support schemes can be found at [www.res-legal.eu/](http://www.res-legal.eu/) accessed 17 June 2021.

importantly, reduced tax rates can be used to encourage the consumption of renewable energy rather than fossil fuels. The use of biofuels is commonly promoted by applying lower rates of fuel tax to them as compared to petrol, or by allowing tax offsets for their consumption.<sup>97</sup>

Investment support is generally viewed as playing a supporting role to operating support. Its most important function to date has been to enable technologies to reach the point where they are perceived as a lower risk by investors because they are capable of commercial-scale operation. However, in its most recent guidance on financial support for renewable energy, the Commission encourages the wider use of investment support because it does not distort the operation of energy markets.<sup>98</sup>

## 5.5.4 Operating Support

### Feed-in tariffs

Feed-in tariffs (FITs) provide renewable energy operators with a specified price for each unit of electricity fed in to the electricity grid to which they are attached over a specified duration (typically 1–20 years). FIT schemes may be funded by the State concerned. Alternatively, some schemes oblige operators of electricity networks or suppliers to pay the tariff, with the costs of this being recovered through consumers' electricity bills. Tariff rates may vary according to the level of financial support that a technology needs to become established or according to policy goals.

FITs have proved to be a successful means of increasing renewable electricity consumption.<sup>99</sup> The stability provided by receipt of a guaranteed return for a guaranteed period attracts lower-cost investment due to the lower level of market risk. However, the Commission does not favour the use of FITs because it considers that the provision of a definite sales price distorts markets for electricity in the EU. It is also concerned that a lack of market exposure could be to the detriment of the renewable electricity sector by removing an incentive for generators to improve the efficiency of energy production through technological and operational innovation.<sup>100</sup>

The Commission's guidance document of November 2013 on the design of support schemes recommends that FITs should be used only to support small-scale renewable energy development, and that their use should otherwise be phased out. Its guidance on State aid in the field of energy and environment (see section 5.5.5) entrenches this position by making it clear that new FIT schemes should only be introduced for developments of below 3MW or 3 units for wind energy or 500kW for other technologies (for example, domestic-/community-scale

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<sup>97</sup> Commission, SEC (2011) 131 final, (n 76), 6.

<sup>98</sup> Commission, SWD (2013) 439 final (n 93), 11–12.

<sup>99</sup> Commission, SEC (2011) 131 final (n 76), 6; V. Lauber, 'The European Experience with Renewable Energy Support Schemes and Their Adoption: Potential Lessons for Other Countries' (2011) 2 *Renewable Energy Law and Policy* 120.

<sup>100</sup> Commission, SWD (2013) 439 final (n 93), 11–12.

developments).<sup>101</sup> FIT schemes that were approved under preceding State aid regimes may continue to accept new entrants, and recipients of tariffs under them will not be affected. However, existing schemes should be ‘brought into line’ (for example, replaced with less market-distorting alternatives) with the new State aid regime at points where their approval under the preceding regime expires or if they are adapted. The 2018 RES Directive confirms the guidance by only allowing Member States to use feed-in tariffs for the small-scale installations identified in the State aid guidelines (Art. 4(3) and recital 17).

### **Obligation/certificate schemes**

Some Member States have enacted laws that oblige electricity sector actors (usually suppliers, but sometimes also producers and consumers) to include a specified proportion of renewable electricity in their overall production, supply or consumption of energy.<sup>102</sup> Compliance with the obligation is demonstrated by the provision of certificates. These are issued to renewable electricity producers who may sell them to obligated actors either together with or separately from the related electricity. The idea behind such schemes is that the receipt of two separate revenue streams should enable developers of renewable energy installations to recover monies invested in them. This type of scheme is also widely used in connection with energy for transportation, with suppliers of fuel being obliged to include a proportion of energy from renewable sources in their supplies. Meeting these obligations is largely achieved by the blending of petrol and diesel with biofuels as permitted under the Fuel Quality Directive.<sup>103</sup> The 2018 RES Directive legally entrenches this approach at the European level by requiring Member States to set an obligation on fuel suppliers to ensure that the share of renewable energy within the final consumption of energy in the transport sector is at least 14 per cent by 2030 (minimum share) with the growth of the share following an indicative trajectory to be set by the Member State and to be calculated as provided for under the Directive (Art. 25(1)).

Obligation schemes can be technology neutral or can give differing levels of support for different technologies (a practice known as banding). This is generally done by providing that well-established technologies such as onshore wind will receive fewer certificates for each unit of electricity produced than will newer technologies such as wave and tidal energy, which require stronger initial support to become established.

The Commission has long preferred obligation schemes over FIT schemes because it believes that the market exposure under them will incentivise producers to reduce costs resulting in lower energy prices. However, in its 2013 guidance document on the design of support schemes it recognises that the cost of capital tends to be higher for projects funded by obligation schemes because of the risk that uncertain revenue streams from electricity and cer-

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<sup>101</sup> Commission, ‘Guidelines on state aid for environmental protection and energy 2014–2020’, 2014/C 200/01, 25 para. 125.

<sup>102</sup> Commission, SWD (2013) 439 final (n 93), 10–11, 25.

<sup>103</sup> Directive 98/70/EC of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC [1998] OJ L350/58.

tificate sales will not cover development costs.<sup>104</sup> As a result, this may limit renewable energy development to large-scale incumbents that can afford to finance projects themselves or that are able to obtain investment on more favourable terms than new market entrants. Cheaper, well-established technologies are also preferred over newer technologies whose electricity is more costly under such schemes because of the greater chance of securing a profit through the combined revenue from electricity and certificate sales. In view of this, the Commission endorses the use of banding mentioned above, and that of measures such as a floor price for tradable certificates to enhance confidence that cost recovery will be possible for technologies at whatever stage of development they may have reached.

### Premium schemes

Premium schemes are increasingly seen by Member States and the Commission alike as a potential alternative to FIT and obligation schemes for supporting renewable energy technologies that are able to be developed at commercial scales.<sup>105</sup> Electricity from generating plant supported under such schemes is sold into markets, but the risks associated with exposure to price volatility are tempered by the payment of a premium (typically by the operators of transmission systems or suppliers under a legal obligation) for each unit of sold electricity. The payment may be fixed at a specified level or may be a ‘floating’ amount that falls as electricity and carbon prices increase.

The Commission prefers the use of premium schemes over other options for renewable energy technologies that are capable of commercial deployment because it considers that they strike an appropriate balance between the market exposure that may drive renewable energy producers to improve efficiency and the higher level of risk under obligation schemes that may discourage investment in newer technologies.<sup>106</sup> Its guidelines on State aid in the field of energy and the environment advise that aid should be granted as a premium in addition to the market price from 1 January 2016, save for low-capacity/small-scale developments that may continue to receive FITs.<sup>107</sup> The 2018 RES Directive confirms the guidance by requiring Member States to support electricity from renewable sources other than small-scale and demonstration installations in the form of a market premium (Art. 4(3)). In view of this, premium schemes are likely to become the dominant means of providing operating support for renewable energy during the next decade, although they will continue to work alongside obligation schemes, which the Commission’s State aid guidelines and the 2018 RES Directive also endorse.

### Competitive allocation

One of the Commission’s aims in calling for a shift to subsidy schemes which give market exposure to renewable generators is to promote technological development and increasing efficiency in renewable electricity production, with a view to reducing the cost of a low-carbon energy transition. It further seeks to advance this aim in the 2013 State aid guidelines by

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<sup>104</sup> Ibid., 8–9.

<sup>105</sup> Ibid., 8–9.

<sup>106</sup> Commission, 2014/C 200/01 (n 101), 25 para. 126.

<sup>107</sup> Ibid., para 76.

requiring that from 1 January 2017 operating support for renewable electricity generation should be granted ‘in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria’ as a default position.<sup>108</sup> States are exempted from this requirement on grounds including the small scale of the supported development programme or that it would lead to higher support levels or to low project realisation. Bidding processes open to all renewable electricity generators could disadvantage new technologies that have not yet been able to follow the same cost reduction and increasing efficiency pathways that established technologies such as onshore wind and solar PV have taken. In view of this, the guidelines also allow tendering to be limited to specific technologies where to do otherwise ‘would lead to a suboptimal result’, and with a view to advancing other desirable goals for an energy transition such as the longer-term potential of new technologies and diversification in energy supplies.<sup>109</sup> In addition, aid for wind farms with an installed capacity of 6MW or six generating units and for all other installations of less than 1MW and demonstration projects may be granted without a competitive bidding process.<sup>110</sup> The 2018 RES Directive entrenches the legal status of competitive allocation by advising that ‘Member States shall ensure that support for electricity from renewable sources is granted in an open, transparent, competitive, non-discriminatory and cost-effective manner’ (Art. 4(4)). This is subject to opt-outs for small-scale and demonstration projects and to permission for States to limit tenders to certain technologies on the same grounds as those set out in the guidelines (Art. 4(5)).

### 5.5.5 Support Schemes and the TFEU

Permission under the RES Directives for Member States to use support schemes does not mean that they have free rein to provide financial support for renewable energy as they see fit. Measures employed by Member States must be compatible with provisions of EU Treaties that enshrine principles of the internal market and that seek to prevent anti-competitive behaviour by States. Other sources present much fuller analyses of the complex interaction between these provisions and support schemes and of the case law of the European Court of Justice (ECJ) that interprets the relevant laws than can be provided in this chapter.<sup>111</sup> The following section concentrates on the two main respects in which EU Treaty law has influenced and continues to shape the design of support schemes by Member States.

#### Free movement of goods

Article 34 TFEU prohibits measures by Member States that have an equivalent effect to a quantitative restriction on imports. Schemes under which access to financial support is restricted to indigenous energy producers may contravene this provision because they limit scope for electricity to be imported. However, they may still be found to be lawful, either because they

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<sup>108</sup> Ibid.

<sup>109</sup> Ibid.

<sup>110</sup> Ibid., para. 77.

<sup>111</sup> K. Talus, *Introduction to EU Energy Law* (Oxford: Oxford University Press, 2016); T.M. Rusche, *EU Renewable Energy Law and Policy* (Cambridge: Cambridge University Press, 2015).

fall under a derogation to Article 34 or because the ECJ finds some other basis for justifying a departure from the Article.

The *PreussenElektra* judgment of the ECJ is the leading authority on the effect of Article 34 on support schemes.<sup>112</sup> This case concerned a requirement under German law that operators of grids should purchase electricity generated by plants attached to them at a fixed tariff. The ECJ found that this constituted a clear breach of Article 28 of the EC Treaty (the corresponding provision to Article 34 TFEU in its predecessor) as the preference for producers attached to the national grid restricted market access for imported electricity. The legal constraint was not permitted under the EC Treaty itself as derogations from Article 28 did not include measures taken for environmental protection. Surprisingly, this remains the case under TFEU, although environmental protection has a much higher profile in the EU now than it had in 2001.<sup>113</sup> However, the Court found that the measure could be justified because of the important public interest it served of securing the decarbonisation of energy supplies. Its reasoning was consistent with other cases in which it legitimised measures whose principal purpose is to address environmental problems that would otherwise have fallen foul of laws preventing constraints on trade.<sup>114</sup>

The ECJ was willing to endorse the restrictive law in *PreussenElektra* because of the perceived difficulty, as at 2001, with distinguishing between electricity generated from renewable and from non-renewable sources. This meant that the renewable status of imported electricity could not be verified. Its decision of July 2014 in the *Ålands Vindkraft* case considers whether the subsequent introduction of arrangements for issuing documents, which confirm that electricity was produced from a renewable source (guarantees of origin<sup>115</sup>), removes this justification for measures that would otherwise contravene Article 34.<sup>116</sup> The ECJ concluded that the position has not changed since its *PreussenElektra* judgment because it remains difficult to determine the origin of electricity at the point of consumption. The production of guarantees of origin does not prove that imported electricity has contributed physically to national support schemes' typical objective of promoting the growth of renewable energy production within the State concerned.

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<sup>112</sup> Case C-379/98 *PreussenElektra v Schleswag* [2001] ECR I-2099. See A.C. Johnston and G. Block, *EU Energy Law* (Oxford: Oxford University Press, 2012), pp. 342–53 for a detailed account of the case.

<sup>113</sup> Derogations are listed under Article 36 TFEU. These include measures that can be justified on grounds of 'the protection of health and life of humans, animals or plants', but this falls short of a general derogation for measures taken to protect the environment.

<sup>114</sup> Johnston and Block (n 112), pp.343–50.

<sup>115</sup> See Section 5.4.2 of this chapter.

<sup>116</sup> [2014] EUECJ C-573/12, *Ålands Vindkraft AB v Energimyndigheten*, ECLI: EU: C: 2014: 2037.



In addition, its decision emphasises the exclusive authority given under Article 3(3) of the 2009 RES Directive to Member States to decide if their support schemes should be accessible to energy produced in a different State, in terms of the following:

- the allocation of legally binding targets to each Member State including by reference to their ability to finance renewable energy development;<sup>117</sup>
- the corresponding importance of Member State control of the effects and costs of their support schemes according to their differing potentials;<sup>118</sup> and
- the possibility for States to agree to open up their support schemes to electricity produced in other Member States under the Joint Support Scheme cooperation mechanism.<sup>119</sup>

The ECJ gave a further decision in September 2014 concerning the compatibility of an obligation/certificate scheme that restricts access to electricity produced nationally with the prohibition on measures preventing the free movement of goods.<sup>120</sup> In the *Essent* case, only certificates issued for renewable electricity generated in the territory covered by the scheme could be used by suppliers to discharge their obligations. The operator fined the complainant when it attempted to meet its obligation by submitting guarantees of origin for electricity produced outside the territory within which the scheme operated. The court used the same line of reasoning employed in *Ålands Vindkraft* in concluding that while the scheme constituted a prima facie breach of the prohibition, it could be justified because it provided a proportionate means of advancing an overriding requirement (protecting the environment by mitigating climate change).<sup>121</sup> The proportionality analysis approach was endorsed and applied by the ECJ in a subsequent judgment of 2016, but with the opposite conclusion that a law discriminating in favour of domestically produced renewable electricity fed directly into distribution networks by waiving distribution charges was not proportionate.<sup>122</sup>

## State aid

Article 107(1) TFEU declares that the grant of aid by Member States either directly or through State resources is incompatible with the common market where this would: (a) distort or threaten to distort competition by favouring certain undertakings or the production of certain goods; and (b) affect trade between Member States (for example, measures that have only an internal impact are not unlawful under this Article). Compliance with this provision is promoted by a requirement that States should provide advance notification to the Commission of their intention to provide aid so that the compatibility of proposed measures with Article

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<sup>117</sup> See Section 5.3.2 of this chapter.

<sup>118</sup> 2009 RES Directive, Recital 25.

<sup>119</sup> See Section 5.4.6 of this chapter.

<sup>120</sup> [2014] EUECJ Case C-204/12 *EssentBelgium NV v Vlaams Reguleringsinstanties voor de Elektriciteits en Gasmarkt*, ECLI: EU: C: 2014: 2192.

<sup>121</sup> *Ibid.*, paras 77–116.

<sup>122</sup> [2016] EU ECJ Case C-492/4 *EssentBelgium NV v Vlaams Geweste*, EU:C: 2016: 732.

107(1) can be assessed.<sup>123</sup> The Commission simplifies this process by waiving the notification requirement for measures that fall within specified categories of aid. These are identified in a law known as the ‘General Block Exemption Regulation’ that is drafted, adopted and revised periodically by the Commission. The most recent regulation came into effect on 1 July 2014.<sup>124</sup>

Other sources offer a much fuller analysis of this complex area of EU law than can be provided in this chapter.<sup>125</sup> This section confines itself to consideration of the two key respects in which the articles of EU Treaties on State aid have influenced Member States’ provision of financial support for renewable energy. First, the ECJ’s decision in *PreussenElektra* considered whether a legal requirement by a State for transmission and distribution system operators to purchase electricity produced by renewable generating plants attached to their networks could be regarded as a measure to which Article 87 of the EC Treaty (the corresponding provision to Article 107(1) TFEU in its predecessor) would apply.<sup>126</sup> It concluded that this could not be regarded as State aid because the costs of the scheme were borne ultimately by consumers through the inclusion of costs for the electricity in their bills rather than being financed by the State. This decision legitimised the use of feed-in tariffs as a means of supporting renewable energy from a State aid perspective. It has not been overturned by subsequent decisions, although the ECJ’s decision has been criticised for excluding the use of legislative powers to require private actors to finance support schemes from the scope of Article 107(1).

Second, the Commission assists Member States with designing measures that do not contravene constraints on State aid. It does this by producing guidelines that indicate types of measures that are likely to be regarded as compatible with the internal market. The guidelines are not legally binding, but they inevitably have a strong influence on the form of Member State support schemes in view of the Commission’s role in approving their compatibility with Article 107(1). New guidelines on State aid in the field of energy and the environment took effect on 1 July 2014.<sup>127</sup>

The already-mentioned requirements for premium or obligation schemes to be used rather than FITs for all measures notified after 1 January 2016, and for operating support to be made available through competitive allocation, will bring radical change to the way in which Member States support renewable energy.<sup>128</sup> The Commission’s aim in proposing these changes is to further reduce the market-distorting effect of support schemes that prevent completion of the internal market.<sup>129</sup> It also hopes that increasing the exposure of renewable energy technologies to market conditions will require them to become more efficient, with

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<sup>123</sup> TFEU, Article 108.

<sup>124</sup> Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories compatible with the Internal Market in application of Articles 107 and 108 of the Treaty [2014] OJ L187/1.

<sup>125</sup> J.J. Piernas Lopez, *The Concept of State Aid under EU Law: From Internal Market to Competition and Beyond* (Oxford: Oxford University Press, 2015).

<sup>126</sup> Case C-379/98 (n 112); Johnston and Block (n 112), pp.351–3.

<sup>127</sup> Commission, 2014/C/01 (n 101).

<sup>128</sup> Section 5.4.4.

<sup>129</sup> The Commission’s reasons for making these changes are explained in SWD (2013) 439 final (n 93).

resulting reductions in the cost of energy. However, related concerns arise that greater market integration and cost reductions may be achieved at the expense of efforts to achieve a rapid decarbonisation of energy supplies.

## 5.6 CONCLUSION

The 2018 RES Directive, coupled with the 2018 Governance Regulation and the 2019 Electricity Directive and Regulation, creates a legal framework for driving further growth in renewable energy consumption in the EU to at least 32 per cent. Member States and sectoral actors are required to create more favourable conditions for attracting investment in renewable energy and for its integration into energy systems and markets.

Early experience with working under the new framework has been positive in spite of the absence of legally binding national targets. Member States' proposed contributions to renewable energy growth by 2030 were assessed by the Commission to exceed the 32 per cent goal by up to 1.7 per cent.<sup>130</sup> Member States that have fallen behind the trajectory for renewable energy growth set out in their climate and energy plans have an obligation under the Governance Regulation to implement additional measures within one year to increase the proportion of renewable energy in national consumption to the planned level. The obligation is triggered by notification from the Commission that cumulative progress has fallen below the trajectory for reaching the EU's 32 per cent goal.<sup>131</sup> Now that cumulative planned contributions exceed this level, the EU's 2030 renewable energy goal is likely to be met without Member States having taken on legally binding national targets.

However, the legal framework for the 2030 goal will face a stiffer test if the EU's ambition for renewable energy growth increases. In this regard, the European Council agreed in December 2019 to reach net zero greenhouse gas emissions by 2050.<sup>132</sup> This requires a 55 per cent reduction in greenhouse gas emissions by 2030 and a minimum rise in renewable energy by 2030 to between 38 per cent and 40 per cent.<sup>133</sup> Proposals for revising Clean Energy for All Europeans laws will be produced once the European Council has agreed on the level of new 2030 goals.<sup>134</sup> The 2020s are therefore very likely to see further change in the EU's legal framework for

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<sup>130</sup> Commission, 'An EU-wide Assessment of National Energy and Climate Plans: Driving Forward the Green Transition and Promoting Economic Recovery through Integrated Energy and Climate Planning', COM (2020) 564 final, 2–3.

<sup>131</sup> (EU) Regulation 2018/1999 (n 43), Article 32(3)(c).

<sup>132</sup> European Council, 'European Council meeting (12 December 2019) – Conclusions'. EUCO 29/19, 12 December 2019, available at [www.consilium.europa.eu/media/41768/12-euco-final-conclusions-en.pdf](http://www.consilium.europa.eu/media/41768/12-euco-final-conclusions-en.pdf) accessed 17 June 2021.

<sup>133</sup> Commission, 'Stepping Up Europe's 2030 Climate Ambition – Investing in a Climate-neutral Future for the Benefit of Our People', COM (2020) 562 final, 9.

<sup>134</sup> *Ibid.*, 25.

renewable energy as the EU needs to transit to ‘an integrated energy system largely based on renewables already by 2030’ to get the Union on track for net zero by 2050.<sup>135</sup>

### CLASSROOM QUESTIONS

1. How may the lack of legally binding national targets for increasing renewable energy consumption at the EU level affect achievement of the EU renewable energy 2030 target set in the 2018 RES Directive?
2. How does the 2018 RES Directive seek to: (a) promote renewable energy consumption by requiring Member States to reform administrative procedures and introduce guarantee of origin schemes; and (b) deter unsustainable production of biofuels, bioliquids and biomass fuels?
3. Why does the European Commission view feed-in tariff schemes with concern? Why does it promote premium schemes, certificate/obligation schemes and competitive allocation as preferable alternatives for supporting renewable energy?

### SUGGESTED READING

#### Books

*Crossley P, Renewable Energy Law: An International Assessment (Cambridge University Press 2019).*  
*Rusche TM, EU Renewable Electricity Law and Policy: From National Targets to a Common Market (Cambridge University Press 2015).*

#### Articles and chapters

*Caldes N, del Rio P, Lechon Y and Gerbeti A, ‘Renewable Energy Cooperation in Europe: What Next? Drivers and Barriers to the Use of Cooperation Mechanisms’ (2019) 12 Energies 22.*  
*Martini A and Romera BM, ‘Fifty Shades of Binding: Appraising the Enforcement Toolkit for the EU’s 2030 Renewable Energy Targets’ (2020) 29 Review of European, Comparative and International Environmental Law 221.*  
*Webster E, ‘Transnational Legal Processes, the EU and the REDII: Strengthening the Global Governance of Bioenergy’ (2020) 29 Review of European Comparative and International Environmental Law 86.*

#### Policy documents

*Commission, ‘A policy framework for climate and energy in the period from 2020 to 2030’ COM (2014) 15 final.*  
*Commission, Clean Energy for All Europeans (Luxembourg: Publications Office of the European Union, 2019).*  
*Commission, ‘Stepping up Europe’s 2030 climate ambition: Investing in a climate neutral future for the benefit of our people’ COM (2020) 562 final.*

<sup>135</sup> Ibid., 18–19.

# 6

## Energy efficiency

### ABSTRACT

- EU Energy Efficiency Law consists of the general Energy Efficiency Directive 2012/27/EU and the other measures concerning specific energy efficiency standards set for certain products and goods, such as buildings, electrical appliances and tyres;
- EU energy efficiency policy is formulated with a dual climate change and security of supply objective in mind;
- The Energy Efficiency Directive provides for an EU-wide energy efficiency target, but most importantly lays down non-binding minimum energy efficiency contributions for the Member States as well as a methodology for calculating such contributions;
- The Energy Efficiency Directive and the other EU acts concerning energy efficiency standards envisage the introduction of market-based mechanisms to ensure cost-effective implementation of energy efficiency measures;
- The Directives contain a methodology for determining cost-effective investments in energy efficiency;
- The Energy Efficiency Directive and the other measures take into account the higher costs of increasing energy efficiency for those Member States where the level of energy efficiency is already relatively high, thus taking into account the need to ensure solidarity between the Member States;
- Solidarity at the level of individual energy consumers is also taken into account where network tariffs and their impact on energy efficiency is concerned;
- As far as concrete measures are concerned, the focus of energy efficiency legislation is on buildings, since these account for a large percentage of energy use;
- The effectiveness of the energy efficiency measures can be doubted as a result of:
  - The non-binding nature of the national energy efficiency contributions;
  - The general reluctance by EU Member States to submit to strict energy efficiency targets;
  - The EU's poor track record on increasing energy efficiency.

## 6.1 INTRODUCTION

EU energy efficiency policy goes back quite some time, with the 1991 SAVE programme the earliest example of EU involvement.<sup>1</sup> Such action finds its legal basis in what is currently Article 191 TFEU, insofar as it refers to the ‘prudent and rational utilisation of natural resources’ and the source principle, requiring environmental problems to be dealt with at the source. In addition to the environmental legal basis, Article 194(1)(c) TFEU now explicitly enables the EU to adopt measures to ‘promote energy efficiency and energy saving’. Both the environmental and the energy legal basis thus enable the EU to adopt measures in the field of energy efficiency. In addition to these legal bases, energy efficiency-related acts have been adopted on the basis of the Common Commercial Policy (external trade).<sup>2</sup> This underlines the dual nature of energy efficiency measures as measures at the crossroads of product standards, environmental protection and security of supply. EU energy efficiency legislation can be separated into a general Directive as well as the Directives and Regulations applicable to the different products or goods for which specific rules have been formulated:

- Directive 2012/27/EU (Energy Efficiency Directive)<sup>3</sup>
- Directive 2010/31/EU (Energy Performance of Buildings Directive)<sup>4</sup>
- Regulation 2017/1369 (Labelling Regulation)<sup>5</sup>
- Directive 2009/125 (Eco-design Directive)<sup>6</sup>
- Measures concerning various products for which energy efficiency standards have been set pursuant to the Eco-design Directive or the Labelling Regulation, such as electronic displays.<sup>7</sup>

We will explain that the main problems arising in relation to energy efficiency regulation tie in with the differing levels of energy efficiency between the Member States and the resulting

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<sup>1</sup> SAVE is the wonderfully far-fetched acronym for Specific Actions for Vigorous Energy Efficiency and was adopted by means of Decision 91/565, OJ 1991 L 307/34. Note that as early as 1985 the Council called upon the Member States to promote energy saving policies.

<sup>2</sup> For example, the Energy Star Agreement: see Case C-281/01 *Commission v Council* (Energy Star) ECLI:EU:C:2002:761.

<sup>3</sup> As amended by Directive 2013/12, OJ 2013 L 141/28; Directive 2018/844, OJ 2018 L 156/75; and Directive 2018/2002, OJ 2018 L 328/210. A consolidated version is available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02012L0027-20201026&qid=1607943292093> last accessed 22 June 2021.

<sup>4</sup> As amended by Directive 2018/844, OJ 2018 L 156/75. A consolidated version is available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02010L0031-20181224&qid=1607943350319> last accessed 22 June 2021.

<sup>5</sup> OJ 2018 L 198/1. This repeals Directive 2010/30, OJ 2010 L 153/1, the Labelling Directive.

<sup>6</sup> OJ 2009 L 285/10, as amended by Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, OJ 2012 L 315/1.

<sup>7</sup> Annex II A of Commission Regulation (EU) 2019/2021 laying down ecodesign requirements for electronic displays, OJ 2019 L 315/241, contains the maximum energy efficiency index for such screens.



differences in costs to increase energy efficiency. In some Member States buildings are on average better insulated, or heat and electricity generation and distribution are more efficiently organised, than in others. Also, the differing climatic situations in the Member States impact the demand for heat, for example. This results in cost-effectiveness and solidarity playing a major role, not only because increasing the energy efficiency of an already highly efficient system involves relatively high costs, but also because the investments required for extra energy efficiency must be affordable in relation to the GDP of that Member State. Below we will first examine the basics of energy efficiency (section 6.2) and then take a closer look at the Energy Efficiency Directive (section 6.3). After that we will study the Energy Efficiency of Buildings Directive (section 6.4) and the Labelling Regulation (section 6.5). Finally, the other energy efficiency-related measures will be scrutinised in section 6.6. Section 6.7 concludes.

## 6.2 BASICS OF ENERGY EFFICIENCY

Energy efficiency is the relation between the amount of energy put into a certain process and the result of that process. Generating electricity, for example, often involves the combustion of primary energy sources with the resultant thermal energy being converted to kinetic energy that drives turbines. These in turn drive generators, with the production of electrical energy as the final result. This is then transported to the end-user, but resistance losses mean that the amount of electrical energy delivered to the end-user will be lower than the amount fed into the grid. The end-user, finally, will want to convert that electrical energy into light or motion and thus personal utility, but this will also involve losses. Incandescent light bulbs, for example, produce not just visible light, but also an overwhelming amount of thermal energy (heat). The losses provided in this example all come with negative environmental effects arising from the combustion of fossil fuels and thus carbon dioxide emissions, without resulting in any utility for the end-user. If we require extra utility at the same level of or with a reduced energy efficiency, that means more waste and emissions. Increased energy efficiency, on the other hand, replaces the need to use other energy resources, resulting in some authors calling energy efficiency an (or first) energy source in its own right.<sup>8</sup>

Energy saving through increased energy efficiency is often said to be the best way to deal with the climate change impact of energy use, as well as with security of supply and energy poverty.<sup>9</sup> It therefore features prominently in the EU's 20-20-20 goals.<sup>10</sup> The recently adopted Clean Energy for All Europeans Package also devotes significant attention to energy efficiency, setting a 32.5 per cent target for 2030.<sup>11</sup> In addition, increased energy efficiency plays an

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<sup>8</sup> M. Yan and X. Yu, *Energy Efficiency*, Springer, 2015, pp.11 et seq.

<sup>9</sup> Commission proposal for the Energy Efficiency Directive, COM (2011) 370 final, p.1. See more recently, the Commission's European Energy Security Strategy, COM (2014) 330 final, chapter 3. Note that energy efficiency was also relevant during the oil crisis of the 1970s.

<sup>10</sup> See Chapter 2.

<sup>11</sup> This package was proposed by means of COM (2016) 860 final and acquired political approval on 30 November 2018: see Commission press release IP/18/6870. In relation to energy efficiency, it has resulted in Directive 2018/2002,

important geopolitical role for the EU, as reduced energy consumption allows for a reduction of imported (fossil) fuels and thus a higher level of supply security. Increased energy efficiency may well be the way in which we can maintain as much as possible of our existing way of life at a lower carbon cost, but it is very much a technical issue with a different impact for each Member State. Increasing energy efficiency means, among others, investing in insulation of buildings and industrial installations; changing the way buildings are heated – for example by using residual heat; and changing the way in which electricity networks are operated. All of these measures require considerable investments, for example in the creation of a heat network. This translates into fairly technical rules that entail a prominent role for cost–benefit analyses, as we will see below. The EU’s energy efficiency target is not part of the 2009 climate and energy package and is otherwise set apart from the instruments in the 2009 climate and energy package.<sup>12</sup> The reason for this is that it deals with energy efficiency at a relatively high level of abstraction that leaves considerable room for the widely different backgrounds of the Member States in terms of climate conditions and current levels of energy efficiency. Moreover, it envisages an important role for cost-effectiveness considerations.<sup>13</sup> The importance of cost-effectiveness results from the observation that increasing energy efficiency involves significant investments that will pay off only in the long term. This is compounded by the fact that such investments will be more significant when the level of energy efficiency is already higher. When the level of energy efficiency is relatively low, simple and cheap investments can lead to significant increases in energy efficiency. However, transforming an already highly energy-efficient building into a zero-energy building may very well be impossible and in fact require the complete reconstruction of the building. It is not difficult to see that the costs of the latter are far greater than those involved in putting in double glazing and adding insulation.

Energy efficiency can be increased in a number of ways, but by and large they boil down to technical, network, financial and behavioural solutions. On the technical side, energy efficiency can be increased by changing to more energy-efficient equipment, such as switching from incandescent light bulbs to LEDs or installing more efficient turbines in power plants, or simply adding insulation. On the network side, losses in transmission and distribution networks can be reduced by dispatching power from generation sources that are closer to the demand centres. Another network-based solution would be to use the thermal energy (waste heat) from, for example, power plants to heat buildings or as an input in another industrial process. This requires a network to transport not only the electrical energy, but also the heat from that plant. As far as financial incentives are concerned, investments in increased energy

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OJ 2018 L 328/210, which has raised the EU objective to a 32.5 per cent increase in energy efficiency for 2030 compared to the 2007 baseline.

<sup>12</sup> The 2009 package was published in [2009] OJ L 140 and does not address energy efficiency as such. Note that the Commission’s proposal did include energy efficiency as part of a package that addressed greenhouse gas abatement and renewable energy production: COM (2008) 30 final.

<sup>13</sup> Cf. recital 21 of the preamble to Directive 2012/27 and Article 1(1) of the Energy Performance of Buildings Directive.

efficiency are almost always profitable as they will result in lower energy costs. However, the capital costs may outweigh the reduction in energy costs in the short term, and thus make it financially unattractive to invest in energy efficiency. Similarly, in relation to rented buildings, there is a financial impediment resulting from the so-called split incentive. The split incentive results from the fact that in buildings that are rented, the investment in increased energy efficiency is financed by the owner whereas the tenant enjoys the advantages. On the behavioural front, an obvious solution would be to get end-users to switch off the lights when nobody is in a certain room. This requires an increased level of awareness on the part of that end-user. This would also address the energy efficiency paradox or rebound effect, according to which increases in energy efficiency actually trigger more energy consumption.<sup>14</sup> The bottom line is that energy efficiency is notoriously difficult to implement in practice. This is evidenced, for one, by the progress reports drawn up by the Commission. Each year since 2015, these reports have concluded that progress was insufficient to attain the energy efficiency targets set by the Member States or at the EU level.<sup>15</sup>

### 6.3 THE ENERGY EFFICIENCY DIRECTIVE

Directive 2012/27/EU (the Energy Efficiency Directive) replaces Directive 2004/8/EC on Cogeneration and Directive 2006/32/EC (the 2006 Energy Efficiency Directive).<sup>16</sup> It essentially lays down rules to ensure that the EU achieves its 32.5 per cent energy efficiency target<sup>17</sup> and rules intended to overcome the market failures<sup>18</sup> impeding energy efficiency increases. The Directive is adopted on the basis of Article 194(2) TFEU, the energy legal basis, and explicitly allows for stricter measures, that is, higher energy efficiency standards, insofar as these meas-

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<sup>14</sup> This is also referred to as Jevons' Paradox after the British economist who noticed that coal consumption did not decrease after coal-fired steam engines had become more efficient. For a survey see: B. Alcott, 'Jevons' Paradox', *Ecological Economics*, 2005, vol. 54, pp.9–21.

<sup>15</sup> Cf. 2015 assessment of the progress made by Member States towards the national energy efficiency targets for 2020, (COM(2015) 574); 2016 assessment of the progress made by Member States towards the national energy efficiency targets for 2020, (COM(2017/056)); 2017 assessment of the progress made by Member States towards the national energy efficiency targets for 2020, (COM(2017)687); 2018 assessment of the progress made by Member States towards the national energy efficiency targets for 2020, (COM(2019) 224); 2019 assessment of the progress made by Member States towards the national energy efficiency targets for 2020 (COM(2020) 326).

<sup>16</sup> OJ 2012 L 315/1, see Arts 27 and 28 on repeals and transposition. Note that this Directive was amended by Directive 2013/12/EU, OJ 2013 L 141/28 to reflect the accession of Croatia and most recently by means of Directive 2018/844, OJ 2018 L 156/75, to implement the Clean Energy for All Europeans Package. This last amendment essentially entailed the moving of the provisions on long-term renovation strategies for buildings, the old Article 4, to the Energy Performance of Buildings Directive: see recital 8 of the preamble to Directive 2018/844.

<sup>17</sup> This 32.5 per cent target is provided for in the Climate Governance Regulation, Regulation 2018/1999, OJ 2018 L 328/1, Recital 6 to the preamble, Article 2(11) and 4(b)(1), see Chapter 11.

<sup>18</sup> Such as the split incentive in buildings that are rented out: see section 6.4 below and in energy efficiency increases in the transmission, distribution and transformation of energy, see section 6.3.3 below.

ures are compatible with EU law. It contains rules on the indicative national energy efficiency targets (discussed below in 6.3.1), efficiency in energy use (discussed below in 6.3.2), efficiency in energy supply (analysed in 6.3.3 below), efficiency provisions that apply generally (discussed in 6.3.4 below) and some final provisions that will not be dealt with separately.

### 6.3.1 EU Energy Efficiency Targets and National Contributions Thereeto

#### Defining energy efficiency

As energy efficiency is essentially the relation between the amount of energy put into a certain process and the useful energy obtained from that process, the Energy Efficiency Directive first defines a number of common standards for determining energy efficiency. This efficiency can be expressed in a number of terms, which relate to the production or consumption of energy and the difference between these. In this regard the Directive refers to, respectively, *primary* energy consumption, *final* energy consumption and *primary* or *final* energy saving or energy intensity.<sup>19</sup> ‘Energy’ is given a very broad definition that basically includes all forms of energy.<sup>20</sup> Primary energy consumption is defined as gross inland consumption, excluding non-energy uses. This concept encompasses all the oil, gas and other primary energy sources as well as electricity produced in or imported into a country. Final energy consumption refers to all energy supplied to final consumers, excluding supply to the energy sector and the energy transformation sector.<sup>21</sup> These sectors are excluded as they do not use energy as final consumers, but rather as intermediary parties that will ultimately supply final consumers. Energy saving consists of the difference between the (estimated or measured) amount of energy used before and after efficiency improvement measures have been implemented.<sup>22</sup> This means that – at the household level, for example – energy savings can be calculated as the difference between the amount of electrical energy consumed before and after an old inefficient washing machine is replaced with a new energy-efficient one. Another way of measuring energy efficiency is by means of energy intensity. This is the amount of energy used in a country divided by the gross domestic product of that country. This directly relates energy use to the economic productivity achieved with that input and follows from the fact that increased economic growth by and large connects to increased energy consumption. A decrease in energy intensity thus points to a decoupling of economic growth and energy consumption that equates to increased energy efficiency.<sup>23</sup>

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<sup>19</sup> Article 3(1) Energy Efficiency Directive.

<sup>20</sup> Article 2(1) Energy Efficiency Directive.

<sup>21</sup> The energy transformation sector is a concept that is undefined in the directive. It refers to the industry that transforms one form of energy (e.g. kinetic energy) into another form (e.g. electrical energy).

<sup>22</sup> Article 2(5) Energy Efficiency Directive.

<sup>23</sup> It could, for example, mean that more goods are produced and transported with the same or a reduced energy consumption.

## Energy efficiency targets

Although the EU has set itself a 32.5 per cent energy efficiency target, it requires the Member States to actually achieve this target.<sup>24</sup> Despite the various buildings operated by the EU institutions,<sup>25</sup> the majority of energy consumption obviously takes place in the Member States. It is therefore at Member State level that the most significant energy savings can be achieved. This is also where we can see obvious differences between the Member States, both in terms of energy intensity and of the reductions in energy intensity that have been achieved.<sup>26</sup> Moreover, we also see obvious differences in the means used to attain energy efficiency increases, with the two smaller island states of Malta and Cyprus being mentioned specifically and receiving special targets.<sup>27</sup>

To this end, Article 3(1) requires the Member States to set indicative energy efficiency contributions (referred to as an ‘indicative national energy efficiency target’ in the text) in their national energy and climate plans, in such a way that the EU does not exceed a certain amount of energy consumption defined as million tonnes of oil equivalent in 2020. As a result, the Member States, irrespective of how they define their energy efficiency target, also have to express their targets in an absolute level of primary or final energy consumption. However, apart from the hard target set at EU level, the Member States shall also take into account various other factors such as ‘other measures to promote energy efficiency’.<sup>28</sup> With regard to the 2030 32.5 per cent target, the Member States shall set indicative national energy efficiency targets in a similar way and report their progress to the Commission.<sup>29</sup> We see the cost–benefit analysis prominently where Article 3(6) of the Directive provides for the possibility of an upward revisioning of the target, inter alia, ‘in the event of substantial cost reductions resulting from economic or technological developments’.

Furthermore, they may also take into account factors affecting energy consumption, such as economic growth forecasts, changes in energy imports and exports and the development of renewables, nuclear energy and CCS. The targets were to be set for the first time in 2014 in order to enable the Commission to assess whether the EU is likely to achieve the 20 per cent target.<sup>30</sup> It may be noted that the Commission is only allowed to issue recommendations and that the text of the Directive does not in any way guarantee that the EU will attain its objec-

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<sup>24</sup> Directive 2018/2002, recital 6 and Article 1(1).

<sup>25</sup> The buildings in Brussels are in fact rented from the Brussels capital region and thus fall under the Belgian rules implementing the Energy Efficiency of Buildings Directive. See further the answer by Energy Commissioner Oettinger to Parliamentary question E-007805-13, available at: [www.europarl.europa.eu/sides/getDoc.do?type=WQ&reference=E-2013-007805&language=EN](http://www.europarl.europa.eu/sides/getDoc.do?type=WQ&reference=E-2013-007805&language=EN) last accessed 22 June 2021.

<sup>26</sup> For example S.R. Schubert, J. Pollak and M. Kreutler, *Energy Policy of the European Union*, Palgrave, 2016, p.181.

<sup>27</sup> Directive 2018/2002, recital 13.

<sup>28</sup> Article 3(1)(d) Energy Efficiency Directive.

<sup>29</sup> Article 3(5) Energy Efficiency Directive.

<sup>30</sup> Article 3(2) Energy Efficiency Directive.

tive.<sup>31</sup> In this respect the Directive confines itself to laying down a reporting obligation for the Member States as well as a duty to include their contributions to the EU target in the integrated national energy and climate plans they need to submit on the basis of the Governance Regulation.<sup>32</sup>

### 6.3.2 Efficiency in Energy Use

The directive recognises the importance of energy efficiency in energy use but also the wide range of energy uses, ranging from building to industries and appliances. Therefore, other EU laws (directives and regulations) are also relevant when discussing efficiency in energy use. One example is energy efficiency in buildings, which is governed by the Energy Efficiency Directive and the Energy Performance of Buildings Directives (see further section 6.4).

The Energy Efficiency Directive provides some guidance as to how Member States can achieve efficiency contribution in energy use. For example, it recognises that central governments can play an important role in their purchasing decisions. Article 6 requires the Member States to ensure that central government public procurement results in the purchase of products, services and buildings with high energy efficiency performance insofar as this is consistent with other considerations laid down in Annex III. This is closely connected to the public procurement procedures in general, as is evidenced by the fact that the thresholds laid down in the Public Procurement Directive determine whether the obligation applies. Green public procurement is fairly well established and widely accepted by the European institutions.<sup>33</sup> The interesting trade-off surfaces when we see that such purchasing is to be consistent with, *inter alia*, sufficient competition. This refers to the fact that Annex III requires the purchase to concern only those products that comply with the highest EU standards, but this may well exclude several competitors (that do not meet these standards), thus potentially harming the public procurement process itself. Again, lower levels of government are not directly concerned, and the Member States shall only 'encourage' them to purchase highly energy-efficient equipment, services and buildings.

Of more relevance to non-state actors is Article 7, which prescribes the actual energy savings obligation that the Member States are to achieve. The article contains detailed rules on how these reductions are to be calculated and assigned to the various reporting periods. This is where we also find the derogation for Cyprus and Malta.<sup>34</sup> Article 7(10) requires the Member States to achieve these energy savings by means of an energy efficiency obligation or an alternative measure; in doing so, they are to take into account the need to alleviate energy poverty.<sup>35</sup>

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<sup>31</sup> Article 24(3) Energy Efficiency Directive.

<sup>32</sup> Article 3(5) Energy Efficiency Directive. Confusingly, the Directive also refers to the National Energy Efficiency Action Plans as another means of communicating the progress on meeting the EU target.

<sup>33</sup> More information, including the criteria that have been developed for green public procurement, can be accessed from [http://ec.europa.eu/environment/gpp/index\\_en.htm](http://ec.europa.eu/environment/gpp/index_en.htm) last accessed 22 June 2021. See further Case C-513/99 *Concordia Bus* ECLI:EU:C:2002:495 and Case C-448/01 *Wienstrom* ECLI:EU:C:2003:651.

<sup>34</sup> Article 7(1)(b) Energy Efficiency Directive.

<sup>35</sup> Article 7(11) Energy Efficiency Directive.



Pursuant to Article 7a(2), an energy efficiency obligation may be imposed upon energy distributors and/or retail energy supply companies. The term energy distributor encompasses all distribution system operators (DSOs)<sup>36</sup> as well as other companies responsible for selling and transporting energy to consumers outside the context of the regulated electricity and gas networks. The retail energy sales company is normally referred to as a supply company in electricity and gas law, but again the wider scope of the Directive necessitates a broader term.<sup>37</sup> Under these obligation schemes the obligated companies are responsible for achieving a cumulative energy savings target by the end of 2020.<sup>38</sup> It may be noted that Article 7(6) allows for some flexibility in meeting these targets.<sup>39</sup> This flexibility allows them to take into account energy savings by third parties as well as energy savings in earlier or later years (banking).

The last sentence of Article 7(6) provides for further flexibility since it allows the Member States to take measures to reduce the costs of direct energy savings in energy-intensive industries exposed to international competition. This aligns with the powers to grant state aid to such industries.

Whereas the scheme of obligated companies already offers considerable flexibility, member states are not bound to this instrument and instead can opt for alternative instruments pursuant to Article 7b. Compared to the older version of the Energy Efficiency Directive, the framework for such alternative instruments is even less well-defined. This is problematic as research shows that the majority of Member States have opted for a fund as an alternative instrument.<sup>40</sup> The main proviso that such measures must be equally effective and comply with the conditions laid down in the Directive, for example, has been dropped after the amendments brought by Directive 2018/2002. The only remaining condition in the current version is that the alternative instruments must ensure that the energy savings are achieved among final customers.<sup>41</sup> The old version of the Directive suggested the use of energy taxes and voluntary agreements as alternative instruments. These come with different conditions for compliance with EU law as an energy tax will have to comply with Article 110 TFEU whereas the agreement must be compatible with Article 101 TFEU. For the Member States, this offers considerable leeway that will be difficult to challenge for a private party on the basis of the Directive, as the *Saras* case shows.<sup>42</sup> *Saras Energía* sought to challenge the Spanish implementation of this provision. This implementation essentially forced *Saras* to pay into the Energy Efficiency National Fund

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<sup>36</sup> Article 2(20) Energy Efficiency Directive.

<sup>37</sup> See Article 2(19) of Directive 2009/72, OJ 2009 L 211/55.

<sup>38</sup> Companies become obligated following a designation on the basis of objective and non-discriminatory criteria: Article 7(2) Energy Efficiency Directive.

<sup>39</sup> This is a mechanism comparable to that limiting the use of Kyoto flexible units as part of the EU ETS cf. Article 5 of the Effort Sharing Decision.

<sup>40</sup> J. Rosenow and F. Kern, 'EU Energy Innovation Policy: The Curious Case of Energy Efficiency', in R. Leal-Arcas and J. Wouters (eds), *Research Handbook on EU Energy Law and Policy*, Edward Elgar Publishing, 2017, p.506.

<sup>41</sup> Article 7b(1) Energy Efficiency Directive.

<sup>42</sup> Case C-561/16, *Saras Energía*, ECLI:EU:C:2018:633.

without offering it any possibility to achieve energy efficiency targets by actually saving energy. This was made even more unacceptable to Saras because only retail energy sales companies had to contribute, whereas energy distributors would not have to pay.<sup>43</sup> The Court ruled essentially that the member states have a broad margin of discretion that is, however, constrained by the Directive's bottom line.<sup>44</sup> This bottom line is that companies should save energy and just paying into a fund does not save energy as such. This means that the Court then tests whether the contribution requirement qualifies as an alternative measure within the meaning of the Directive.<sup>45</sup> All in all, the Directive provides the Member States with very considerable discretion and imposes only a minimal burden on Member States to show compliance. This is arguably a rather low threshold, supporting the conclusion that the effectiveness of this Directive can be doubted.<sup>46</sup> This considerable margin for discretion is maintained, if not expanded,<sup>47</sup> in the current version of the Energy Efficiency Directive.

Concerning the imposition of the duty to contribute on only some energy companies, the Court finds that a Member State's discretion in this regard is limited by the duty to designate the obligated companies on the basis of explicitly stated objective and non-discriminatory criteria.<sup>48</sup> This, in the view of the Court, means that the specifics of the national energy market must be taken into account in deciding which companies are included and excluded from the duty to contribute. As a result, considerations regarding the level playing field of the national energy markets are closely linked to the Member State's decision regarding the actual imposition of the duties that are required to attain the energy efficiency targets.<sup>49</sup>

### Awareness of energy use

Much energy efficiency results from awareness and behavioural change. To this end the Directive requires the Member States to ensure that high-quality, cost-effective energy audits are available to all final customers. The Directive lays down rules on the qualification and impartiality of the experts as well as the quality assurance for the audits in Article 8. Whereas such audits are voluntary for households as well as small and medium-sized enterprises, they are required for larger companies from 2015 onwards (Article 8(4)), unless such companies

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<sup>43</sup> Case C-561/16, *Saras Energía*, ECLI:EU:C:2018:633, para. 14.

<sup>44</sup> Case C-561/16, *Saras Energía*, ECLI:EU:C:2018:633, paras 24 and 27–29.

<sup>45</sup> Case C-561/16, *Saras Energía*, ECLI:EU:C:2018:633, paras 29–34. Note that this refers to the old version of the Energy Efficiency Directive. The abandonment of these conditions following the entry into force of Directive 2018/2002 means that the Member States have even more leeway.

<sup>46</sup> These fears were expressed during the negotiations of the Directive: S.R. Schubert, J. Pollak and M. Kreutler, *Energy Policy of the European Union*, Palgrave, 2016, pp.184, 185.

<sup>47</sup> See the comments above in relation to Article 7b of the Energy Efficiency Directive.

<sup>48</sup> Case C-561/16, *Saras Energía*, ECLI:EU:C:2018:633, para. 53.

<sup>49</sup> Notably the reference to recital 20 of the preamble supports this conclusion: Case C-561/16, *Saras Energía*, ECLI:EU:C:2018:633, para. 54.

have a certified environmental management system.<sup>50</sup> In all cases, the audits must comply with the requirements in Annex VI. Further awareness-raising takes place on the basis of Article 12 on consumer information and empowering.

Another awareness-raising provision can be seen in Article 9 on metering. This provision requires the Member States to ensure, insofar as this is technically possible and economically sensible, that every energy user gets what is often referred to as a smart meter. This is a meter that provides real-time information on actual energy consumption. Strictly speaking, the Directive does not require the installation of a smart meter, but rather a ‘competitively priced individual meter’ that only needs to provide real-time information on energy usage. Smart meters add a two-way communication functionality to this real-time information functionality.<sup>51</sup> The Directive contains rules on the roll-out of such meters that essentially imply that their installation is mandatory for new buildings and buildings that undergo major renovation. For all other cases, individual meters must be installed whenever an old meter is replaced unless this is technically impossible or not cost-effective in the light of the estimated long-term savings. This element of cost-effectiveness is central to the Energy Efficiency Directive and will be addressed in some more detail below.

From Article 9(2) we can furthermore gather that the rules in the Electricity Directive determine whether or not smart meters will be rolled out. The Directive contains some rules on the functionality of such smart meters, including requirements concerning data and privacy protection that have nothing to do with energy efficiency as such. Whereas individual meters are most easily envisaged in relation to electricity and gas, individual metering can play an important role in relation to district heating and/or cooling and domestic hot water consumption, as is envisaged by Article 9a.

The provisions on metering are reflected in those on billing. Here, again, the information needs to reflect individual energy use as much as possible, including information on historical energy use, where this is technically possible and economically justified. Such billing information shall be disseminated to the final customers free of charge so that the consumer gets insights into the actual energy use and is thus enabled and incentivised to save energy. These rules largely concern energy consumption and the ability and incentive to reduce energy consumption. The potential for energy efficiency increases is not confined to the final consumer, but also includes energy suppliers.

### 6.3.3 Efficiency in Energy Generation, Transmission, Distribution and Supply

Of course, the final energy user is only one of the links in the energy chain where energy efficiency matters. From production and generation at the upstream level to transmission and distribution to end-consumers, energy is lost and thus energy efficiency gains can be achieved.

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<sup>50</sup> Rules for such EMASs are laid down in Regulation 1221/2009, OJ 2009 L 342/1; see further Commission Decision 2013/131, OJ 2013 L 76/1.

<sup>51</sup> See also Chapter 9. Note that the roll-out of smart meters is also regulated in Directive 2009/72, the Electricity Directive, Article 3(1)) and Annex I, point 2.

This starts with the production of heat and cooling as part of the generation of electricity (residual heat), but also with the production of heat and cooling as such. Member States are obliged to assess the potential for high-efficiency cogeneration and efficient district heating and cooling, including a cost–benefit analysis.<sup>52</sup> If the benefits outweigh the costs, the Member States are under an obligation to take adequate measures for the development of efficient district heating and or cooling and high-efficiency cogeneration. The Directive also contains provisions on the connection to the grid of high-efficiency cogeneration.<sup>53</sup> By and large, Article 14 of the Energy Efficiency Directive is characterised most prominently by the central role played by cost–benefit analyses, and not so much by the actual impact of these measures in terms of energy efficiency.

Apart from the production and generation of energy, the transformation, transmission and distribution sectors also involve potential for energy efficiency. Article 15(1) requires the Member States to ensure that national energy regulators pay due regard to energy efficiency and that there are incentives for grid operators to make system services available to network users in the context of smart grids. These system services concern the activities that are needed to ensure the reliable functioning of the grid, such as balancing input and consumption and voltage control.

Currently, most of these services are provided at the upstream level, which entails potential reductions in energy efficiency. A smart grid would also allow for such services to be provided at the downstream level. Smart grids are energy (primarily electricity) grids that enable bi-directional flows from decentralised (renewable) production and demand response. Smart grids allow a wider uptake of intermittent renewable energy and allow for a more efficient operation of the grid, for example by reducing the need for spinning reserves.<sup>54</sup> Instead of using centralised generation and large-scale demand response connected to medium to high-voltage grids, local low-voltage demand response is used to balance peaks in renewable energy that is fed into the grid at lower voltages. This, for one, reduces the need to use transformers, and the losses inherent in these.

Including demand response, which concerns the flexibility in energy demand, can improve the efficiency of these system services and thus system operation. Tariffs should be amended so that there is no incentive for inefficiency in the system operation and to ensure that demand response is encouraged.<sup>55</sup> In relation to solidarity between network users, we may refer to Article 15(3) that allows the Member States to maintain network tariffs that serve a social purpose. This could relate to lower tariffs for people with a lower income. In this regard, the Member State is under a duty to investigate the effects on energy efficiency. Relatively low

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<sup>52</sup> Article 14(1) and (3) of the Energy Efficiency Directive.

<sup>53</sup> These provisions are elaborated in Annex XII to the Directive.

<sup>54</sup> This refers to installations where reserve generating capacity is spinning, thus using primary energy sources, without being coupled to the grid and thus not producing usable energy. It essentially means that there is a power plant with a continuously running generator that is not delivering electricity to the grid unless it is asked to do so by the system operator.

<sup>55</sup> This is elaborated in Annex XI to the Directive.

tariffs reduce the incentive to invest in energy efficiency. However, such investments may not be available to lower incomes in the first place, which raises the question whether subsidisation of such investments may not be more (energy-) efficient than maintaining socially motivated tariff structures.

Finally, the Directive creates a framework to encourage demand-side management and aggregators.<sup>56</sup> Most importantly, system security remains the prime objective and the energy efficiency measures may never jeopardise the safe and reliable functioning of transmission and distribution systems.

### 6.3.4 Markets and Cost-effectiveness in Energy Efficiency

The provisions mentioned above often refer to cost-effectiveness as a guiding principle. However, the problem is that there is an asymmetric relation between costs, benefits and thus incentives to invest in energy efficiency. In a nutshell, the costs for increased energy efficiency often fall upon the energy end-user, who then reaps the benefits of reduced energy consumption and thus has an incentive to invest in such energy saving measures. Smart meters or individual meters, however, are most likely to be rolled out by the supply side of the market: distribution system operators, supply companies or other market participants. These parties essentially have no incentive to invest in such meters if the result is that their energy sales (or distribution) decrease. In other words, if the roll-out of smart meters works as it is supposed to, these companies will actually see a reduction of their income as they will sell or transport lower amounts of energy. This is exactly why cost-effectiveness plays such a central role in the Energy Efficiency Directive. It is operationalised by means of the framework and criteria laid down in Annex IX to the Directive. However, rather than mentioning cost-effectiveness every time, the introduction of market mechanisms is also generally assumed to deliver efficiencies. This follows from the fact that a competitive market will generally ensure optimal efficiency of the energy services provided whereas the provision of these services themselves may generate the income that compensates the reduced income following from the lower energy consumption.

Such mechanisms were explicitly envisaged by the current Directive's predecessor in the form of a 'white certificate scheme', whereby certified energy savings would be tradable throughout the EU.<sup>57</sup> This Union-level scheme is rejected in the current Directive on the basis of the excessive administrative costs involved as well as the risk that energy savings would be concentrated in a few Member States only.<sup>58</sup> Still, Member States are allowed to have their own white certificate trading schemes. This nicely highlights the tension between the two themes central to this book: cost-effectiveness assumed in market-based mechanisms and solidarity between the Member States. We see that the EU legislator envisages that using a market-based

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<sup>56</sup> Article 15(8) of the Energy Efficiency Directive.

<sup>57</sup> Article 6(2)(b) of Directive 2006/32 envisaged a market-oriented scheme, such as one based on white certificates, that would enable increased energy efficiency at the production, supply and distribution levels. For an analysis of this and similar schemes see L.-G.Giraudet and D. Finon, 'The Costs and Benefits of White Certificates Schemes' [2012] *Energy Efficiency*, 179–99.

<sup>58</sup> Recital 20 of the preamble.

mechanism, widely considered to be an efficient mechanism, may result in disproportionate administrative costs. This shows at least the limits to market-based mechanisms. Furthermore, the risk that energy efficiency gains would be concentrated appears very realistic in such a market-based scheme. Member States where levels of energy efficiency are comparatively low would be able to attain considerable efficiency gains at relatively low costs. This would mean that the market mechanism directs investments in energy efficiency to those Member States, to the detriment of investments in energy savings in those Member States that are already relatively energy efficient and thus face higher marginal costs for extra energy efficiency. Here we see a clear limit to the solidarity that Member States are willing to accept, particularly in view of the fact that the brunt of such investments would be borne by the energy consumer.

However, this does not mean that the market-based approach is fully rejected. The energy efficiency obligation schemes still allow for the use of energy savings attained by energy service providers to be counted toward the obligation resting on obligated parties.<sup>59</sup> The idea underlying this is that energy services would be offered by energy utilities (a term that includes, but is not limited to, supply companies). This would offer them an alternative source of income to compensate for the loss in income resulting from energy supply as the latter would decrease with increased end-user energy efficiency. Another effect would be increased competition in the energy market, as the energy services would enable the supply companies to differentiate their products.<sup>60</sup>

## 6.4 ENERGY EFFICIENCY OF BUILDINGS

Buildings account for a significant amount of the EU's energy usage and offer the biggest potential for energy savings.<sup>61</sup> Also, in view of the fact that buildings account for approximately 40 per cent of the EU's energy use, the potential for energy efficiency increases is significant. This explains why buildings feature prominently in the Energy Efficiency Directive and are the subject of a specific directive: Directive 2010/31/EC (the Energy Performance of Buildings Directive), which aims to increase the energy efficiency of buildings.<sup>62</sup>

The directive does so by providing, *inter alia*, a framework for the calculation of the energy efficiency and by enabling minimum energy efficiency requirements. The minimum energy efficiency requirements are to be set by the Member States and may differentiate between

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<sup>59</sup> Article 7a(6)(a) of the Energy Efficiency Directive. See section 6.3.2 for more information on energy efficiency obligation schemes.

<sup>60</sup> Recital 20 of the preamble. Supply companies can essentially differentiate their products on the basis of the price and the extent to which the energy they supply is renewable. Adding energy services would thus provide them with an extra quality aspect that allows them to differentiate their products.

<sup>61</sup> Commission Energy Efficiency Plan 2011, COM (2011) 109, p.3. See also the Commission Impact Assessment for this plan, SEC (2011) 277, p.9.

<sup>62</sup> OJ [2010] L 153/13, as amended by Directive 2018/844, OJ 2018 L 156/75. It recasts Directive 2002/91 into a consolidated text in the interest of clarity since this Directive had been amended in the past and new amendments were needed.



various categories of buildings (Article 4(1), third paragraph). This already highlights the considerable latitude that the EU leaves the Member States in this matter, resulting in significant Member State discretion. Buildings are central, together with transport,<sup>63</sup> to the Union's energy efficiency policy.<sup>64</sup> This is one of the explanations for why the Energy Performance of Buildings Directive has been much more comprehensively updated by means of the Clean Energy for All Europeans Package than the Energy Efficiency Directive.<sup>65</sup>

This situation, with continuing national discretion even following a significant overhaul, may be contrasted with the observation by the Commission, in the proposal for the Directive, that the energy-saving potential of Directive 2002/91/EC had not been fully achieved.<sup>66</sup> As a result, the proposal for the recast went beyond mere consolidation and included proposals to increase the level of energy efficiency, for example by an increase of the scope of the various measures.<sup>67</sup> It also deserves mentioning that the Commission explicitly noted the low level of ambition regarding the implementation of Directive 2002/91 by the Member States.<sup>68</sup> On a similar note, complexity and lack of clarity concerning the wording of Directive 2002/91 was noted.<sup>69</sup> Following two readings, the Energy Performance of Buildings Directive was adopted by the European Parliament on 18 May 2010. On the basis of the Directive, the Commission adopted Delegated Regulation 244/2010 establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements.<sup>70</sup>

Energy performance of buildings can be improved by renovating existing buildings. Article 2a(8) of the Energy Performance of Buildings Directive thus requires the Member States to establish a long-term strategy for building renovation as part of their integrated national energy and climate plans. As part of a leading-by-example policy, public bodies' buildings are subject to special and stricter rules in terms of renovation with a view to increasing energy efficiency. Article 5 requires the Member States to ensure that 3 per cent of the total floor area of buildings operated by the central government is renovated to meet the energy efficiency standards laid down in the Energy Performance of Buildings Directive.<sup>71</sup> In any case, the rules only

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<sup>63</sup> Cf. M. Ntovantzi et al., 'Do We Have Effective Energy Efficiency Policies for the Transport Sector? Results and Recommendations from an Analysis of the National and Sustainable Energy Action Plans', ECEEE Summer Study Proceedings, p.895.

<sup>64</sup> M. Economidou, V. Todeschi, P. Bertoldi, D. D'Agostino, P. Zangheri and L. Castellazzi, 'Review of 50 Years of EU Energy Efficiency Policies for Buildings', *Energy and Buildings*, 2020, vol. 225.

<sup>65</sup> Directive 2018/844, OJ 2018 L 156/75, contains more than ten amendments to the Energy Performance of Buildings Directive and only one amendment to the Energy Efficiency Directive.

<sup>66</sup> OJ 2002 L 1/65.

<sup>67</sup> COM (2008) 780, at pp.3 and 5.

<sup>68</sup> COM (2008) 780, at p.3. See further SEC (2008) 2864, at p.4.

<sup>69</sup> Commission Impact Assessment to COM (2008) 780, SEC (2008) 2865, at p.27.

<sup>70</sup> OJ 2012 L 81/18. This regulation was accompanied by Commission Guidelines published in OJ 2012 C 115/1.

<sup>71</sup> This directive is discussed below in section 6.3. Note that the application of this directive to buildings by lower governments is optional.

apply to larger buildings, that is, those with a floor space exceeding 500 m<sup>2</sup>.<sup>72</sup> Furthermore, historical or otherwise architecturally special buildings and buildings used by the armed forces or as places of worship may be excluded. Finally, the Directive creates considerable flexibility as a result of the possibility to use excessive (that is, more than 3 per cent) renovations in any of the three previous or following years.<sup>73</sup> To add to the already considerable flexibility, alternatives to renovation are also enabled.<sup>74</sup>

Below we will study in more detail the Energy Performance of Buildings Directive (section 6.4.1), and then briefly look at how cost-effectiveness is operationalised (section 6.4.2).

### 6.4.1 The Energy Performance of Buildings Directive

#### Objective

The main objective of the Directive consists of the promotion of energy performance of buildings, taking into account local conditions, indoor climate conditions and cost-effectiveness.<sup>75</sup> This objective is to be attained through a common framework for the methodology to calculate the integrated energy performance and the cost-optimal level of energy performance.<sup>76</sup> Member States are thus required to take measures that will ensure that minimum energy performance requirements are set with a view to achieving cost-optimal levels, that is, the minimum energy efficiency required of all buildings that is efficient in relation to the investments necessary.<sup>77</sup> To this end, the methodology adopted on the basis of Article 3 is to be applied. Furthermore, it follows from the above that this common methodology framework respects the subsidiarity principle and allows local conditions, which will vary widely between the 27 Member States, to influence the methodology.<sup>78</sup> At the same time it ensures that the methodologies are sufficiently comparable in order not to jeopardise the attainment of the energy efficiency objectives of the Directive and the internal market.<sup>79</sup>

It also shows, just as we have seen in relation to the Energy Efficiency Directive, that the solidarity that underpins much of EU climate law has its limits, not only because of the climatic differences between Member States, but also because of the differences in energy performance

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<sup>72</sup> This threshold was lowered to 250 m<sup>2</sup> from 9 July 2015.

<sup>73</sup> Articles 5(2) and (3) Energy Efficiency Directive.

<sup>74</sup> Article 5(6) Energy Efficiency Directive.

<sup>75</sup> Article 1.

<sup>76</sup> Article 3 Energy Performance of Buildings Directive. This framework is elaborated to some extent in Annex I to the Directive.

<sup>77</sup> Article 4.

<sup>78</sup> In a nutshell, the subsidiarity principle ensures that the EU only acts where this is more effective than national or regional action by the Member States.

<sup>79</sup> The internal market consists of an area with free movement of goods, services, people and capital with undistorted conditions of competition. The latter may be affected by having widely different methodologies for calculating cost-effective levels of energy efficiency.

at this moment.<sup>80</sup> Whereas there is a degree of solidarity inherent in the EU-wide approach, the latter's limitations in defining a methodology means that the Member States are largely free to determine their policies on a national basis. Finally, we may note that this methodology can be set at the national or the regional level.<sup>81</sup> Use of the latter option may complicate the implementation process, but it is standing case law that the division of powers at the national level does not affect a Member State's responsibility to ensure correct implementation.<sup>82</sup>

Article 5 of the Directive constitutes a major innovation in relation to the previous Directive. It contains a framework for the calculation of cost-optimal levels of minimum energy performance requirements. It envisages the adoption by the Commission of a comparative methodology and this has resulted in Delegated Regulation 244/2012.<sup>83</sup> Interestingly, this provision has been significantly expanded in comparison to the Commission proposal. Particularly noteworthy is the requirement for the Member States to compare the minimum energy performance standards in force with the cost-optimal levels calculated<sup>84</sup> and to justify such differences where they are 'significant'. This vague concept is clarified in the preamble at the level of 15 per cent.<sup>85</sup> However, in view of the limited legal effects of preambles to EU legislation according to the Court's standard case law, there still remains considerable uncertainty.<sup>86</sup>

### Different types of buildings

The directive applies to buildings but also to those parts that belong to buildings, such as systems for heating, cooling and water supply (generally referred to as technical building systems).<sup>87</sup> In addition, the Directive differentiates between new and existing buildings, but also 'nearly zero-energy buildings'.

For new buildings, Member States, pursuant to Article 6(1), are under an obligation to take the necessary measures to ensure that new buildings meet the minimum efficiency requirements set on the basis of Article 4. Only some specific buildings are exempted from this obligation. These include buildings with special architectural or historical merit and places of worship (Article 4 para 2). In addition, the Member States are obliged to ensure that the feasibility of alternative high-efficiency systems is taken into account. Given that this feasibility involves technical, environmental and economic aspects, cost-effectiveness is again clearly pivotal to the Directive.

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<sup>80</sup> For an overview see Commission Working Document on Financial Support for Energy Efficiency in Buildings, SWD (2013) 143 final, pp.6, 7.

<sup>81</sup> An analysis of the possible heterogeneity of transposition can be found in E. Annunziata, 'Towards Nearly Zero-Energy buildings: The State-of-Art of National Regulations in Europe' [2013] *Energy*, 125–33.

<sup>82</sup> For example Case C-225/96 *Commission v Italy* ECLI:EU:C:1997:584.

<sup>83</sup> See further below section 6.4.2.

<sup>84</sup> Article 5(2) Energy Performance of Buildings Directive.

<sup>85</sup> Recital 14 of the preamble.

<sup>86</sup> For example Case C-162/97 *Nilsson and Others* ECLI:EU:C:1998:554, para. 54 and Case C-136/04 *Deutsches Milch-Kontor* ECLI:EU:C:2005:716, para. 32.

<sup>87</sup> See Article 2 and Article 9.

The regime for existing buildings is laid down in Article 7. The Directive provides the Member States with a large degree of flexibility. This follows, among others, from the fact that the Member States shall only *encourage the consideration* of high-efficiency alternative systems, again insofar as this is technically, environmentally and economically feasible.

A major part of the energy use of buildings comes from what the Directive calls ‘technical building systems’. This essentially means the heating, cooling and lighting equipment, as defined in Article 2(3) of the Directive, in the building. Article 8 has been amended quite extensively to include rules on the requirements of charging points for electrical vehicles. These reflect the obvious costs involved in these measures and the fact that not every owner or occupant will be able to fund these costs.<sup>88</sup> These provisions, again, clearly indicate the importance of cost-effectiveness in the scheme of the Directive.

A special category of buildings is regulated under the heading of ‘nearly zero-energy buildings’. The Directive sets deadlines before which new buildings have to meet the standards for nearly zero-energy buildings. Also in line with the Energy Efficiency Directive we see that the government should lead by setting the example. This means that from 2019 onwards the new buildings owned and occupied by public authorities have to be nearly zero-energy, whereas for all other new buildings this deadline is 2021.<sup>89</sup> To attain this objective, plans that are part of the integrated national energy and climate plans have to be drawn up and will include, inter alia, intermediate energy efficiency targets for new buildings in 2015. Again, we see that a cost–benefit analysis is integrated into the provision and may result in the disapplication of the central obligation.<sup>90</sup> Interestingly, the Directive does not address the situation where a new building is partly occupied by a public authority and a commercial party before 2021. Would such a building then also have to be nearly zero-energy, or does this obligation apply only when a certain threshold is exceeded?

A recurring problem with energy efficiency is that the initial investment may be significant and recouped only over (a long) time. This especially holds true for the investments in buildings. It is further exacerbated in relation to rented housing, where the investment is undertaken by the landlord whereas the tenant reaps the benefits of a lower energy bill. To overcome these problems, Article 10 envisages a duty for the Member States to take the appropriate steps, which may include financial instruments, such as subsidy schemes.

## Energy labels for buildings

Again, awareness is a major issue and to this end the Directive contains a number of provisions concerning energy performance certificates. According to the Directive, all buildings need to be awarded an energy performance certificate, often referred to as an energy label. The Directive defines the minimal amount of information that needs to be in such a certificate and the issuing of such certificates. Similar to the rules on nearly zero-energy building,

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<sup>88</sup> Cf. the possibility for the Member States to exclude buildings owned and occupied by small and medium-sized enterprises from the obligation to include such charging infrastructure.

<sup>89</sup> Article 9(1)(a) and (b) Energy Performance of Buildings Directive.

<sup>90</sup> Article 9(6) Energy Performance of Buildings Directive.

stricter rules apply to public buildings.<sup>91</sup> In all cases, the Member States are to ensure that such certificates are handed out or made available to new tenants or buyers of a building. These certificates are to be issued by independent and accredited experts in accordance with Articles 17 and 18. In this regard it is interesting to know that the Member States are to ensure effective, proportionate and dissuasive sanctions for violations of the rights and obligations laid down in the Directive, including the obligation to present a certificate to the new owner or tenant of a building.<sup>92</sup>

The Directive contains a specialised inspection regime for heating and air-conditioning systems (Articles 14–16) that exceed the household scale. In this regard we note that certain heating systems may also be subject to the Directive on Industrial Emissions, which sets further and specific inspection and reporting obligations.<sup>93</sup>

### 6.4.2 Defining Cost-effectiveness

The fact that cost-effectiveness is central to the Directive, in combination with the leeway provided to the Member States in defining what exactly is cost-effective, necessitates more guidance. This follows from the fact that determining what is cost-effective may also impact general cost structures and thus undistorted conditions of competition. This is addressed by Article 5 of the Directive, which essentially enables the Commission to establish a comparative methodology framework on the basis of the steps set out in Annex III.

On the basis of this the Commission has adopted Delegated Regulation 244/2012/EU,<sup>94</sup> supplemented by Guidelines.<sup>95</sup> Both the Regulation and the Guidelines are highly technical and detailed documents that set out a methodology to be applied by the Member States that will enable them to compare, for different categories of buildings, the relative costs and benefits of various energy efficiency measures.

Beyond the energy system as a whole and buildings as major sources of energy consumption, the myriad devices and appliances that we use also consume energy and thus offer potential for energy savings.

## 6.5 ENERGY EFFICIENCY OF APPLIANCES

With regard to appliances, there are essentially two categories of energy efficiency-related rules. First, there are rules that regulate the actual energy efficiency of certain appliances. Second, we find rules that basically prescribe an energy labelling obligation for certain prod-

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<sup>91</sup> Article 12(1)(b) and 13(1) Energy Performance of Buildings Directive.

<sup>92</sup> Article 27 Energy Performance of Buildings Directive.

<sup>93</sup> Directive 2010/75 on industrial emissions replacing the Directive on Integrated Pollution Prevention and Control, OJ 2010 L 334/17. This Directive applies to industrial combustion installations with a rated thermal input exceeding 50 MW.

<sup>94</sup> OJ [2012] L 81/8.

<sup>95</sup> OJ [2012] C115/1.

ucts, in line with the energy performance certification for buildings. The latter category ties in with the observation, made above, that consumer awareness has a major role to play in bringing about increased energy efficiency. This awareness may result from clearer energy bills, real-time information on energy consumption and energy performance certificates for buildings. However, there are many other products and appliances that use energy, to varying degrees of efficiency.

### 6.5.1 Labelling Regulation

Regulation 2017/1369 (the Labelling Regulation) intends to create a clear and uniform framework to enable the potential purchaser of these products to make an informed choice taking into account energy efficiency.<sup>96</sup>

The Labelling Regulation replaces the Labelling Directive from 2010, which in turn replaced Directive 92/75/EC on the energy labelling of household products for the sake of clarity, as this Directive had been amended several times.<sup>97</sup> The Labelling Regulation not only updates the Labelling Directive to take account of technological advances, but also changes the legal instrument to a regulation in order to ensure a more level playing field in the EU.<sup>98</sup> The Labelling Regulation is a framework measure that confines itself to stating the basic rules and enabling the Commission to adopt delegated acts and take various implementing measures that then, for example, set the rules applicable to the labelling of specific categories of products or the rescaling of these labels.<sup>99</sup>

The framework character of the Labelling Regulation means that the actual rules are laid down in delegated acts. These are acts adopted by the Commission and that are binding for the entire European Union.<sup>100</sup> Such delegated acts have been adopted for numerous products, such as heaters, vacuum cleaners<sup>101</sup> and tumble driers.<sup>102</sup> These delegated acts will set out a basic obligation for the suppliers of the products concerned to ensure that there is an energy efficiency label. Furthermore, the layout, colours and text of the labels concerned are regulated. Most importantly, the methodology for calculating the applicable energy efficiency class is set out, as well as the boundaries for the different classes. According to Article 16 of the

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<sup>96</sup> OJ 2017 L 198/1. This replaces the Labelling Directive, Directive 2010/30, OJ [2010] L 153/1.

<sup>97</sup> Recital 1 of the preamble to the Labelling Directive. Directive 92/75/EC on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances was published in OJ [1992] L 297/16.

<sup>98</sup> Recital 6 of the preamble to the Labelling Regulation.

<sup>99</sup> Articles 10–18 Labelling Regulation.

<sup>100</sup> See, in general, Article 290 TFEU. For a discussion see F. Amtenbrink and H. Vedder, *EU Law: A Textbook*, Eleven Publishing, 2021, p.189.

<sup>101</sup> An indication of the level of technical detail that is involved can be seen in the appeal lodged by vacuum cleaner manufacturing company Dyson in relation to the testing of such cleaners with empty bags only: see Case T-544/13, OJ [2013] C 344/68.

<sup>102</sup> An overview is available at: [http://ec.europa.eu/energy/efficiency/labelling/doc/overview\\_legislation\\_energy\\_labelling\\_household\\_appliances.pdf](http://ec.europa.eu/energy/efficiency/labelling/doc/overview_legislation_energy_labelling_household_appliances.pdf) last accessed 22 June 2021.



Regulation, such acts shall be drawn up for all products for which there is a significant potential for energy saving, where the products available have a wide range of energy efficiency and where the energy efficiency does not result in negative consequences in terms of functionality or affordability.<sup>103</sup> In other words: labelling shall only be required where significant energy savings are possible and where there is a choice available in terms of energy efficiency.

### Energy efficiency labels

The Regulation provides for a system of energy efficiency labelling whereby the energy performance of products is categorised as being in a scale that ranges from A (most efficient) to G (least efficient). The Labelling Regulation has led to a rescaling of the existing labels. Experience with the earlier Directive has taught the legislature that the top levels of the labels tend to be overcrowded and – at times – even outperformed, leading to multiple products in the A+++ category. To avoid this, the Regulation envisages a regular rescaling of the labels to the effect that at the time of the rescaling no products qualify for the A label.<sup>104</sup> The idea behind this is that the regular rescaling encourages competition on innovation to increase energy efficiency and avoids the need for regular rescaling.<sup>105</sup> The Labelling Regulation first and foremost requires the suppliers to ensure that energy efficiency labels are attached to all products for which labelling requirements have been set on the basis of the Regulation or the delegated acts adopted on the basis of it.<sup>106</sup> This labelling requirement also applies to retailers, who are under the obligation to display such labels in a proper and clearly visible manner.<sup>107</sup> The information in the label must be correct and drawn up in accordance with the methodology laid down in the Directive and the delegated acts. The responsibility for gathering the information and drawing up the energy efficiency label rests with the supplier, who is to provide these labels free of charge to dealers.<sup>108</sup> Most probably in response to what is called ‘Dieselgate’, suppliers are now explicitly prohibited from placing on the market products for which the performance has been automatically altered to ‘cheat’ the energy efficiency tests.<sup>109</sup>

Given that such labels must be attached to products and that these products may not be marketed without the relevant energy efficiency labels, it should not come as a surprise that the Labelling Regulation contains a free movement clause. According to Article 7, the marketing of products falling under the Regulation shall not be restricted or impeded. This means that

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<sup>103</sup> Article 16(2) Labelling Regulation.

<sup>104</sup> Article 11(8) Labelling Regulation.

<sup>105</sup> Recital 18 of the preamble to the Labelling Regulation.

<sup>106</sup> Article 3 Labelling Regulation.

<sup>107</sup> Article 5 Labelling Regulation. On the temporal scope of this obligation see Case C-319/13, *Udo Rätzke v S+K Handels*, ECLI:EU:C:2014:210, paras 27–41, where the Court held that the duty to display the label applies only to products dispatched into the sales chain from the date of applicability of the delegated act that sets the label for that product.

<sup>108</sup> Article 3(1) and (2) Labelling Regulation.

<sup>109</sup> Article 3(5) Labelling Regulation.

any product that complies with the Regulation and the relevant delegated act benefits from the free movement of goods.

Interestingly, the Labelling Directive required the Commission to take account of voluntary, industry-based energy efficiency measures, to avoid adopting EU-wide measures. Such industry-based initiatives are no longer relevant under the Regulation. This, together with the ban on products that automatically alter their performance during testing, appears to indicate a lower degree of trust in the industry.

### EU case law

Concerning energy efficiency labelling, quite a few cases have been brought by Dyson in relation to the energy efficiency labelling of vacuum cleaners. These cases all turn on the unique bagless construction of Dyson vacuum cleaners and the fact that other vacuum cleaners will lose suction power when the bag fills up. This obviously reduces energy efficiency, raising the question to what extent the testing method laid down in the Commission delegated regulation actually corresponds to reality. After several instances, Dyson obtained a ruling from the Court to the effect that the Commission's method, which entailed measuring energy consumption with an empty bag, did not correspond to the 'actual conditions of use'.<sup>110</sup> As a result, the Court found that the Commission had overstepped the boundaries of the powers delegated to it by the Labelling Directive.<sup>111</sup> On a similar note, the Court had to rule whether the sale of a bagged vacuum cleaner with an A label that was awarded in accordance with the Labelling Directive and the delegated regulation could mislead consumers and thus constitute an unfair commercial practice. This case boils down to the question whether the EU labelling rules themselves result in misleading advertising. The Court comes to the conclusion that this is not the case.<sup>112</sup> It further finds that the information on the label may not be supplemented by extra information on the energy and environmental performance of the products in question if that extra information is likely to mislead customers.<sup>113</sup> These cases show above all the increasing importance of energy efficiency, both as a design requirement and an element of competition between manufacturers.

## 6.6 ENERGY EFFICIENCY OF VARIOUS OTHER PRODUCTS

The EU allows Member States to make use of a wide range of instruments to enhance the energy efficiency of products and sectors. These include the use of voluntary agreements. Additionally, pursuant to the Labelling Regulation, standards have been set for all sorts of

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<sup>110</sup> Case C-44/16P *Dyson v Commission* ECLI:EU:C:2017:357, paras 60–68.

<sup>111</sup> The General Court, hearing the case when it had been referred back to it by the Court for final adjudication, came to the conclusion that the Commission had indeed overstepped the limits of the powers that had been delegated to it: Case T-544/13 RENV *Dyson v Commission* ECLI:EU:T:2018:761.

<sup>112</sup> Case C-632/16 *Dyson v BSH Home Appliances* ECLI:EU:C:2018:599, paras 43–46.

<sup>113</sup> Case C-632/16 *Dyson v BSH Home Appliances* ECLI:EU:C:2018:599, paras 56–58.

different products. In this regard we may refer to the Energy Star package concerning ICT equipment.<sup>114</sup> This is a voluntary scheme that enables manufacturers to place the Energy Star label on their office equipment provided that the criteria are complied with. The Energy Star label rules go beyond a mere labelling scheme as the label does not indicate the actual energy efficiency of the product, but rather imposes a singular threshold that is either complied with or not. Given that the Energy Star scheme is of US origin, its application in the EU required the signing of an international agreement that would govern cooperation on setting the standards and other practicalities involved.<sup>115</sup>

The signature of this agreement gave rise to a case on the correct legal basis for doing so.<sup>116</sup> This case centred essentially on the issue of whether such energy efficiency requirements are part of the common commercial policy or rather fall under the environmental protection heading. Applying its standard centre of gravity test, the European Court of Justice came to the conclusion that the measure was of a predominant common commercial policy nature, with the environmental effects arising only indirectly as a result of changes in purchasing and use of the equipment concerned. This case shows the essence of all energy efficiency labelling regulations in that they pursue an environmental benefit indirectly, through influencing manufacturing and purchasing, and thus market-based decisions. The Energy Star Regulation does not contain any energy efficiency criteria itself but instead provides for a framework that should enable such standards to be developed. This involves the EU Energy Star Board, the Commission and the US Environmental Protection Agency. As participation in the scheme is voluntary, there is no free movement clause as there is in the Labelling Directive.

Similar measures have been adopted for other categories of products as well, such as car tyres.<sup>117</sup> Of a slightly different nature is the Regulation that sets minimum emission performance standards for cars and other vehicles.<sup>118</sup> This works on the basis of the CO<sub>2</sub> efficiency of the fleet of cars sold by a given manufacturer, rather than setting specific targets for the individual cars that are marketed. This means that a manufacturer, or a group of manufacturers, must ensure that on average the cars sold by it will become more energy efficient (emit less CO<sub>2</sub> per kilometre) over the years. This measure has resulted in the appearance of many energy-efficient cars on the market, as manufacturers need to ensure that the total fleet of cars marketed by them meets the increased energy efficiency standard. Of course, marketing such more efficient cars is relatively easy for large manufacturers with a wide array of models, whereas the producers of more exotic, high-powered vehicles may find marketing

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<sup>114</sup> Currently Regulation 106/2008 on a Community energy-efficiency labelling programme for office equipment, OJ [2008] L 39/1, as amended by Regulation 174/2013, OJ [2013] L 63/1, hereafter: Energy Star Regulation.

<sup>115</sup> The signature of this agreement was approved by means of Decision 2006/1005/EC, OJ [2006] L 381/24.

<sup>116</sup> Case C-281/01 *Commission v Council* ('Energy Star') ECLI:EU:C:2002:761.

<sup>117</sup> Regulation 1222/2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters, OJ [2009] L 342/46.

<sup>118</sup> Regulation 443/2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO<sub>2</sub> emissions from light-duty vehicles, OJ [2009] L 140/1, as amended by Commission Delegated Regulation 2018/649, OJ 2018 L 108/14.

more economic cars more challenging. This has resulted in some exceptions to the scope and the possibility of joining forces to meet the tightening efficiency objectives. Here we see that, rather than relying on market forces, the EU legislator has thus adopted – albeit with a large degree of flexibility – a more traditional regulatory approach that simply imposes a binding environmental performance requirement upon the industry.

In addition to the special rules for the automobile sector, there are energy efficiency requirements set for energy using products pursuant to the Eco-design Directive.<sup>119</sup> This Directive is, just like the energy-labelling rules, primarily aimed at completing the internal market by avoiding distortions of competition or restrictions on the free movement of goods as a result of diverging national rules on the eco-design of products.<sup>120</sup> Such eco-design rules cover a wider range of concerns than just energy use, such as the ease with which a product can be recycled; also the consumption of, inter alia, energy throughout the life cycle is an aspect of the eco-design.<sup>121</sup> The idea behind this Directive is that producers will design their products in a way that minimises the environmental impact, for example by saving energy.<sup>122</sup> This is implemented by means of Commission regulations that prescribe specific eco-design criteria for categories of products that must be complied with. For dishwashers, for example, the relevant regulation prescribes the presence of an ‘eco-mode’ from 1 March 2021 onwards. Moreover, manufacturers will need to meet certain (energy-)efficiency conditions with the eco-programmes on the dishwashers they market from that date onwards.<sup>123</sup>

Finally, we refer to the various voluntary agreements on energy efficiency that have been drawn up by the industry involved. There was such an agreement between the European car manufacturers (ACEA) and the Japan (JAMA) and Korean (KAMA) car manufacturers associations. However, the failure of those agreements to deliver results triggered the adoption of the Regulation on energy efficiency standards for cars.<sup>124</sup> This shows that increases in energy efficiency require a strict and binding framework for the industry to deliver. This follows from the observation already made above that in general more energy-efficient products are more advanced and thus command a higher purchasing price that will only be recouped in the longer term.<sup>125</sup> This in turn means that there is a market for cheap, inefficient products, the demand for which is met by industry.

The stringency of the measures required can be seen in the *CECED* case, which involved the decision by the European Washing Machines Industry Association to phase out energy-inefficient washing machines. The conditions attached to this agreement were so

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<sup>119</sup> Directive 2009/125, OJ 2009 L 285/10, as amended by Directive 2012/27/EU, OJ 2012 L 315/1.

<sup>120</sup> Article 6 of the Eco-design Directive thus contains a free movement clause for products that comply with the rules laid down in the Directive.

<sup>121</sup> Eco-design Directive, Annex I, part 1.3(c).

<sup>122</sup> Recital 4 of the preamble to the Eco-design Directive.

<sup>123</sup> Commission Regulation (EU) 2019/2022 laying down eco-design requirements for household dishwashers, OJ 2019 L 315/267; these conditions are included in Annex II to that Regulation.

<sup>124</sup> Cf. the comments above in section 6.5 on the generally reluctant stance towards industry-based initiatives.

<sup>125</sup> Section 6.3.

stringent that they were considered to restrict competition within the meaning of Article 101 TFEU. However, the environmental benefits resulting from increased efficiency meant that the agreement qualified for an exemption on the basis of Article 101(3) TFEU.<sup>126</sup>

## 6.7 CONCLUSION

Despite the rationality and increasing (political) importance of investing in energy efficiency, actual increases in energy efficiency are currently insufficient. In addition, the effectiveness of most of the measures involved can be doubted. The initially higher purchasing costs of, for example, an eco-friendly washing machine will be recouped only by means of reduced energy costs in the longer term, which apparently insufficiently informs purchasing decisions. Increasing energy efficiency ultimately requires an ‘enlightened consumer’ who makes a rational choice for longer-term savings. It may be doubted whether regulation will change purchasing behaviour to subsequently change production decisions, triggering competition for energy efficiency. However, the *CECED* case and the Regulation on emissions performance standards for cars shows that changes in production are realistic, provided there is a strict legal framework.

These findings translate into an ultimate question on the degree of solidarity and cost-effectiveness involved in defining energy efficiency standards that may be at odds with the subsidiarity principle. An increasingly uniform definition of cost-effectiveness necessitates a Europe-wide decision on inter-state solidarity, much in line with what has been seen regarding the Effort Sharing legislation. At the same time, such a decision will impact the myriad energy-related decisions that are taken throughout the EU on a daily basis, greatly reducing national sovereignty on these matters. Perhaps in response to these national concerns, the EU has provided a more prominent place to funding schemes to enhance energy efficiency. Such schemes are less intrusive and influence the decentralised decision-making that drives much of the energy efficiency policies, and notably those relying on incentivising energy-efficient consumption.

We conclude that the effectiveness of energy efficiency measures can be doubted as a result of: (a) the non-binding nature of the national energy efficiency targets; (b) the general reluctance on the part of the Member States to submit to strict and binding energy efficiency targets with concomitant measures; and (c) the poor EU track record for increasing energy efficiency.

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<sup>126</sup> Commission Decision 2000/475 *CECED*, OJ [2000] L 187/47. For a fuller discussion see H.H.B. Vedder, *Competition Law and Environmental Protection in Europe; Towards Sustainability?* Europa Law Publishing, 2003, pp.125 and further.

### Classroom Questions

1. What are the major EU instruments to increase energy efficiency and how do these relate to each other?
2. How and why may stricter EU energy efficiency law meet with opposition from the Member States?
3. Design a more effective EU energy efficiency policy with a specific measure. How would you ensure higher degrees of energy efficiency using legal instruments?

### SUGGESTED READING

#### Books

*Schubert VSR, Pollak J and Kreutler M, Energy Policy of the European Union (Palgrave 2016).*

#### Articles and chapters

*Huhta K, 'Prioritising Energy Efficiency and Demand Side Measures over Capacity Mechanisms under EU Energy Law' (2017) 35(1) Journal of Energy & Natural Resources Law 7–24.*

*Roggenkamp MM, 'Regulating Energy Efficiency in the European Union' in MM Roggenkamp, KJ de Graaf and R Fleming (eds), Energy Law and the Environment (Edward Elgar Publishing 2021).*

*Schomerus T, 'Energy Efficiency and Energy Saving: The "First Fuel"' in M Peeters and M Eliantonio (eds), Research Handbook on EU Environmental Law (Edward Elgar Publishing 2020).*

#### Policy documents

*D-G Energy website: [http://ec.europa.eu/energy/efficiency/index\\_en.htm](http://ec.europa.eu/energy/efficiency/index_en.htm).*

*Economidou M, Todeschi V, Bertoldi P, D'Agostino D, Zangheri P and Castellazzi L, 'Review of 50 Years of EU Energy Efficiency Policies for Buildings (2020) 225 Energy and Buildings.*

*Ntovantzi M et al. 'Do We Have Effective Energy Efficiency Policies for the Transport Sector? Results and Recommendations from an Analysis of the National and Sustainable Energy Action Plans (2015) ECEEE Summer Study Proceedings 895–906.*