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Guidelines on State aid for climate, environmental protection and energy 2022

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1. INTRODUCTION

1. The Commission has made the European Green Deal a top political priority, with the aim of transforming the Union into a fair and prosperous society with a modern, resource-efficient and competitive economy, while leaving no one behind. The climate ambitions of the Commission were reinforced in 2019 with the Green Deal Communication¹, setting an objective of no net emissions of greenhouse gases by 2050. In order to set the Union on a balanced, realistic and prudent path to becoming climate neutral by 2050, the Commission has also proposed to reduce greenhouse gas emissions by at least 55 % by 2030 compared to 1990 levels². Those ambitious targets have been enshrined in the European Climate Law³.
2. In addition, following the endorsement of the 55 % reduction target for 2030 by the European Council in December 2020⁴, in [July] 2021 the Commission adopted a ‘Fit for 55’ package of legislative proposals to support the achievement of that target⁵ and put the EU on track to climate neutrality by 2050.
3. Delivering on the objectives of climate neutrality, climate change adaptation, resource and in particular energy efficiency, circularity, zero pollution and recovery of biodiversity and accompanying this green transition will require significant efforts and adequate support. To achieve the ambition set out in the Green Deal Communication, significant investment, including in renewable energy sources, will be required. The Commission has estimated that achieving the newly increased 2030 climate, energy and transport targets will require EUR 350 billion of additional annual investment compared to the levels in 2011-2020, with further EUR 130 billion a year for the other environmental objectives estimated earlier⁶. The magnitude of this investment challenge requires mobilising both the private sector and public funds in a cost-effective manner. This will affect all sectors and therefore the Union economy as a whole.
4. Competition policy, and State aid rules in particular, has an important role to play in enabling and supporting the Union in fulfilling its Green Deal policy objectives. The Green Deal Communication specifically sets out that the State aid rules will be revised to reflect those policy objectives, to support a cost-effective and just transition to climate neutrality, and to facilitate the phasing out of fossil fuels, in particular those that are most polluting, while at the same time ensuring a level-playing field in the internal market. These guidelines are the result of that revision.
5. To prevent State aid from distorting or threatening to distort competition in the internal market and affecting trade between Member States, Article 107(1) of the Treaty on the

¹ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions ‘The European Green’, COM/2019/640 final.

² Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions ‘Stepping up Europe’s 2030 climate ambition Investing in a climate-neutral future for the benefit of our people’, COM/2020/562 final.

³ [Legal reference to be inserted once adopted by legislators]

⁴ <https://www.consilium.europa.eu/media/47296/1011-12-20-euco-conclusions-en.pdf>

⁵ [Reference to be inserted once package adopted by College]

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020SC0098&from=EN>

Functioning of the European Union lays down the principle that State aid is prohibited. In certain cases, however, such aid may be compatible with the internal market on the basis of Article 107(2) and (3) of the Treaty.

6. Member States must notify State aid pursuant to Article 108(3) of the Treaty, with the exception of measures that fulfil the conditions laid down in a block exemption Regulation adopted by the Commission, pursuant to Article 1 of Council Regulation (EU) 2015/1588⁷.
7. These guidelines provide guidance on how the Commission will assess the compatibility of environmental protection, including climate protection, and energy aid measures subject to the notification requirement under Article 107(3), point (c), of the Treaty. Any reference to ‘environmental protection’ in these guidelines should be understood as a reference to environmental protection, including climate protection.
8. Under Article 107(3), point (c), of the Treaty, an aid measure may be declared compatible with the internal market provided that two conditions, one positive, one negative, are fulfilled. The positive condition is that the aid must facilitate the development of an economic activity. The negative condition is that the aid must not adversely affect trading conditions to an extent contrary to the common interest.
9. Whereas it is generally accepted that competitive markets tend to bring about efficient results in terms of prices, output and use of resources, State intervention may be necessary to facilitate the development of certain economic activities that would not develop at all or would not develop at the same pace or under the same conditions in the absence of aid. The intervention thereby, contributes to smart, sustainable and inclusive growth.
10. In the context of environmental protection, environmental externalities, information imperfections and coordination failures mean that the costs and benefits of an economic activity might not fully be taken into account by market participants when taking consumption, investment and production decisions, in spite of regulatory interventions. These market failures, i.e. situations in which markets, if left to their own devices, are unlikely to produce efficient outcomes, do not necessarily lead to optimal welfare for consumers and society at large, resulting in insufficient levels of environmental protection in relation to the economic activities conducted in the absence of State support.

2. SCOPE AND DEFINITIONS

2.1 Scope of application

11. These guidelines apply to State aid granted to facilitate the development of economic activities in a manner that improves environmental protection, as well as activities in the energy sector that are governed by the Treaty, insofar as those aid measures are covered by Section 2.2 of these guidelines. These guidelines therefore also apply to those sectors

⁷ Council Regulation (EU) 2015/1588 of 13 July 2015 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to certain categories of horizontal State aid (OJ L 248, 24.9.2015, p. 1)

which are subject to specific Union rules on State aid, unless those specific Union rules state otherwise or contain provisions on aid for environmental protection or aid in the energy sector applying to the same measure, in which case the sector specific rules prevail. These guidelines prevail over point 17(b) of the Aviation Guidelines⁸ with regard to environmental aid measures in favour of large airports with a passenger volume of over 5 million per annum, without prejudice to future amendments of the those Guidelines

12. These guidelines do not apply to:

- (a) the design and manufacture of environmentally friendly products, machines or means of transport with a view to operating with fewer natural resources and action taken within plants or other production units with a view to improving safety or hygiene⁹;
- (b) state aid for research, development and innovation which is subject to the rules set out in the Commission Communication on the Framework for State aid for research and development and innovation¹⁰;
- (c) state aid for the enhancement of biodiversity covered by other State aid rules (namely, the rules on the provision of services of general economic interest¹¹, on State aid in the agriculture and forestry sector¹²; or in the fisheries and aquaculture primary production sectors¹³),
- (d) state aid for nuclear energy.

13. Aid for environmental protection and energy may not be awarded to undertakings in difficulty as defined by the Commission Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty¹⁴.

14. When assessing aid in favour of an undertaking that is subject to an outstanding recovery order following a previous Commission decision declaring an aid illegal and

⁸ Communication from the Commission — Guidelines on State aid to airports and airlines (OJ C 99, 4.4.2014, p. 3).

⁹ Environmental aid is generally less distortive and more effective if it is granted to the consumer/user of environmentally friendly products instead of the producer/manufacture of the environmentally friendly product. This is without prejudice to the possibility for Member States to grant environmental aid to undertakings to enhance the level of environmental protection of their manufacturing activities.

¹⁰ Communication from the Commission — Framework for State aid for research and development (OJ C 198, 27.6.2014, p. 1).

¹¹ Communication from the Commission — European Union framework for State aid in the form of public service compensation (OJ C 8, 11.1.2012, p. 15).

¹² European Union Guidelines for State aid in the agricultural and forestry sectors and in rural areas 2014 to 2020 (OJ C 204, 1.7.2014, p. 1).

¹³ Communication from the Commission — Guidelines for the examination of State aid to the fishery and aquaculture sector (OJ C 217, 2.7.2015, p. 1).

¹⁴ Communication from the Commission — Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty (OJ C 249, 31.7.2014, p. 1).

incompatible with the internal market, the Commission will take account of the amount of aid still to be recovered¹⁵.

2.2 Aid measures covered by these guidelines

15. The Commission has identified a number of categories of environmental protection and energy measures for which State aid may be compatible with the internal market under Article 107(3), point (c), of the Treaty under certain conditions:
- (a) aid for the reduction and removal of greenhouse gas emissions, including through support for renewable energy;
 - (b) aid for the improvement of energy and environmental performance in buildings;
 - (c) aid for the acquisition and leasing of clean transport vehicles (used for air, road, railway, inland waterway and sea and coastal passenger and freight transport), aid for the retrofitting of transport vehicles allowing them to qualify as clean transport vehicles and aid for clean service equipment;
 - (d) aid for the deployment of recharging or refuelling infrastructure for zero-emission and clean transport vehicles;
 - (e) aid for resource efficiency and for supporting the transition towards a circular economy;
 - (f) aid for the prevention or reduction of pollution other than from greenhouse gases;
 - (g) aid for the remediation of contaminated sites, the rehabilitation of natural habitats and ecosystems, the protection or restoration of biodiversity and nature-based solutions for climate adaptation;
 - (h) aid in the form of reductions in taxes or parafiscal levies;
 - (i) aid for the security of electricity supply;
 - (j) aid for energy infrastructure;
 - (k) aid for district heating and cooling;
 - (l) aid in the form of reductions from electricity levies for energy-intensive users;
 - (m) aid for coal, peat and oil shale closure;
 - (n) aid for studies or consultancy services on environmental protection and energy matters.

¹⁵ See the Judgment of the Court of First Instance of 13 September 1995, *TWD v Commission*, Joined Cases T-244/93 and T-486/93, ECLI:EU:T:1995:160, paragraph 56. See also the Communication from the Commission — Commission Notice on the recovery of unlawful and incompatible State aid, C/2019/5396 (OJ C 247, 23.7.2019, p. 1).

2.3 Structure of the guidelines

16. Chapter 3 sets out the compatibility criteria that apply generally to the various categories of aid covered by these guidelines. Section 3.2.1.3.1 on cumulation applies to all categories of aid covered by these guidelines. Chapter 4 sets out specific compatibility criteria that apply to the aid measures covered by the various sections of that chapter. The compatibility criteria in Chapter 3 apply unless there are more specific provisions laid down in the dedicated specific sections in Chapter 4.
17. The conditions set out in these guidelines apply to aid schemes and individual aid, whether they are based on an aid scheme or granted ad hoc, unless otherwise specified.

2.4 Definitions

18. For the purposes of these guidelines, the following definitions apply:
 - (1) ‘ad hoc aid’ means aid not granted on the basis of an aid scheme;
 - (2) ‘aid intensity’ means the gross aid amount expressed as a percentage of the eligible costs. All figures used must be taken before any deduction of tax or other levies. Where aid is awarded in a form other than a grant, the aid amount must be the gross grant equivalent of the aid. Aid payable in several installments must be calculated at its value at the moment of granting. The interest rate to be used for discounting purposes and for calculating the aid amount in a soft loan must be the reference rate applicable at the time of grant. The aid intensity is calculated per beneficiary;
 - (3) ‘assisted areas’ means areas which at the time of the granting of the aid are designated in an approved regional aid map in application of Articles 107(3), points (a) and (c), of the Treaty;
 - (4) ‘balancing’ for electricity means balancing as defined in Article 2, point (10), of Regulation (EU) No 2019/943 of the European Parliament and of the Council¹⁶;
 - (5) ‘balance responsible party (BRP)’ means balance responsible party as defined in Article 2, point (14), of Regulation (EU) No 2019/943;
 - (6) ‘biodiversity’ means biodiversity as defined in Article 2, point (15), of Regulation (EU) No 2020/852 of the European Parliament and of the Council¹⁷;
 - (7) ‘biofuels’ means biofuels as defined in Article 2, point (33), of Directive 2018/2001/EU of the European Parliament and of the Council¹⁸;

¹⁶ Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (OJ L 158, 14.6.2019, p. 54).

¹⁷ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (OJ L 198, 22.6.2020, p. 13).

¹⁸ 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 (OJ L 328, 21.12.2018, p. 82).

- (8) ‘biogas’ means biogas as defined in Article 2, point (28), of Directive 2018/2001/EU;
- (9) ‘bioliquids’ means biogas as defined in Article 2, point (32), of Directive 2018/2001/EU;
- (10) ‘biomass’ means the biodegradable fraction of products, waste and residues from biological origin, as defined in Article 2, point (24), of Directive 2018/2001/EU;
- (11) ‘biomass fuels’ means biomass fuels as defined in Article 2, point (27), of Directive 2018/2001/EU;
- (12) ‘capacity mechanism’ means a measure for security of electricity supply as defined in Regulation (EU) No 2019/943;
- (13) ‘carbon capture and storage’ or ‘CCS’ means a set of technologies that captures the carbon dioxide (CO₂) emitted from industrial plants ~~based on fossil fuels or biomass~~, including power plants and waste-to-energy plants [or captures it directly from ambient air], transports it to a storage site and injects the CO₂ in suitable underground geological formations for the purpose of permanent storage of CO₂;
- (14) ‘carbon capture and use’ or ‘CCU’ means a set of technologies that captures the CO₂ emitted from industrial plants ~~based on fossil fuels or biomass~~, including power plants and waste-to-energy plants [or captures it directly from ambient air], and transports it to a CO₂ consumption or utilisation site;
- (15) ‘CO₂ equivalent’ is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential¹⁹, by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential;
- (16) ‘CO₂ removal’ means anthropogenic activities removing CO₂ from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage, but excludes natural CO₂ uptake not directly caused by human activities;
- (17) ‘certificates scheme’ or supplier obligation scheme means a scheme in which value is created for providing goods or services by certifying these goods or services and imposing an obligation on suppliers or consumers to buy certificates;
- (18) ‘clean groundhandling equipment’ means equipment used in service activities incidental to air transportation that has zero direct (tailpipe) CO₂ emissions;
- (19) ‘clean terminal equipment’ means equipment used for the loading, unloading and transshipment of goods and intermodal loading units, and moving cargo within the terminal area, that have zero direct (tailpipe) CO₂ emissions;

¹⁹ As defined in the latest Assessment Report of the International Panel on Climate Change.

(20) ‘clean transport vehicle’ means:

- (a) a road vehicle of categories M1, M2 or N1 fulfilling the definition of ‘clean vehicle’ set out in Article 4, point (4)(a), of Directive (EU) 2019/1161 of the European Parliament and of the Council²⁰;
- (b) a road vehicle of category M3, N2 or N3 fulfilling the following definitions:
 - until 31 December 2025, for vehicles covered by Regulation (EU) 2019/1242 of the European Parliament and of the Council²¹: the definition of ‘low-emission heavy-duty vehicle’ set out in Article 3, point (12), of that Regulation;
 - until 31 December 2025, for vehicles not covered by Regulation 2019/1242: the definition of ‘clean vehicle’ set out in Article 4, point (4)(b), of Directive (EU) 2019/1161;
 - from 1 January 2026: the definition of ‘zero-emission heavy duty vehicle’ set out in Article 4, point (5), of Directive (EU) 2019/1161;
- (c) a vehicle of category L (two- or three-wheel vehicles or quadricycles) with tailpipe CO₂ emissions equal to 0g CO₂e/km calculated in accordance with the emission test laid down in Article 4 of Regulation (EU) No 168/2013 of the European Parliament and of the Council²²;
- (d) an inland vessel for passenger or freight transport that has zero direct (tailpipe) CO₂ emissions; or until 31 December 2025,
 - (i) an inland vessel for freight transport that has direct (tailpipe) emissions of CO₂ per tonne kilometre (gCO₂/tkm), calculated (or estimated in case of new vessels) using the Energy Efficiency Operational Indicator²³, 50% lower than the average reference value for emissions of CO₂ defined for heavy duty vehicles (vehicle subgroup 5- LH) in accordance with Article 11 of Regulation 2019/1242;

²⁰ Directive 2019/1161/EU of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles (OJ L 188, 12.7.2019, p. 116).

²¹ Regulation 2019/1242/EU of the European Parliament and of the Council of 20 June 2019 setting CO₂ emission performance standards for new heavy-duty vehicles and amending Regulations No 595/2009/EC and 2018/956/EU of the European Parliament and of the Council and Council Directive 96/53/EC (OJ L 198, 25.7.2019, p. 202).

²² Regulation 168/2013/EU of the European Parliament and of the Council of 15 January 2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles (OJ L 60, 2.3.2013, p. 52).

²³ The Energy Efficiency Operational Indicator is defined as the ratio of mass of CO₂ emitted per unit of transport work. It is a representative value of the energy efficiency of the ship operation over a consistent period which represents the overall trading pattern of the vessel. Guidance on how to calculate this indicator is provided in the document MEPC.1/Circ. 684 from IMO.

- (ii) an inland vessel for passenger transport that has a hybrid or dual fuel engine deriving at least 50% of its energy from zero direct (tailpipe) CO₂ emission fuels or plug-in power for its normal operation;
- (e) a sea and coastal vessel for passenger or freight transport, a vessel for port operations or for auxiliary activities that has zero direct (tailpipe) CO₂ emissions; or until 31 December 2025:
 - (i) has a hybrid or dual fuel engine deriving at least 25% of its energy from zero direct (tailpipe) CO₂ emission fuels or plug-in power for its normal operation at sea and in ports;
 - (ii) has an attained Energy Efficiency Design Index (EEDI) value 10% below the EEDI requirements applicable on 1 April 2022²⁴ and the vessel is able to run on zero direct (tailpipe) CO₂ emission fuels or on fuels from renewable sources.
- (f) a sea and coastal vessel for freight transport that is used exclusively for operating coastal and short sea services designed to enable modal shift of freight currently transported by land to sea and it has direct (tailpipe) CO₂ emissions, calculated using the International Maritime Organization (IMO) Energy Efficiency Design Index (EEDI)²⁵, 50% lower than the average reference CO₂ emissions value defined for heavy duty vehicles (vehicle sub group 5-LH) in accordance with Article 11 of Regulation 2019/1242;
- (g) rolling stock that has zero direct (tailpipe) CO₂ emissions; or rolling stock that has zero direct tailpipe CO₂ emissions when operated on a track with necessary infrastructure, and use a conventional engine where such infrastructure is not available (bimode);
- (h) an aircraft with a certified metric value that exceeds by at least 10% the latest environmental protection standards of the International Civil Aviation Organization (ICAO) contained in Annex 16 to the Chicago Convention²⁶, including the CO₂ metric values for aircraft “New Type”, as referred to in Article 9, point (2), of Regulation (EU) 2018/1139²⁷; or alternatively, if it replaces an aircraft that already exceeds the latest noise and emissions

²⁴ EEDI requirements as agreed by the Marine Environment Protection Committee of the International Maritime Organization on its seventy-fifth session. Vessels that fall into the ship types set out in MARPOL Annex VI Regulation 2, but are not considered as new ship under that regulation may provide attained EEDI value calculated on a voluntary basis in line with MARPOL Annex VI Chapter 4 and have those calculations verified in line with MARPOL Annex VI, Chapter 2.

²⁵ Energy Efficiency Design Index:
<http://www.imo.org/fr/MediaCentre/HotTopics/GHG/Pages/EEDI.aspx>.

²⁶ Convention on International Civil Aviation, signed in Chicago on 7 December 1944.

²⁷ Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91.

environmental protection ICAO standards for aircraft “New Type”, contained in Annex 16 to the Chicago Convention and as referred to in Article 9, point (2), of Regulation (EU) 2018/1139, an aircraft that delivers an improvement in the level of environmental protection by at least 10% compared to the aircraft that is being replaced;

- (21) ‘clean service equipment’ means clean terminal equipment and clean groundhandling equipment;
- (22) ‘cogeneration’ or combined heat and power means cogeneration as defined in Article 2, point (30), of Directive (EU) 2012/27 of the European Parliament and of the Council²⁸;
- (23) ‘contaminated site’ means a site where there is a confirmed presence, caused by human activity, of materials or substances of such a level that they pose a significant risk to human health or the environment, taking into account current and approved future use of the land;
- (24) ‘demonstration project’ means a project demonstrating a technology as a first of its kind in the Union and representing a significant innovation that goes well beyond the commercial state of the art;
- (25) ‘digitalisation’ means the adoption of technologies carried out by electronic devices and/or systems which make it possible to increase product functionality, develop online services, modernise processes, or migrate to business models based on the disintermediation of goods production and service delivery, eventually producing a transformative impact;
- (26) ‘disposal’ means disposal as defined in Article 3, point 19, of Directive 2008/98/EC of the European Parliament and of the Council²⁹;
- (27) ‘distribution system operator’ (DSO) means distribution system operator as defined in Article 2, point (29), of Directive (EU) 2019/944 of the European Parliament and of the Council;
- (28) ‘district heating’ or ‘district cooling’ means district heating or district cooling as defined in Article 2, point (19), of Directive (EU) 2010/31 of the European Parliament and of the Council;
- (29) ‘district heating and cooling systems’, consisting of heat generation facilities (heating/cooling production plants), the heating/cooling storage and distribution network (both ‘primary’- or transmission- and ‘secondary’ network of pipelines to supply heat to consumers). Reference to district heating is to be interpreted as

²⁸ Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1) , as amended by Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018.

²⁹ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p. 3).

district heating and/or cooling systems, depending on whether the networks supply heat or cooling jointly or separately;

- (30) ‘eco-innovation’ means all forms of innovative activities, including new production processes, new products or services, and new management and business methods, resulting in or aimed at significantly improving environmental protection and significantly reducing the environmental impacts of pollution. For the purposes of this definition, the following are not considered innovations:
- (a) activities leading only to minor changes or improvements on environmental protection;
 - (b) an increase in production or service capabilities through the addition of manufacturing or logistical systems which are very similar to those already in use;
 - (c) changes in business practices, workplace organisation or external relations that are based on organisational methods already in use in the undertaking;
 - (d) changes in management strategy;
 - (e) mergers and acquisitions;
 - (f) ceasing to use a process;
 - (g) simple capital replacement or extension;
 - (h) changes resulting purely from changes in factor prices, customisation, regular seasonal and other cyclical changes;
 - (i) trading of new or significantly improved products;
- (31) ‘ecosystem’ means ecosystem as defined in Article 2, point (13), of Regulation (EU) 2020/852 of the European Parliament and of the Council;
- (32) ‘energy efficiency’ means the ratio of output of performance, service, goods or energy, to input of energy;
- (33) ‘energy-efficient district heating and cooling’ means district heating and cooling as defined in Article 2, point (41) of **Directive 2012/27/EU** of the European Parliament and of the Council, as referred to by Article 2 (20) of Directive 2018/2001/EU of the European Parliament and of the Council³⁰;
- (34) ‘energy from renewable sources’ means energy produced by plants using only renewable energy sources as defined in Article 2, point (1), of Directive (EU)

³⁰ Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1), as amended by Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018.

2018/2001 of the European Parliament and of the Council³¹, as well as the share in terms of calorific value of energy produced from renewable energy sources in hybrid plants which also use conventional energy sources and includes renewable electricity used for filling storage systems connected behind-the-meter (jointly installed or as an add-on to the renewable installation), but excludes electricity produced as a result of storage systems;

(35) ‘energy infrastructure’ means any physical equipment or facility which is located within the Union or linking the Union to one or more third countries and falling under the following categories:

(a) concerning electricity:

- (i) transmission and distribution systems, where ‘transmission’ means the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but does not include supply and ‘distribution’ means the transport of electricity on high-voltage, medium-voltage and low-voltage distribution systems with a view to its delivery to customers, but does not include supply;
- (ii) any equipment or installation essential for the systems referred to in point (i) to operate safely, securely and efficiently, including protection, monitoring and control systems at all voltage levels and substations;
- (iii) fully integrated network components means fully integrated network components as defined in Article 2, point (51), of Directive (EU) 2019/944 of the European Parliament and of the Council³²;
- (iv) smart electricity grids which means systems and components integrating information and communication technologies, through operational digital platforms, control systems and sensor technologies both at transmission and distribution level, aiming at a more efficient and intelligent electricity transmission and distribution network, increased capacity to integrate new forms of generation, storage and consumption and facilitating new business models and market structures;
- (v) off-shore electricity grids, which means any equipment or installation of electricity transmission or distribution infrastructure, as defined in point (i) above, which has dual functionality: interconnection and transmission or distribution of offshore renewable electricity from the offshore generation sites to two or more countries. This also includes any offshore adjacent equipment or installation essential to operate safely, securely and efficiently, including protection, monitoring and control systems, and

³¹ 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 (OJ L 328, 21.12.2018, p. 82).

³² Directive 2019/944/EU of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (OJ L 158, 14.6.2019, p. 125).

necessary substations if they also ensure technology interoperability and *inter alia* interface compatibility between different technologies;

(b) concerning gas:

- (i) transmission and distribution pipelines for the transport of natural gas, bio gas and renewable gases of non-biological origin that form part of a network, excluding high-pressure pipelines used for upstream distribution of natural gas;
- (ii) underground storage facilities connected to the high-pressure gas pipelines mentioned in point (i);
- (iii) reception, storage and regasification or decompression facilities for liquefied natural gas (LNG) or compressed natural gas (CNG);
- (iv) any equipment or installation essential for the system to operate safely, securely and efficiently or to enable bi-directional capacity, including compressor stations;
- (v) smart gas grids, which means any of the following equipment or installation aiming at enabling and facilitating the integration of renewable and low-carbon gases (including biomethane or hydrogen) into the network: digital systems and components integrating information and communication technologies, control systems and sensor technologies to enable the interactive and intelligent monitoring, metering, quality control and management of gas production, transmission, distribution and consumption within a gas network. Furthermore, smart grids may also include equipment to enable reverse flows from the distribution to the transmission level and related necessary upgrades to the existing network;

(c) concerning hydrogen:

- (i) transmission pipelines, for the high-pressure transport of hydrogen, as well as distribution pipelines for the local distribution of hydrogen, giving access to multiple network users on a transparent and non-discriminatory basis;
- (ii) underground storage facilities connected to the high-pressure hydrogen transmission or distribution pipelines referred to in point (i);
- (iii) dispatch, reception, storage, regasification or decompression facilities for hydrogen or hydrogen embedded in other chemical substances with the objective of injecting the hydrogen into the grid;
- (iv) any equipment or installation essential for the hydrogen system to operate safely, securely and efficiently or to enable bi-directional capacity, including compressor stations.

Any of the assets listed in points (i), (ii), (iii), and (iv) may be newly constructed assets or assets converted from natural gas to hydrogen (“repurposed”), or a combination of the two.

Assets listed under points (i), (ii), (iii), and (iv) which are subject to third party access qualify as energy infrastructure.

(d) concerning carbon dioxide:

- (i) pipelines, other than upstream pipeline network, used to transport carbon dioxide from more than one source, that is to say, industrial installations (including power plants) that produce carbon dioxide gas from combustion or other chemical reactions involving fossil or non-fossil carbon-containing compounds, for the purpose of permanent geological storage of carbon dioxide pursuant to Article 3 of Directive 2009/31/EC of the European Parliament and of the Council³³ or for the purpose of using carbon dioxide as feedstock or to enhance the yields of biological processes;
- (ii) facilities for liquefaction and buffer storage of carbon dioxide in view of its further transportation;
- (iii) infrastructure within a geological formation used for the permanent geological storage of carbon dioxide pursuant to Article 3 of the Directive 2009/31/EC and associated surface and injection facilities;
- (iv) any equipment or installation essential for the system in question to operate properly, securely and efficiently, including protection, monitoring and control systems.

Assets listed under points (i), (ii) (iii) and (iv), which are subject to third party access qualify as energy infrastructure.

- (e) infrastructure used for transmission or distribution of heat/steam/cooling from multiple producers/users, based on use of zero/low carbon heat/steam or waste heat from industrial applications;
- (f) projects of common interest, or Projects of Mutual Interest as defined in Article 2 of Regulation (EU) 347/2013 of the European Parliament and of the Council and Article 170 of TFEU³⁴.

³³ Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006 (OJ L 140, 5.6.2009, p. 114).

³⁴ Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009 (OJ L 115, 25.4.2013, p. 39).

- (g) other infrastructure categories, concerning infrastructure that enables physical or wireless connection of zero/low carbon energy between producers and users from multiple access and exit points and which are open to access by third parties not belonging to the infrastructure owner/manager undertakings;

Assets listed under points (a) to (g) which are built for one or a small group of *ex ante* identified users and tailored to their needs ('dedicated infrastructure') do not qualify as energy infrastructure.

- (36) 'energy performance' means energy performance of a building as defined in Article 2, point (4) of Directive 2010/31/EU of the European Parliament and of the Council³⁵;
- (37) 'energy savings' means energy savings as defined in Article 2, point (5), of Directive 2012/27/EU of the European Parliament and of the Council³⁶;
- (38) 'environmental protection' means any action designed to remedy or prevent pollution or other damage to physical surroundings, ecosystems or natural resources by human activities, including to mitigate climate change, to reduce the risk of such damage, to protect and restore biodiversity or to lead to more efficient use of natural resources, including energy-saving measures and the use of renewable sources of energy and other techniques to reduce greenhouse gas emissions and other pollutants, as well as to shift to circular economy models to reduce the use of primary materials and increase efficiencies. It also covers actions that reinforce adaptive capacity and minimise vulnerability to climate impacts;
- (39) 'environmental tax' means a tax with a specific tax base that has a clear negative effect on the environment or which seeks to tax certain activities, goods or services so that the environmental costs may be included in their price or so that producers and consumers are oriented towards activities which better respect the environment;
- (40) 'resource adequacy' means a level of generated capacity which is deemed to be adequate to meet demand levels in the Member State at any given period, based on the use of a conventional statistical indicator used by organisations which the Union institutions recognise as performing an essential role in the creation of a single market in electricity, for example the European Network of Transmission System Operators for Electricity (ENTSO-E);
- (41) 'generator' means an undertaking which produces electrical power for commercial purposes;

³⁵ Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13).

³⁶ Directive 2010/31/EU of the European Parliament and of the Council on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1).

- (42) ‘high-efficiency cogeneration’ means high-efficiency cogeneration as defined in Article 2, point (34), of Directive 2012/27/EU;
- (43) ‘imbalances’ means deviations between generation, consumption and commercial transactions of a BRP within a given imbalance settlement period;
- (44) ‘imbalance settlement’ means a financial settlement mechanism aimed at recovering the costs of balancing applicable to imbalances of BRPs;
- (45) ‘imbalance settlement period’ means imbalance settlement period as defined in Article 2, point (15), of Regulation (EU) 2019/943;
- (46) ‘individual aid’ means ad hoc aid and notifiable awards of aid on the basis of an aid scheme;
- (47) ‘interruptibility scheme’ means a measure for security of electricity supply designed to ensure a stable frequency in the electricity system or address short term security of supply problems, including by interrupting load;
- (48) ‘nature-based solution’ means an action to protect, sustainably manage and restore natural or modified ecosystems, that addresses societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits;
- (49) ‘network reserve’ means a measure for security of electricity supply designed to compensate for a systemic and long term insufficiency in the electricity transmission or distribution network;
- (50) ‘pollutant’ means pollutant as defined in Article 2, point (10), of Regulation (EU) 2020/852 of the European Parliament and of the Council;
- (51) ‘polluter’ means someone who directly or indirectly damages the environment or who creates conditions leading to such damage³⁷;
- (52) ‘pollution’ means pollution as defined in Article 3(2) of Directive 2010/75/EU³⁸;
- (53) ‘polluter pays principle’ means that the costs of measures to deal with pollution should be borne by the polluter who causes the pollution;
- (54) ‘preparing for re-use’ means preparing for re-use as defined in Article 3, point 16, of Directive 2008/98/EC;
- (55) ‘recharging infrastructure’ means a fixed or mobile infrastructure supplying transport vehicles or clean service equipment with electricity;
- (56) ‘recovery’ means recovery as defined in Article 3, point 15, of Directive 2008/98/EC;

³⁷ Council Recommendation of 3 March 1975 regarding cost allocation and action by public authorities on environmental matters (OJ L 194, 25.7.1975, p. 1).

³⁸ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (OJ L 334, 17.12.2010, p. 17).

- (57) ‘recycling’ means recycling as defined in Article 3, point 17, of Directive 2008/98/EC;
- (58) ‘reference project’ means an example project that is representative of the average project in a category of eligible beneficiaries for an aid scheme;
- (59) ‘refuelling infrastructure’ means a fixed or mobile infrastructure which makes it possible to refuel clean or zero transport vehicles or clean service equipment with the alternative fuels referred to in Article 5 and 6 of Directive 2014/94/EU;
- (60) ‘rehabilitation’ means management actions that aim to reinstate a level of ecosystem functioning on degraded sites, where the goal is renewed and ongoing provision of ecosystem services rather than the biodiversity and integrity of a designated natural or semi-natural reference ecosystem;
- (61) ‘remediation’ means management activity, such as the removal or detoxification of contaminants or excess nutrients from soil and water, that aims to remove sources of degradation;
- (62) ‘renewable energy sources’ means energy from renewable sources or renewable energy as defined in Article 2, point (1), of Directive (EU) 2018/2001;
- (63) ‘renewable gaseous transport fuels of non-biological origin’ means renewable gaseous transport fuels of non-biological origin as defined in Article 2, point (36), of Directive (EU) 2018/2001;
- (64) ‘resource efficiency’ means reducing the quantity of inputs needed to produce a unit of output or substituting primary inputs with secondary inputs;
- (65) ‘restoration’ means the process of assisting the recovery of an ecosystem as a means of conserving biodiversity and ecosystem resilience. The restoration of ecosystems includes measures taken for the improvement of the condition of an ecosystem and the re-creation or re-establishment of an ecosystem where that condition was lost;
- (66) ‘re-use’ means re-use as defined in Article 3, point (13), of Directive 2008/98/EC;
- (67) ‘small and medium-sized enterprise’ (SME), means an undertaking that fulfils the conditions laid down in the Commission recommendation concerning the definition of micro, small and medium-sized enterprises³⁹;
- (68) ‘small mid-cap’ means an undertaking that is not an SME and whose number of employees does not exceed 499, calculated in accordance with Articles 3 to 6 of Annex I to Commission Regulation (EU) No 651/2014⁴⁰, and the annual turnover of which does not exceed EUR 100 million or the annual balance sheet of which

³⁹ Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (OJ L 124, 20.5.2003, p. 36).

⁴⁰ Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (OJ L 187 26.6.2014, p. 1).

does not exceed EUR 86 million. Several entities will be considered as one undertaking if any of the conditions listed in Article 3, point (3) of Annex I to Regulation (EU) No 651/2014 are fulfilled;

- (69) ‘smart readiness’ means the capability of buildings or building units to adapt their operation to the needs of the occupant, including optimising energy efficiency and overall performance, and to adapt their operation in response to signals from the grid;
- (70) ‘standard balancing responsibilities’ means non-discriminatory balancing responsibilities across technologies which do not exempt from responsibility any generator as set out in Article 5 Regulation (EU) 2019/943;
- (71) ‘start of works’ means the first firm commitment (for example, to order equipment or start construction) that makes an investment irreversible. The buying of land and preparatory works such as obtaining permits and conducting preliminary feasibility studies are not considered as start of works. For take-overs, ‘start of works’ means the moment of acquiring the assets directly linked to the acquired establishment;
- (72) ‘strategic reserve’ means a measure for security of electricity supply in which electricity capacity, such as generation, storage or demand response, is held outside the electricity market and only dispatched in specific circumstances;
- (73) ‘total cost of ownership’ means the total cost of acquiring and owning a vehicle for its lifetime, including the costs of acquiring or leasing the vehicle, fuel costs, maintenance and repair costs, insurance costs, finance costs, and taxes;
- (74) ‘transmission system operator’ (TSO) means transmission system operator as defined in Article 2, point (35), of Directive (EU) 2019/944 of the European Parliament and of the Council ;
- (75) ‘transport vehicle’ means any of the following:
 - (a) a road vehicle of category M1, M2, N1, M3, N2, N3 or L;
 - (b) an inland or a sea and coastal vessel for passenger or freight transport;
 - (c) rolling stock; or
 - (d) an aircraft;
- (76) ‘treatment’ means treatment as defined in Article 3, point 14 of Directive 2008/98/EC;

- (77) ‘**Union minimum tax level**’ means the minimum level of taxation provided for in Union law. With respect to energy products and electricity, it means the minimum level of taxation laid down in Annex I to Council Directive 2003/96/EC⁴¹;
- (78) ‘Union standard’ means:
- (a) a mandatory Union standard setting the levels to be attained in environmental terms by individual undertakings, excluding standards or targets set at Union level which are binding for Member States but not for individual undertakings;
 - (b) the obligation under Directive 2010/75/EU of the European Parliament and of the Council⁴² to use the best available techniques (BAT) and ensure that emission levels of pollutants are not higher than they would be when applying BAT; for cases where emission levels associated with the BAT have been defined in implementing acts adopted under Directive 2010/75/EU, those levels will be applicable for the purpose of these guidelines; where those levels are expressed as a range, the limit where the BAT is first achieved will be applicable;
- (79) ‘waste’ means waste as defined in Article 3, point (1) of Directive 2008/98/EC;
- (80) ‘zero-emission transport vehicle’ means:
- (a) a vehicle of category M1, M2 or N1 with zero tailpipe emissions, as determined in accordance with Commission Regulation (EU) 2017/1151⁴³;
 - (b) a vehicle of category M3, N2 or N3 fulfilling the definition of zero-emission heavy duty vehicle set out in Regulation (EU) 2019/1242 of the European Parliament and of the Council⁴⁴;
 - (c) a vehicle of category L, as defined by Article 4 of Regulation (EU) No 168/2013 and includes two- or three-wheel vehicles or quadricycles, with tailpipe CO₂ emissions equal to 0g CO₂e/km calculated in accordance with the emission test laid down in that Regulation;

⁴¹ Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity (OJ L 283, 31.10.2003, p. 51).

⁴² Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (OJ L 334, 17.12.2010, p. 17).

⁴³ Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008 (OJ L 175, 7.7.2017, p. 1).

⁴⁴ Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO₂ emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC (OJ L 198, 25.7.2019, p. 202).

- (d) an inland or sea and coastal vessel for passenger or freight transport that has zero direct (tailpipe/exhaust) CO₂ emissions;
- (e) rolling stock that has zero direct (tailpipe) CO₂ emissions;
- (f) an aircraft that has zero direct (tailpipe) CO₂ emissions.

3. COMPATIBILITY ASSESSMENT UNDER ARTICLE 107(3), POINT (C), OF THE TREATY

19. These guidelines provide the compatibility criteria for aid measures for climate and environmental protection and energy objectives under Article 107(3), point (c), of the Treaty which are subject to the notification requirement in Article 108(3) of the Treaty.
20. On the basis of Article 107(3), point (c), of the Treaty, the Commission may consider compatible with the internal market State aid to facilitate the development of certain economic activities within the Union (positive condition), where such aid does not adversely affect trading conditions to an extent contrary to the common interest (negative condition).
21. For the aid referred to in point 20, the Commission will assess whether it can be considered compatible with the internal market by analysing the following aspects:
 - (a) As regards the first (positive) condition, **environmental protection and energy aid facilitates the development of an economic activity**:
 - (i) identification of the economic activity which is being facilitated by the measure, its positive effects for the society at large and, where applicable, its relevance for specific policies of the Union (see Section 3.1.1);
 - (ii) incentive effect of the aid (see Section 3.1.2); and
 - (iii) absence of breach of any relevant provision of Union law (see Section 3.1.3).
 - (b) As regards the second (negative) condition, **environmental protection and energy aid does not unduly affect trading conditions to an extent contrary to the common interest**:
 - (i) the need for State intervention (see Section 3.2.1.1);
 - (ii) the appropriateness of the aid (see Section 3.2.1.2);
 - (iii) the proportionality of the aid (aid limited to the minimum necessary to attain its objective) including cumulation (see Section 3.2.1.3);
 - (iv) the transparency of the aid (see Section 3.2.1.4);
 - (v) avoidance of undue negative effects of the aid on competition and trade (see Section 3.2.2); and

- (vi) weighing up the positive and negative effects of the aid (see Section 3.3).

3.1 Positive condition: the aid must facilitate the development of an economic activity

3.1.1 Identification of the economic activity which is being facilitated by the measure, its positive effects for society at large and, where applicable, its relevance for specific policies of the Union

22. When notifying aid, Member States must identify the economic activities that will be facilitated as a result of the aid and how the development of those activities is supported.
23. Aid to prevent or reduce the negative effects of economic activities on climate or the environment can facilitate the development of economic activities by increasing the sustainability of the economic activity concerned. The aid can also ensure that the activity can continue in the future without creating unacceptable environmental damage and by supporting the creation of new economic activities and services (supporting the development of the so-called ‘green economy’).
24. Member States must also describe if and how the aid will contribute to the achievement of objectives of Union climate policy, environmental policy and energy policy and more specifically, the expected benefits of the aid in terms of its material contribution to environmental protection, including climate change mitigation, or the efficient functioning of the internal energy market.

3.1.2 Incentive effect

25. Aid can be considered as facilitating an economic activity only if it has an incentive effect. An incentive effect occurs when the aid induces the beneficiary to change its behaviour, to engage in additional economic activity or in more environmentally friendly economic activity, which it would not carry out without the aid or would carry out in a restricted or different manner.
26. The aid must not support the costs of an activity that the aid beneficiary would anyhow incur and must not compensate for the normal business risk of an economic activity⁴⁵.
27. Proving an incentive effect entails the identification of the factual scenario and the likely counterfactual scenario in the absence of aid. The Commission will examine this based on the quantification referred to in Section 3.2.1.3.
28. The Commission considers that aid does not have an incentive effect for the beneficiary in cases where the start of works on the project or activity took place prior to a written aid application by the beneficiary to the national authorities. In cases where the beneficiary starts implementing a project before applying for aid, any aid granted in respect of that project will, in principle, not be considered compatible with the internal market.

⁴⁵ See Judgment of the Court of Justice of 13 June 2013, *HGA and others v Commission*, C-630/11 P to C-633/11 P, ECLI:EU:C:2013:387, paragraph 104.

29. The aid application may take various forms, including for example a bid in a competitive bidding process. Any application must at least include the applicant's name, a description of the project or activity, including its location, and the amount of aid needed to carry it out.
30. In certain exceptional cases aid can have an incentive effect even for projects which started before the aid application. In particular, aid is considered to have an incentive effect in the following situations:
- (a) the aid is granted automatically in accordance with objective and non-discriminatory criteria and without further exercise of discretion by the Member State and the measure has been adopted and is in force before work on the aided project or activity has started, except in the case of fiscal successor schemes, where the activity was already covered by the previous schemes in the form of tax advantages;
 - (b) the national authorities have published, before the start of works, a notice of their intention to establish the proposed aid measure, conditional upon the Commission's approval of the measure as required by Article 108(3) of the Treaty. That notice must be made available on a public website or other publicly accessible media with comparably broad and easy access and clearly state the type of projects that the Member State proposes to be eligible and the point in time from which the Member State intends to consider such projects eligible. The proposed eligibility must not be unduly limited. The beneficiary must have informed the granting authority prior to the start of works that the proposed aid measure was considered as a condition for the investment decisions taken. Where it relies upon such a notice to demonstrate an incentive effect, the Member State must provide, as part of its State aid notification, a copy of the notice and a link to the website on which it was published or respective proof of its availability to the public;
 - (c) operating aid granted to existing installations for **environmentally friendly production** where there is no 'start of works' because there is no significant new investment. In these cases, the incentive effect can be demonstrated by a change to operate the installation in an environmentally friendly way rather than an alternative cheaper mode of operation that is less environmentally friendly.
31. The Commission considers that aid granted merely to cover the cost of adapting to Union standards has, in principle, no incentive effect. As a general rule, only aid to go beyond Union standards can have an incentive effect. However, in cases where the relevant Union standard has already been adopted but is not yet in force, aid can have an incentive effect if it incentivises the realisation of the investment before the standard enters into force (see Section 4.2.3 and Section 4.5.3).

3.1.3 No breach of any relevant provision of Union law

32. If the supported activity or aid measure or the conditions attached to it, including its financing method when it forms an integral part of the measure, entail a violation of relevant Union law, the aid cannot be declared compatible with the internal market. This may be the case, for instance, where the aid is subject to clauses conditioning it directly

or indirectly on the origin of products or equipment, such as requirements for the beneficiary to purchase domestically produced products.

3.2 Negative condition: the aid measure must not unduly affect trading conditions to an extent contrary to the common interest

3.2.1 Minimisation of distortions of competition and trade

3.2.1.1 Necessity of the aid

33. The proposed State aid measure must be targeted towards a situation where it can bring about a material development that the market alone cannot deliver, for example by remedying market failures in relation to the projects or activities for which the aid is awarded. Whilst it is generally accepted that competitive markets tend to bring about efficient results in terms of development of economic activities, prices, output and use of resources, in the presence of market failures, public intervention in the form of State aid may improve the efficient functioning of markets and thereby contribute to the development of an economic activity to the extent that the market on its own fails to deliver an efficient outcome. The Member State should identify the market failures preventing a sufficient level of environmental protection from being achieved or preventing an efficient internal energy market. The main market failures related to environmental protection and energy which can prevent the optimal outcome and can lead to an inefficient outcome are:
- (a) Negative externalities: they are most common for environmental aid measures and arise when pollution is not adequately priced, that is to say, the undertaking concerned does not face the full cost of pollution. In this case, undertakings acting in their own interest may have insufficient incentives to take the negative externalities arising from their economic activity into account either when they choose a particular technology or when they decide on the output level. In other words, the costs that are borne by the undertaking do not fully reflect the costs borne by consumers and society at large. Therefore undertakings typically have insufficient incentive to reduce their level of pollution or to take individual measures to protect the environment.
 - (b) Positive externalities: the fact that part of the benefit from an investment will accrue to market participants other than the investor, may lead undertakings to underinvest. Positive externalities may occur for instance in the case of investments in eco-innovation, system stability, new and innovative renewable technologies and innovative demand-response measures or in the case of energy infrastructures or security of electricity supply measures that benefit many Member States or a wider number of consumers.
 - (c) Asymmetric information: this typically arises in markets where there is a discrepancy between the information available to one side of the market and the information available to the other side of the market. This could, for instance, occur where external financial investors have a lack of information about the likely returns and risks of a project. It may also come up in cross-border infrastructure collaboration where one party has an information disadvantage compared to the other party. Although risk or uncertainty do not in themselves

lead to the presence of a market failure, the problem of asymmetric information is linked to the degree of such risk and uncertainty. Both tend to be higher for environmental investments with a typically longer amortisation period, reinforcing a focus on a short-term horizon that could be aggravated by financing conditions for such investments in particular for SMEs.

- (d) Coordination failures: this may prevent the development of a project or its effective design due to diverging interests and incentives among investors, so called ‘split incentives’, the costs of contracting or liability insurance arrangements, uncertainty about the collaborative outcome and network effects, for example uninterrupted supply of electricity. These coordination failures can arise, for example, in the relationship between a building owner and a tenant in respect of energy efficient solutions. Coordination failures may be further exacerbated by information problems, in particular those related to asymmetric information. Coordination failures may also stem from the need to reach a certain critical mass before it is commercially attractive to start a project which may be a particularly relevant aspect in (cross-border) infrastructure projects.
- 34. The mere existence of market failures in a certain context is, however, not sufficient to prove the necessity of State aid. Other policies and measures may already be in place to address some of the identified market failures. Examples include sectorial regulation, mandatory Union pollution standards, supply obligations, pricing mechanisms such as the Union’s Emissions Trading System (ETS) and carbon taxes. Additional measures, including State aid, may only be directed at residual market failures, that is to say those that remain unaddressed by such other policies and measures. It is important also to show how State aid reinforces other policies and measures in place that aim at remedying the same market failures. Therefore, the justification for the necessity of State aid is weaker if it counteracts other policies targeted at the same market failures. The Member State should therefore also identify any existing policies and measures that already target the identified regulatory or market failures.
 - 35. The Commission will consider that aid is necessary if the Member State demonstrates that it effectively targets residual market failures, also taking into account any other policies and measures already in place to address some of the market failures identified.
 - 36. Where State aid is awarded for projects or activities which, with respect to their technological content, level of risk and size, are similar to those already delivered within the Union at market conditions, the Commission will, in principle, presume that no market failure is present and will require further evidence of and justification for the need for State aid.
 - 37. To demonstrate the necessity of aid, the Member State must show that the project, or in the case of schemes, the reference project, would not be carried out without the aid. The Commission will assess this based on the quantification referred to in Section 3.2.1.3 or specific evidence-based analysis submitted by the Member State showing the necessity of the aid.

3.2.1.2 Appropriateness

38. The proposed aid measure must be an appropriate policy instrument to achieve the intended objective of the aid, that is to say there must not be a less distortive policy and aid instrument capable of achieving the same results.

3.2.1.2.1 Appropriateness among alternative policy instruments

39. State aid is not the only policy instrument available to Member States to promote increased levels of environmental protection or to ensure an efficient internal energy market. There may be other, more appropriate instruments available, such as market-based instruments or demand-side measures involving regulation, public procurement or standardisation, as well as an increase in funding of public infrastructure and general fiscal measures. Soft instruments, such as voluntary eco-labels and the dissemination of environmentally friendly technologies may also play an important role in achieving a higher level of environmental protection⁴⁶.
40. Different measures to remedy the same market failure may counteract each other. This is the case where an efficient, market-based mechanism has been put in place to specifically counter the problem of externalities, as for instance the Union's ETS. An additional support measure to address the same market failure risks undermining the efficiency of the market-based mechanism. Therefore, when an aid scheme aims at addressing residual market failures, the aid scheme must be designed in such a way as to not undermine the efficiency of the market-based mechanism.
41. Respect for the 'polluter pays' principle through environmental legislation aims at ensuring that a market failure linked to negative externalities will be rectified. Therefore, State aid is not an appropriate instrument and cannot be granted insofar as the beneficiary of the aid could be held liable for the pollution under existing Union or national law.

3.2.1.2.2 Appropriateness among different aid instruments

42. State aid for environmental protection and energy can be awarded in various forms. The Member State should, however, ensure that the aid is awarded in the form that is likely to generate the least distortion of trade and competition.
43. In that respect, the Member State is required to demonstrate why other potentially less distortive forms of aid are less appropriate, such as: repayable advances as compared to direct grants; tax credits as compared to tax reductions; or forms of aid that are based on

⁴⁶ The use of environmental labels and claims on products can be another means to allow consumers/users to make informed purchasing decisions, and to increase demand for environmental friendly products. When well designed, recognised, understood, trusted and perceived by relevant consumers, robust environmental labels and truthful environmental claims can be a powerful tool to guide and shape (consumer) behaviour towards more environmentally friendly choices. Using a reputable labelling/certification scheme with clear criteria and subject to external (third-party) verification will be one of the most effective ways for businesses to demonstrate to consumers and stakeholders that they are meeting high environmental standards. In this light, the Commission does not include specific rules concerning aid for the design and manufacture of environmentally friendly products in the scope of these guidelines.

financial instruments, such as debt as compared to equity instruments, including (for example, low-interest loans or interest rebates, State guarantees, or an alternative provision of financing on favourable terms.

44. The choice of the aid instrument should be appropriate to the market failure that the aid measure aims to address. Where the actual revenues are uncertain, for instance in the case of energy saving measures, a repayable advance may constitute the most appropriate instrument.
45. The Member State must demonstrate that the aid and its design are appropriate to achieve the objective of the measure at which the aid is targeted.

3.2.1.3 Proportionality

46. Aid is considered to be proportionate if the aid amount per beneficiary is limited to the minimum needed for carrying out the aided activity or project.
47. As a general principle, aid will be considered as limited to the minimum needed for carrying out the aided activity or project if the aid corresponds to the net extra cost (funding gap) necessary to meet the objective of the aid measure, compared to the counterfactual scenario in the absence of aid. The net extra cost is determined by the difference between the economic revenues and costs (including the investment and operation) of the aided project and those of the alternative project which the aid beneficiary would credibly carry out in the absence of aid.
48. A detailed assessment of the net extra cost will not be required if the aid amounts are determined through a competitive bidding process, because it provides a reliable estimate of the minimum aid required by potential beneficiaries. Therefore, the Commission considers that the proportionality of the aid is ensured if the following criteria are fulfilled:
 - (a) the bidding process is competitive, namely: it is open, clear, transparent and non-discriminatory, based on objective criteria, defined ex ante in accordance with the objective of the measure and minimising the risk of strategic bidding;
 - (b) the criteria are published sufficiently far in advance of the deadline for submitting applications to enable effective competition⁴⁷;
 - (c) the budget or volume related to the bidding process is a binding constraint in that it can be expected that not all bidders will receive aid;
 - (d) the expected number of bidders is sufficient to ensure effective competition; the design of undersubscribed bidding processes during the implementation of a scheme is corrected to restore effective competition in the subsequent bidding processes or as soon as possible;

⁴⁷ Six weeks will usually be sufficient. For particularly complex or novel processes this may need to be longer. In justified cases, for example with simple or regular/repeated processes, a shorter duration may be appropriate.

- (e) *ex post* adjustments to the bidding process outcome (such as subsequent negotiations on bid results or rationing) are avoided as they may undermine the efficiency of the process's outcome.
49. The selection criteria in the competitive bidding process should as a general rule be based on the aid amount requested by the applicant put in direct or indirect relation to the contribution to the objective of the measure (for example in terms of unit of environmental protection or unit of energy). In a few exceptional cases, it may be appropriate to include other non-price selection criteria (for instance additional environmental, technological or social criteria). In such cases, such other criteria must account for not more than 25 % of the weighting of all the selection criteria. The Member State must provide reasons for the proposed approach and ensure it is appropriate to the objective pursued.
 50. Where the aid is not granted under a competitive bidding process, the net extra cost must be determined by comparing the profitability of the factual and counterfactual scenarios. To determine the funding gap in such cases, the Member State must submit a quantification, for the factual scenario and a credible counterfactual scenario, of all main costs and revenues, the estimated weighted average cost of capital (WACC) of the beneficiaries to discount future cash flows, as well as the net present value (NPV) for the factual and counterfactual scenarios, over the project lifetime. The Member State must provide reasons for the assumptions used for each aspect of the quantification, and explain and justify any methodologies applied. The typical net extra cost can be estimated as the difference between the NPV for the factual scenario and for the counterfactual scenario over the reference project lifetime. For cases of individual aid, these calculations need to be presented at the level of the detailed project business plan, and for aid schemes on the basis of one or more reference projects.
 51. A counterfactual scenario may sometimes occur where the beneficiary is not carrying out an activity or investment, or continuing its business without changes. Where evidence supports that this is the most likely counterfactual, the net extra cost may be approximated by the negative NPV of the project in the factual scenario without aid over the project lifetime (hence, implicitly assuming that the NPV of the counterfactual is zero). In particular, this can be the case for infrastructure projects.
 52. In certain circumstances, it may be difficult to fully identify the benefits and costs to the beneficiary and hence to quantify the NPV in the factual and counterfactual scenarios. Alternative approaches for those cases may be applied, as detailed in Chapter 4 for specific types of aid, for example by allowing aid only for a limited amount of the eligible cost, that is to say aid intensities.
 53. Where a competitive bidding process is not used and future developments in costs and revenues are surrounded by a high degree of uncertainty and there is a strong asymmetry of information, the Member State may be required to introduce compensation models that are not entirely *ex ante*. Instead, these models are a mix of *ex ante* and *ex post* or introduce *ex post* claw-back or cost monitoring mechanisms, while keeping incentives for the beneficiaries to minimise their costs and develop their business in an efficient manner over time.

3.2.1.3.1 Cumulation

54. Aid may be awarded concurrently under several aid schemes or cumulated with ad hoc or *de minimis* aid in relation to the same eligible costs, provided that the total amount of aid for an activity or project does not lead to overcompensation or exceed the maximum aid amount allowed under these guidelines. If the Member State allows aid under one measure to be cumulated with aid under other measures, then it must specify, for each measure, the method used for ensuring compliance with the conditions set out in this point.
55. Centrally managed Union funding that is not directly or indirectly under the control of the Member State, does not constitute State aid. Where such Union funding is combined with State aid, it has to be ensured that the total amount of public funding granted in relation to the same eligible costs does not lead to overcompensation.

3.2.1.4 Transparency

56. To reduce negative effects by ensuring competitors have access to relevant information about supported activities, the Member State concerned must ensure the publication, in the Commission's transparency award module⁴⁸ or on a comprehensive State aid website, at national or regional level, of:
- (a) the full text of the approved aid scheme or the individual aid granting decision and its implementing provisions, or a link to it;
 - (b) information on each individual aid award granted ad hoc or under an aid scheme approved based on these guidelines and exceeding EUR 100 000.
57. Member States must organise their comprehensive State aid websites, on which the information required by this Section is to be published, in such a way as to allow easy access to the information. Information must be published in a non-proprietary spreadsheet data format, which allows data to be effectively searched, extracted, downloaded and easily published on the internet, for instance in CSV or XML format. The general public must have access to the website without restrictions. No prior user registration must be required to access the website.
58. For schemes in the form of tax or parafiscal levy advantages, the conditions set out in point 56(b) will be considered to be fulfilled if Member States publish the required information on individual aid amounts in the following ranges (in EUR million):
- 0.1 -0.5;
 - 0.5-1;
 - 1-2;
 - 2-5;
 - 5-10;

⁴⁸ State Aid Transparency Public Search, available at:
<https://webgate.ec.europa.eu/competition/transparency/public?lang=en>

10-30;
30-60;
60-100;
100-250;
250 and more.

59. The information referred to in point 56(b) must be published within 6 months from the date the aid was granted, or for aid in the form of tax advantages, within one year from the date the tax declaration is due⁴⁹. In the case of unlawful but compatible aid, Member States will be required to ensure the publication of this information *ex post* within six months from the date of the Commission's decision declaring the aid compatible. In order to allow the enforcement of State aid rules under the Treaty, the information must be available for at least 10 years from the date on which the aid was granted.
60. The Commission will publish on its website the links to the State aid websites referred to in point 57.

3.2.2 Avoidance of *undue negative effects on competition and trade*

61. Article 107(3), point (c), of the Treaty allows the Commission to declare aid to facilitate the development of certain economic activities or of certain economic areas compatible, but only 'where such aid does not adversely affect trading conditions to an extent contrary to the common interest'.
62. The application of this negative condition requires, first, an assessment of the distortive effect of the aid in question on trading conditions. By its very nature, any aid measure will generate distortions of competition and have an effect on trade between Member States as it reinforces the competitive position of the beneficiaries, even if the aid measure is necessary, appropriate, proportionate and transparent.
63. Aid for environmental purposes will, by its very nature, tend to favour environmentally friendly products and technologies at the expense of other, more polluting ones and that effect of the aid will, in principle, not be viewed as an undue distortion of competition, since it addresses market failures that make the aid necessary. In addition, support for climate friendly products and technologies are conducive to the achievement of the European Climate Law objectives for 2030 and 2050. For measures for environmental protection, the Commission will therefore consider the distortive effects on competitors that likewise operate on an environmentally friendly basis, even without aid.
64. The Commission considers that schemes open to a broader range of potential beneficiaries have a more limited distortive effect on competition than support targeted at a limited number of specific beneficiaries only, in particular where the scope of the aid measure includes all competitors willing to deliver the same service, product or benefit.

⁴⁹ Where there is no formal requirement for an annual declaration, 31 December of the year for which the aid was granted will be considered as the granting date for encoding purposes.

65. State aid for environmental and energy objectives may have the unintended effect of undermining market rewards to the most efficient, innovative producers as well as incentives for the least efficient ones to improve, restructure or exit the market. This may also result in inefficient barriers to the entry of more efficient or innovative potential competitors. In the long term, such distortions may stifle innovation, efficiency and the adoption of cleaner technologies. These distortive effects can be particularly important when the aid is granted to projects that provide a limited transitory benefit but lock out cleaner technologies for a longer term, including those necessary to achieve the medium-term and long-term climate targets enshrined under the European Climate Law. This can, for example, be the case for support to certain activities using fossil fuels that provide an immediate reduction of green house gas emissions, but lead to slower emissions reductions in the long term. All other things being equal, the closer the aided investment is in time to the relevant target date, the greater the likelihood that its transitory benefits may be outweighed by the possible disincentives for cleaner technologies. The Commission will therefore take into account these possible short and long term negative effects on competition and trade in its assessment.
66. Aid may also distort competition by strengthening or maintaining substantial market power of the beneficiary. Even where aid does not strengthen substantial market power directly, it may do so indirectly, by discouraging the expansion of existing competitors or inducing their exit or discouraging the entry of new competitors. This needs to be taken into account, in particular where the support measure is targeted at a limited number of specific beneficiaries or where incumbents gained market power prior to market liberalisation, as is for instance sometimes the case in energy markets. This is also relevant in competitive bidding processes in nascent markets, when there is a risk that a player with a strong market position succeeds in most bids and prevents significant new entry.
67. Apart from distortions on the product markets, aid may also give rise to effects on trade and location choice. Those distortions can arise across Member States, either when undertakings compete across borders or when they consider different locations for investment. Aid aimed at preserving economic activity in one region or attracting it away from other regions within the internal market may displace activities or investments from one region into another without any net environmental impact. The Commission will verify that the aid does not result in any manifestly negative effects on competition and trade. For example, aid for environmental and energy objectives that merely leads to a change in location of the economic activity without improving the existing level of environmental protection in the Member States will not be considered compatible with the internal market.

3.3 Weighing the positive effects of the aid against the negative effects on competition and trade

68. As a final step, the Commission will balance the identified negative effects on competition and trading conditions of the aid measure with the positive effects of the planned aid on the supported economic activities, including its contribution to environmental protection and objectives of energy policy and, more particularly, to transition towards environmentally sustainable activities and to the achievement of the legally binding targets under the European Climate Law.

69. ~~In that balancing exercise, the Commission will pay particular attention to Article 3 of Regulation (EU) 2020/852 of the European Parliament and of the Council⁵⁰, including the ‘do no significant harm’ principle, or other comparable methodologies. Furthermore,~~ as part of the assessment of the negative effects on competition and trade, the Commission may take into account, where relevant, negative externalities of the aided activity where such externalities adversely affect competition and trade between Member States to an extent contrary to the common interest by creating or aggravating market inefficiencies including in particular those externalities that may hinder the achievement of climate objectives set under EU law⁵¹.
70. The Commission will consider an aid measure compatible with the internal market only where the positive effects outweigh the negative effects. In cases where the proposed aid measure does not address a well-identified market failure in an appropriate and proportionate way, for example due to the transitory nature of the benefit and the long term distortions it entails as set out in point 65, the negative distortive effects on competition will tend to outweigh the positive effects of the measure. The Commission will therefore be likely to conclude that the proposed aid measure is incompatible.
71. Measures that directly or indirectly involve support to ~~fossil fuels, in particular the most polluting fossil fuels,~~ are unlikely to create positive environmental effects and often have important negative effects because they can increase the negative environmental externalities in the market. ~~The same applies for measures involving new investments in natural gas, unless it is demonstrated that there is no lock-in effect. This will in principle render a positive balancing for such measures unlikely, as further explained in Chapter 4.~~
72. Further factors to be taken into account to determine the overall balance of certain categories of aid schemes in certain cases are::
- (a) a requirement of *ex post* evaluation as described in Chapter 5; in such cases, the Commission may limit the duration of the schemes (normally to four years or less) with a possibility to re-notify their extension afterwards;
 - (b) a requirement - in the absence of a competitive bidding process - to individually notify support projects of a certain size or presenting certain characteristics;
 - (c) a requirement that aid measures be subject to a time limitation.

⁵⁰ ~~Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (OJ L 198, 22.6.2020, p. 13).~~

⁵¹ This could also be the case where the aid distorts the operation of economic instruments put in place to internalise such negative externalities (for example, by affecting price signals given by the Union ETS or a similar instrument).

4. CATEGORIES OF AID

4.1 Aid for the reduction and removal of greenhouse gas emissions including through support for renewable energy

4.1.1 *Rationale*

73. The Union has set binding and ambitious greenhouse gas emissions reduction targets in law for 2030 and 2050. [reference to EU Climate Law once adopted]. State aid may be necessary to contribute to the achievement of these Union targets and related national targets.

4.1.2 *Scope and supported activities*

74. This Section lays down the compatibility rules for aid measures primarily aimed at reducing greenhouse gas emissions, including aid for the production of renewable and low carbon energy, aid for energy efficiency including high-efficiency cogeneration, aid for carbon capture, storage and use, and aid for the reduction or avoidance of emissions resulting from industrial processes. It also covers support for the removal of greenhouse gases from the environment. This Section does not apply to measures whose primary objective is not the reduction or removal of greenhouse gas emission. Where a measure contributes to both the reduction of greenhouse gas emissions and the prevention or reduction of pollution other than from greenhouse gas emissions, the compatibility of the measure will be assessed on the basis of this Section or Section 4.5, depending on which of the two objectives is predominant.
75. This Section also covers dedicated infrastructure projects (including for hydrogen and other low-carbon gases, and as well as CCS/CCU) that do not fall under the definition of energy infrastructure.
76. Support for biofuels, bioliquids, biogas and biomass fuels can only be approved to the extent that the aided fuels are compliant with the sustainability and greenhouse gases emissions saving criteria in Directive (EU) 2018/2001 and its implementing or delegated acts.
77. Indirect land-use change (ILUC) occurs when the cultivation of crops for biofuels, bioliquids and biomass fuels displaces production of crops for food and feed purposes. Such additional demand increases the pressure on land and can lead to the extension of agricultural land into areas with high-carbon stock, such as forests, wetlands and peatland, causing additional greenhouse gas emissions. This is why Directive (EU) 2018/2001 limits food and feed crops-based biofuels, bioliquids and biomass fuels. The Commission considers that certain aid measures can aggravate indirect negative externalities. The Commission will therefore, in principle, consider that support for biofuels, bioliquids, biogas and biomass fuels exceeding the caps defining their eligibility for the calculation of the gross final consumption of energy from renewable sources in the Member State concerned in accordance with Article 26 of that Directive, do not produce positive effects which outweigh the negative effects of the measure. Furthermore, the Commission will verify whether Member States took into account in the design of their support mechanisms the need to avoid distortions on the raw material markets from biomass support, in particular for forest biomass.

4.1.3 *Minimisation of distortions of competition and trade*

4.1.3.1 Necessity of the aid

78. Points 33, 34, 35 and 36 do not apply to measures for the reduction of greenhouse gas emissions. The Member State must identify the policy measures already in place to reduce greenhouse gas emissions. However, while the Union's ETS and related policies and measures internalise some of the costs of greenhouse gas emissions, they may not yet fully internalise those costs.
79. Member States should demonstrate that aid is needed for the proposed activities as required under point 37, taking into account relevant costs and revenues including those linked to the ETS and related policies and measures identified in point 78. Where the Member State demonstrates that there is a need for aid, then the Commission presumes that a residual market failure remains, which can be addressed through aid for decarbonisation, unless it has evidence to the contrary.
80. Member States should ensure that aid remains necessary for the duration of schemes that run for more than one year by updating their analysis of relevant costs and revenues annually or, for schemes involving less frequent granting, before aid is granted, to ensure that aid remains necessary for each eligible category of beneficiary. Where aid is no longer required for a category of beneficiary, this category should be removed before further aid is granted⁵².

4.1.3.2 Appropriateness

81. Section 3.2.1.2 does not apply to measures for the reduction of greenhouse gas emissions. The Commission presumes that State aid can, in principle, be an appropriate measure in achieving decarbonisation goals, given that other policy instruments are typically not sufficient to achieve those goals, and provided all other compatibility conditions are met. Given the scale and urgency of the decarbonisation challenge, a variety of instruments, including direct grants, may be used.

4.1.3.3 Eligibility

82. Decarbonisation measures targeting specific activities which compete with other unsubsidised activities can be expected to lead to greater distortions of competition, compared to measures open to all competing activities. Therefore, Member States should give reasons for measures which do not include all technologies and projects that are in competition – for example all projects operating in the electricity market, or all undertakings producing substitutable products and which are technically capable of contributing efficiently to greenhouse gas emissions reductions⁵³. These reasons should be based on objective considerations linked, for example, to efficiency or costs or other relevant circumstances. Such reasons may draw on evidence gathered in the public consultation pursuant to Section 4.1.3.4 where applicable.

⁵² This would not affect the entitlement to receive aid already granted (e.g. under a 10 year contract).

⁵³ The Commission will not generally require measures to be opened across borders, although this can help alleviate competition concerns.

83. The Commission will assess the reasons given as justification and will, for instance, consider that a more limited eligibility does not unduly distort competition where:
- (a) a measure targets a specific sectoral or technology based target established in Union law, such as a renewable energy or energy efficiency scheme⁵⁴;
 - (b) a measure aims specifically to support demonstration projects;
 - (c) a measure aims to address not only decarbonisation but also air quality or other pollution;
 - (d) a Member State provides evidence that eligible sectors or innovative technologies have the potential to make an important contribution to environmental protection and deep decarbonisation in the longer term, particularly in terms of cost effectiveness;
 - (e) a measure is required to achieve diversification necessary to avoid exacerbating issues related to network stability⁵⁵;
 - (f) a more selective approach can be expected to lead to lower costs of achieving environmental protection (for example through reduced grid integration costs), and/or result in less distortion of competition.
84. Member States should keep eligibility rules and any rules related thereto under review to ensure that reasons provided to justify a more limited eligibility continue to apply for the lifetime of each scheme, that is to say, to ensure that any limitations on eligibility can still be justified when new technologies or approaches are developed or more data becomes available⁵⁶.

4.1.3.4 Public consultation

85. Prior to the notification of aid, other than in duly justified exceptional circumstances, Member States must consult publicly on measures to be notified under this Section. The obligation to consult does not apply in respect of amendments to already approved measures that do not alter their scope or eligibility, and the cases referred to in point 86. To determine whether a measure is justified, bearing in mind the criteria in these guidelines, the following public consultation is required:

⁵⁴ Eligibility in such a case should only be limited in line with relevant definitions where available in the sectoral legislation. For example, renewable energy sources--specific schemes should be open to all technologies that meet the definition of 'renewable energy sources' in Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (OJ L 328, 21.12.2018, p. 8).

⁵⁵ In such a case, the Member State should demonstrate that appropriate steps have first been taken through market and ancillary service design to expose investors to risks associated with curtailment and reward locational and technology choices that support grid stability. Where the Member State identifies a persistent local security of supply problem that cannot be solved in the medium term with improvements to market design or sufficient network reinforcement, a measure to address this concern should be designed and assessed under Section 4.8.

⁵⁶ This point is without prejudice to Article 4 of Commission Regulation (EC) No 794/2004 of 21 April 2004 implementing Council Regulation (EU) 2015/1589 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union (OJ L 140, 30.4.2004, p. 1).

- (a) for measures where the estimated average annual aid to be granted is \geq EUR 150 million per year, a public consultation of at least 8 weeks' duration, covering:
 - (i) eligibility;
 - (ii) method and estimate of subsidy per tonne of CO₂ equivalent emissions avoided (per reference project);
 - (iii) proposed use and scope of competitive bidding processes and any proposed exceptions;
 - (iv) main parameters for the aid allocation process⁵⁷ including for enabling competition between different types of beneficiary⁵⁸;
 - (v) main assumptions informing the quantification used to demonstrate the incentive effect, necessity and proportionality;
 - ~~(vi) where new investments in natural gas based generation or industrial production may be supported, proposed safeguards to ensure compatibility with the Union's climate targets (see point 110).~~
- (b) for measures where the estimated average annual aid to be granted is $<$ EUR 150 million per year, a public consultation of at least 4 weeks' duration, covering:
 - (i) eligibility;
 - (ii) proposed use and scope of competitive bidding processes and any proposed exceptions;
 - ~~(iii) here new investments in natural gas based generation or industrial production may be supported, proposed safeguards to ensure compatibility with the Union's climate targets (see point 110).~~

- 86. No public consultation is required for measures falling under point 85(b) where competitive bidding processes are used ~~and the measure does not support investments in fossil-fuel based energy generation or industrial production.~~
- 87. Consultation questionnaires must be published on a public website. Member States must publish a response to the consultation summarising and addressing the input received. This should include explaining how possible negative impacts on competition have been minimised through the scope or eligibility of the proposed measure. Member States must provide a link to their consultation response as part of the notification of aid measures under this Section.

⁵⁷ For example, the lead-time between the competitive process and the delivery period, bid/offer rules, pricing rules.

⁵⁸ For example, if there are different contract durations, different methodologies for calculating the amount of eligible capacity / output from different technologies, different methodologies for calculating or paying subsidies.

88. In exceptional and duly justified cases, the Commission might consider alternative methods of consultation provided that the views of interested parties are taken into account in the (continued) implementation of the aid. In such cases, the consultation might have to be combined with corrective actions to minimise possible distortive effects of the measure.

4.1.3.5 Proportionality

89. Aid for reducing greenhouse gas emissions should in general be granted through a competitive bidding process as described in points 48 and 49.
90. The bidding process should, in principle, be open to all eligible beneficiaries to enable a cost effective allocation of aid and reduce competition distortions. However, the bidding process can be limited to one or more specific categories of beneficiary where evidence, including any relevant evidence gathered in the public consultation, is provided, showing for example that:
- (a) a single process open to all eligible beneficiaries would lead to a suboptimal result or not allow the achievement of the objectives of the measure; that justification may refer to the criteria in point 83;
 - (b) the level of support that different categories of beneficiary are expected to require deviates significantly⁵⁹; in that case, separate competitive bidding processes may be used so that categories of beneficiary with similar costs compete against each other.
91. Where multiple categories of beneficiary expected to require a level of support that deviates significantly are put into a single competitive bidding process, Member States should consider the potential for overcompensation of cheaper technologies. This will also be taken into account by the Commission in its assessment. Where appropriate, bid caps may be required to limit the maximum bid from individual bidders in particular categories. Any bid caps should be justified with reference to the quantification for reference projects referred to in points 50 and 51.
92. Exceptions from the requirement to allocate aid and determine the aid level through a competitive bidding process can be justified where evidence, including that gathered in the public consultation, is provided that one of the following applies:
- (a) there is insufficient potential supply to ensure competition; in that case, the Member State must demonstrate that it is not possible to increase competition by reducing the budget or expanding the eligibility of the scheme;
 - (b) beneficiaries are small projects, defined as follows:
 - (i) for electricity generation or storage projects – projects below the threshold in Article 5 of Regulation (EU) 2019/943;

⁵⁹ Generally, this would be the case where costs differ by more than 15 %.

- (ii) for electricity consumption – projects with a maximum demand less than 400kW;
 - (iii) for heat generation and gas production technologies – projects below 400kW installed capacity.
- 93. For an individual aid award without a competitive bidding process, Member States must justify the proposed aid levels based on an individual business plan for the specific project to be aided, including all the elements listed in points 50 and 51.
- 94. Member States may also use competitive certificates or supplier obligation schemes to establish the aid amount and allocate aid, provided:
 - (a) demand in the scheme is set below potential supply;
 - (b) the buyout or penalty price that applies to a consumer or supplier that has not bought the number of certificates required (that is to say, the price which constitutes the maximum that would be paid for support) is set at a sufficiently high level to incentivise compliance with the obligation. However, the penalty price should be based on the quantification referred to in points 50 and 51 to avoid that an excessively high level leads to overcompensation.
- 95. Member States may also design support schemes targeting decarbonisation in the form of reductions in taxes or parafiscal levies. The application of a competitive bidding process is not obligatory for such schemes. However, such aid must be granted, in principle, in the same way for all eligible undertakings operating in the same sector of economic activity that are in the same or similar factual situation in respect of the aims or objectives of the aid measure. The notifying Member State must put in place an annual monitoring mechanism to verify that the measure is still necessary.
- 96. When aid is granted in the form of operating aid or a tax reduction to support biofuels, bioliquids or biogas, and there is a quota or supply obligation which effectively sets a separate market price for biofuels, the aid amount must not exceed the difference between their production costs and that market price. Production costs may include a reasonable profit.

4.1.4 *Avoidance of undue negative effects on competition and trade and balancing*

- 97. Sections 3.2.2 and 3.3 do not apply to measures for the reduction of greenhouse gas emissions.
- 98. The subsidy per tonne of CO₂ equivalent emissions avoided must be estimated for each beneficiary or reference project, and the assumptions and methodology for that calculation provided. To the extent possible, this should seek to identify the net emissions reduction from the activity, taking into account life-cycle emissions created or reduced. To enable a comparison between the costs of different environmental

protection measures, the methodology should usually be similar for all measures promoted by a Member State⁶⁰.

99. To deliver positive environmental effects in relation to decarbonisation, the aid must not merely displace the emissions from one sector to another and must deliver overall greenhouse gas emissions reductions. Short and long term interactions with any other relevant policies or measures, including the Union's ETS, should be considered.
100. To avoid the risk of double subsidies and ensure the verification of the greenhouse gas emissions reductions, aid for the decarbonisation of industrial activities must reduce the emissions directly resulting from that industrial activity. Aid for improvements of the energy efficiency of industrial activities must improve energy efficiency of the beneficiaries' activities.
101. To avoid a budget being allocated to projects that are not realised, potentially blocking new market entry, Member States must demonstrate that reasonable measures will be taken to ensure that projects granted aid will actually be developed, for example setting clear deadlines for project delivery, checking project feasibility as part of pre-qualification for receiving aid, requiring collateral to be paid by participants, or monitoring project development and construction.
102. Beneficiaries of the measure should be exposed to risks that they can contribute to managing, for example risks associated with the curtailment of renewable energy linked to periods of excess production or to insufficient transmission.
103. Aid for decarbonisation can take a variety of forms including up front grants and contracts for ongoing aid payments such as contracts for difference⁶¹. Aid which covers costs mostly linked to operation rather than investment should only be used where the Member State clearly demonstrates that this results in more environmentally friendly operating decisions.
104. The aid must be designed to prevent any undue distortion to the efficient functioning of markets and, in particular, preserve efficient operating incentives and price signals. For instance, beneficiaries should remain exposed to price variation and market risk, unless this undermines the attainment of the objective of the aid. In particular, beneficiaries should not be incentivised to offer their output below their marginal costs and must not receive aid for production in any periods in which the market value of that production is negative⁶².

⁶⁰ The principles for the calculation of greenhouse gas emissions reductions as used for the EU Innovation Fund provide a useful point of reference, available at: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/innovfund/wp-call/call-annex_c_innovfund-lsc-2020-two-stage_en.pdf.

⁶¹ A contract for difference entitles the beneficiary to a payment equal to the difference between a fixed 'strike' price and a reference price – such as a market price, per unit of output. They have been used for electricity generation measures in recent years but could also involve a reference price linked to the ETS – i.e. 'carbon' contracts for difference. Contracts for difference may also involve paybacks from beneficiaries to taxpayers or consumers for periods in which the reference price exceeds the strike price.

⁶² Small scale renewable electricity installations may benefit from direct price support that covers the full costs of operation and does not require them to sell their electricity on the market, in line with the

105. The Commission will carry out a case-by-case assessment for measures that include dedicated infrastructure projects. In its assessment, the Commission will consider, *inter alia*, the size of the infrastructure in relation to the relevant market, the impact on the likelihood of additional market-based investments, the extent to which the infrastructure is initially intended for an individual user or group of users and whether a credible plan or firm commitment for connecting to a wider network exists, the duration of any derogations or exemptions from internal market legislation, the structure of the relevant market and the position of the beneficiaries in that market.
106. For instance, where the infrastructure initially connects only a limited number of users, the distortive effect can be mitigated where it is part of a plan to develop a wider Union network on the basis of the following criteria:
- (a) the accounting for the infrastructure should be separated from any other activity and costs of access and usage made transparent;
 - (b) unless this undermines the attainment of the objective of the aid, aid should be subject to the opening up of the infrastructure to third parties at fair, reasonable and non-discriminatory terms (including public calls for connection requests at equivalent conditions);
 - (c) the advantage that the beneficiaries derive until such wider development occurs may need to be offset, for instance by way of contributing to the further extension of the network;
 - (d) the advantage derived by the dedicated users may need to be limited and/or shared with other players.
107. ~~To avoid undermining the objective of the measure or other Union environmental protection objectives, incentives must not be provided for the generation of energy that would displace less polluting forms of energy. For example, where cogeneration based on non-renewable sources is supported, or where biomass is supported, they must not receive incentives to generate electricity or heat at times when this would mean zero air pollution renewable energy sources would be curtailed.~~
108. Aid for decarbonisation may unduly distort competition where it displaces investments into cleaner alternatives that are already available on the market, or where it locks in certain technologies, hampering the wider development of a market for and the use of cleaner solutions. The Commission will therefore also verify that the aid measure does not stimulate or prolong the consumption of fossil-based fuels and energy⁶³, thereby hampering the development of cleaner alternatives and significantly reducing the overall environmental benefit of the investment. Member States should explain how they intend to avoid that risk, including by way of binding commitments to use mainly renewable or low carbon fuels or phase out fossil fuel sources.

exemption in Art 4.3 of Directive (EU) 2018/2001. Installations shall be considered as small scale if their capacity is below the applicable threshold in Article 5 of the Regulation (EU) 2019/943.

⁶³ Including energy carriers that do not emit at the tailpipe but are produced in a carbon-intensive process.

109. The Commission considers that certain aid measures have negative effects on competition and trade that are unlikely to be offset. In particular, certain aid measures may aggravate market failures, creating inefficiencies to the detriment of consumers and social welfare. For instance, measures that incentivise new investments in energy or industrial production based on the most polluting fossil fuels, such as coal, diesel, lignite, oil, peat and oil shale, increase the negative environmental externalities in the market. They will not be considered to have any positive environmental effects, given the incompatibility of these fuels with the Union's climate targets.
110. Similarly, measures that incentivise new investments in energy or industrial production based on natural gas may reduce greenhouse gas emissions and other pollutants in the short term but aggravate negative environmental externalities in the longer term, compared to alternative investments. For investments in natural gas to be seen as having positive environmental effects, Member States must explain how they will ensure that the investment contributes to achieving the Union's 2030 climate target and 2050 climate neutrality target. In particular, the Member States should explain how a lock in of this gas-fired energy generation or gas-fired production equipment will be avoided. ~~For example, this may include binding commitments by the beneficiary to implement decarbonisation technologies such as CCS/CCU or substitute natural gas by renewable or low carbon gas or to close the plant on a timeline consistent with the Union's climate targets~~⁶⁴.
111. Where risks of additional competition distortions are identified or measures are particularly novel or complex, the Commission may impose conditions as set out in point 72.
112. For individual aid measures or schemes benefitting a particularly limited number of beneficiaries or an incumbent beneficiary, Member States should, in addition, demonstrate that the proposed aid measure will not lead to increased market power.
113. Provided that all other compatibility conditions are met, the Commission will typically find the balance for decarbonisation measures to be positive (that is to say, distortions to the internal market are outweighed by positive effects) in the light of their contribution to climate change mitigation, ~~which is defined as an environmental objective in Regulation (EU) 2020/852, as long as there are no obvious indications of non-compliance with the do no significant harm principle.~~

⁶⁴ In addition, where a project involves investment in a natural gas based energy generation or industrial production installation the costs of this installation would not generally be eligible for State aid under this section, since this would usually be considered the counterfactual investment that would take place in the absence of aid. Rather, the additional elements that deliver emissions reductions, such as CCS or extra costs associated with cogeneration, would be eligible for aid.

4.2 Aid for the improvement of the energy and environmental performance of buildings

4.2.1 Rationale for the aid

114. Measures aimed at improving the energy and environmental performance of buildings target negative externalities by creating individual incentives to attain targets for energy savings and for the reduction of greenhouse gas and air pollutant emissions. In addition to the general market failures identified in Chapter 3, specific market failures may arise in the field of energy and environmental performance in buildings. For instance, when renovation works in buildings are considered, the benefits of energy and environmental performance measures do not typically accrue only with the building owner, who generally bears the renovation costs, but also with the tenant. The Commission therefore considers that State aid may be needed to promote investments aimed at improving the energy and environmental performance of buildings.

4.2.2 Scope and supported activities

115. Aid may be granted for the improvement of the energy efficiency of buildings.

116. This aid may be combined with aid for any or all of the following measures:

- (a) the installation of integrated on-site renewable energy installations generating electricity, heat or cold;
 - (b) the installation of equipment for the storage of the energy generated by on-site renewable energy installations;
 - (c) the construction and installation of recharging infrastructure for use by the building users, and related infrastructure, such as ducting, where the car park is located either inside the building or it is physically adjacent to the building;
 - (d) the installation of equipment for the on-site digitalisation of the building, in particular to increase its smart readiness. Eligible investments may include interventions limited to passive in-house wiring or structured cabling for data networks and, if necessary, the ancillary part of the passive network on the private property outside the building. Wiring or cabling for data networks outside the private property is excluded;
 - (e) other investments that improve the energy or environmental performance of the building, including investments in green roofs and equipment for the recovery of rain water.
117. Aid may also be granted for the improvement of the energy efficiency of the heating or cooling equipment inside the building. Aid for the improvement of the energy efficiency of production processes and for energy-generating equipment used to power machinery is not covered by this Section but may be covered by Section 4.1. Aid for heating or cooling equipment related to district heating systems is covered by Section 4.10.

118. The aid must induce:

- (a) in the case of renovation of existing buildings, energy performance improvements leading to a reduction in primary energy demand of at least 20 % as compared to the situation prior to the investment. By way of derogation, where the improvement is part of a staged renovation, the latter must lead to an overall reduction in primary energy demand of at least 30 % as compared to the situation prior to the investment, over a period of 3 years;
- (b) in the case of new buildings, energy performance improvements leading to at least 10 % of primary energy savings compared to the threshold set for the nearly zero-energy building requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council⁶⁵.

119. Aid for the improvement of the energy performance of buildings may also be granted to SMEs and small mid-caps that are providers of energy performance improvement measures for the facilitation of energy performance contracting within the meaning of Article 2, point (27) of Directive 2012/27/EU.

4.2.3 *Incentive effect*

120. The requirements set out in points 121 and 122 apply in addition to those set out in Section 3.1.2.

121. The Commission considers that, in principle, aid to projects with a payback period of less than five years does not have an incentive effect. However, the Member State may provide evidence to demonstrate that aid is needed to trigger a change in behaviour, even in the case of projects with a shorter payback period.

122. Aid for covering the costs of adapting to Union standards that are adopted but not yet entered in force will be considered to have an incentive effect if the investment is implemented and finalised at least 18 months before the Union standards enter into force.

4.2.4 *Minimisation of distortions on competition and trade*

4.2.4.1 *Appropriateness*

123. The requirement set out in point 124 applies in addition to the requirements set out in Section 3.2.1.2.

124. Aid for the facilitation of energy performance contracting may take the form of a loan or guarantee to the provider of the energy performance improvement measures under an energy performance contract, or consist in a financial product aimed to refinance the respective provider (for example, factoring or forfeiting).

⁶⁵ Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13.).

4.2.4.2 Proportionality

125. The eligible costs correspond exclusively to the investment costs directly linked to the achievement of a higher level of energy or environmental performance.
126. The basic aid intensity must not exceed 30 % of the eligible costs.
127. As regards aid granted for improving the energy performance of existing buildings, the aid intensity may be increased by 15 percentage points where the energy performance improvements lead to a reduction of primary energy demand of at least 40 %.
128. The aid intensity may be increased by 20 percentage points for aid granted to small undertakings or by 10 percentage points for aid granted to medium-sized undertakings.
129. The aid intensity may be increased by 15 percentage points for investments located in assisted areas fulfilling the conditions of Article 107(3), point (a), of the Treaty or by 5 percentage points for investments located in assisted areas fulfilling the conditions of Article 107(3), point (c), of the Treaty.
130. Exceptionally, depending on the specific characteristics of the measure, the Member State may also demonstrate, based on a funding gap analysis, as set out in points 47, 50 and 51, that a higher aid amount is required. The aid amount must not exceed the funding gap, as set out in points 50 and 51.
131. Where the aid is granted following a competitive bidding process conducted in accordance with the criteria in points 48 and 49, the aid amount is considered proportionate.
132. Aid granted in the form of financial instruments is not subject to the maximum aid intensities set out in points 126 to 130. Where the aid is granted in the form of a guarantee, it should not exceed 80 % of the underlying loan. The repayment by the building owners to the energy efficiency or renewable energy fund or other financial intermediary must at least equal the nominal value of the loan.

4.2.5 Avoidance of undue negative effects on competition and trade and balancing

133. The requirements set out in points 134 to 136 apply in addition to those set out in Section 3.2.2.
134. Measures that incentivise new investments in natural gas-fired equipment aimed at improving the energy efficiency of buildings may lead to a reduction in energy demand in the short run but aggravate negative environmental externalities in the longer run, compared to alternative investments. Moreover, aid for the installation of natural gas-fired equipment may unduly distort competition where it displaces investments into cleaner alternatives that are already available on the market, or where it locks in certain technologies, hampering the wider development of a market for and the use of cleaner technologies. ~~The Commission considers that the positive effects of measures that create such a lock-in effect are unlikely to outweigh their negative effects.~~ As part of its assessment, the Commission will consider whether the natural gas-fired equipment replaces energy equipment using the most polluting fossil fuels, such as oil and coal.

135. Alternatives to energy equipment using the most polluting fossil fuels (such as oil and coal) are already available on the market. In this context, aid for the installation of energy-efficient energy equipment using such fuels is not considered to yield the same positive effects as aid for the installation of cleaner energy equipment. First, the marginal improvement in terms of reduction in energy demand is counterbalanced by the greater carbon emissions linked to the use of fossil fuels. Second, the granting of aid for installing oil-fired or coal-fired energy equipment entails a significant risk of locking in fossil-based technologies and of displacing investments into cleaner and more innovative alternatives available on the market by shifting the demand away from them. This would also discourage the further development of the market for clean, future-proof non-fossil-based technologies. The Commission therefore considers that the negative effects of aid for oil-fired or coal-fired energy equipment are unlikely to be offset.
136. Where the aid is granted in the form of an endowment, equity, a guarantee or a loan to an energy efficiency or renewable energy fund or another financial intermediary, the Commission will verify that conditions are in place to ensure that the energy efficiency or renewable energy fund or other financial intermediaries do not receive any undue advantage and apply a commercially sound investment strategy for the purpose of implementing the energy performance aid measure. In particular, the following conditions must be fulfilled:
- (a) financial intermediaries or fund managers must be selected through an open, transparent and non-discriminatory process which is made in accordance with applicable Union and national laws;
 - (b) conditions are in place to ensure that financial intermediaries, including energy efficiency or renewable energy funds, are managed on a commercial basis and will ensure profit-driven financing decisions;
 - (c) the managers of the energy efficiency or renewable energy fund or other financial intermediaries pass the advantage on to the largest extent possible to the final beneficiaries (the building owners or tenants), in the form of higher volumes of financing, lower collateral requirements, lower guarantee premiums or lower interest rates.

4.3 Aid for clean mobility

137. Sections 4.3.1 and 4.3.2 set out the conditions under which State aid for clean mobility in the air, road, railway, inland waterway and sea and coastal passenger and freight transport sector can facilitate the development of an economic activity in an environmentally friendly manner, without adversely affecting trading conditions to an extent contrary to the common interest of the Union.

4.3.1 *Aid for the acquisition and leasing of clean transport vehicles and clean service equipment and for the retrofitting of vehicles*

4.3.1.1 Rationale for the aid

138. To achieve the Union's legally binding climate neutrality objective by 2050, the Green Deal Communication established the goal to reduce transport emissions by at least 90 % compared to 1990 levels by 2050. The Commission's Communication on a Sustainable and Smart Mobility Strategy⁶⁶ confirms the ambition of the Green Deal and sets out various milestones to show the sectors a path towards achieving that objective through the decarbonisation of both the individual modes of transport and the whole transport chain.⁶⁷
139. While existing policies may provide incentives for the uptake of clean transport vehicles, by setting binding CO₂ emission targets for the new road vehicle fleet of manufacturers⁶⁸, by internalising the climate and environmental externalities⁶⁹, or by boosting vehicle demand through public procurement⁷⁰, they may not be sufficient to address in full the market failures affecting the sector concerned. Despite existing policies, certain market barriers and market failures may remain unaddressed, including the affordability of clean transport vehicles compared to conventional vehicles, the limited availability of recharging or refuelling infrastructure and the existence of environmental externalities. Member States may therefore provide aid to address those residual market failures and support the development of the clean mobility sector.

4.3.1.2 Scope and activities supported

140. Aid may be granted for the acquisition or leasing of new or used clean transport vehicles for air, road, railway, inland waterway, sea, and coastal passenger and freight transport, and for the acquisition and leasing of clean groundhandling equipment and clean terminal equipment.
141. Aid may also be granted for the retrofitting of transport vehicles, allowing them to qualify as clean transport vehicles.

4.3.1.3 Incentive effect

142. The conditions set out in points 143 to 147 apply in addition to the conditions set out in Section 3.1.2.

⁶⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Sustainable and intelligent mobility strategy: steering European transport for the future', COM/2020/789 final.

⁶⁷ Those include among others the ambition to have at least 30 million zero-emission cars, 80 000 zero-emission lorries in operation on the road by 2030 and that by 2050 nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission.

⁶⁸ Regulation (EU) 2019/631 and Regulation (EU) 2019/1242.

⁶⁹ For instance, through Directive 1999/62/EC of the European Parliament and of the Council of 17 June 1999 on the charging of heavy goods vehicles for the use of certain infrastructures (OJ L 187, 20.7.1999, p. 42) and the Union's ETS.

⁷⁰ For instance, through Directive (EU) 2019/1161.

143. The Member State must provide a credible counterfactual scenario in the absence of the aid. A counterfactual scenario corresponds to an investment with the same capacity, lifetime and, where appropriate, other relevant technical characteristics as the environmentally friendly investment. Where the investment concerns the acquisition or leasing of clean transport vehicles, the counterfactual scenario generally is the acquisition or the leasing of vehicles of the same category and the same capacity, at least complying with Union standards that would be acquired or leased without the aid.
144. Another counterfactual scenario might be maintaining the existing vehicle in operation for a period corresponding to the lifetime of the environmentally friendly investment. In that case, the discounted maintenance, repair and modernisation costs over that period should be taken into account.
145. In certain cases, the counterfactual scenario may consist in a later replacement of the transport vehicle, in which case the discounted value of the transport vehicle should be taken into account and the difference in the respective economic lifetime of equipment should be evened out. This approach may be particularly relevant for transport vehicles that have a longer economic life, such as vessels, trains and aircraft.
146. In the case of transport vehicles subject to leasing arrangements, the discounted value of the leasing of the environmentally friendly equipment should be compared with the discounted value of the acquisition or leasing of the less environmentally friendly transport vehicle that would be used in the absence of the aid.
147. In limited cases, the environmentally friendly investment may consist in equipment that are added to an existing vehicle (for example, retrofitting of pollution control systems). In that case, the eligible costs will consist of the total investment costs.

4.3.1.4 Minimising distortions of competition and trade

4.3.1.4.1 Appropriateness

148. The requirements set out in points 149 and 150 apply in addition to those set out in Section 3.2.1.2.
149. The verification of appropriateness among alternative policy instruments should take into consideration the potential for other types of interventions than State aid to stimulate the development of the clean mobility market and their expected impact compared to that of the proposed measure. Moreover, the assessment of the appropriateness of the aid should take into account the impact of alternative measures aimed at achieving the same objective, such as that of an ETS or of regulatory obligations (including the existence of low emission zones in the Member State concerned) and of public procurement rules, such as those established by the Directive (EU) 2019/1161.
150. Aid for the acquisition and leasing of clean transport vehicles, and for the retrofitting of transport vehicles allowing them to qualify as clean transport vehicles, may be granted in any form, including grants, loans or guarantees. The Member State must justify its choice of aid instrument and explain why less distortive aid instruments would not deliver equally efficient outcomes.

4.3.1.4.2 Proportionality

151. The aid must not exceed the cost necessary to facilitate the development of the economic activity at issue in a manner that increases the level of environmental protection (that is to say, through the shift from conventional to clean transport vehicles), compared to the counterfactual scenario in the absence of aid. State aid may be considered proportionate where conditions set out in points 152 to 159 are met.
152. The net extra costs (eligible costs) correspond to the difference between the total cost of ownership of the clean transport vehicles foreseen to be acquired or leased with the State aid and the total cost of ownership in the counterfactual scenario.
153. Costs that are not directly linked to the achievement of a higher level of environmental protection will not be eligible for support.
154. As regards the retrofitting of vehicles allowing them to qualify as clean vehicles, in accordance with point 146, the eligible costs are the total costs of the retrofitting, assuming that in the counterfactual scenario the vehicles retain the same economic life in the absence of the retrofitting.
155. The aid must be granted following a competitive bidding process conducted in accordance with the criteria in points 48 and 49.
156. If criteria other than the aid amount requested by the applicant are included in the context of the competitive bidding process, point 49 applies. The selection criteria may, for instance, relate to the expected environmental benefits of the investment in terms of CO₂ equivalent or other pollutant reductions throughout its lifetime. In such cases, to facilitate the identification of the environmental benefits, the Member State may require the applicants to indicate in their bids the expected level of emission reductions stemming from the investment, compared to the level of emissions of a comparable vehicle complying with Union standards, where applicable. Environmental criteria used in the competitive bidding process may also include life-cycle considerations such as the environmental impact of the end-of-life management of the product.
157. The design of the competitive bidding process must ensure that sufficient incentives remain for applicants to bid for projects concerning the acquisition of zero-emission transport vehicles, insofar as these are available in that transport mode, which are generally more expensive than less environmental friendly alternatives. That includes ensuring that the application of the selection criteria does not put those projects at a disadvantage compared to other clean transport vehicles, which do not qualify as zero-emission. For example, environmental criteria may be designed as premiums allowing a higher score to be assigned to projects bringing environmental benefits beyond those deriving from the eligibility requirements or primary objective of the scheme.
158. By way of derogation from points 155, 156 and 157, where the expected number of participants is not sufficient to ensure effective competition or avoid strategic bidding or where a competitive bidding process, as described in points 48 and 49, cannot be organised, the aid may be granted without a competitive bidding process. In such cases, the basic aid intensity must not exceed 40 % of the eligible costs. This aid intensity may be increased by 10 percentage points for zero-emission transport vehicles; and by 10

percentage points for medium-sized enterprises or by 20 percentage points for small enterprises.

159. Exceptionally, depending on the specific characteristics of the measure, the Member State may also demonstrate, based on a funding gap analysis, as set out in points 47, 50 and 51, that a higher aid amount is required. In such a case, the Member State must conduct an *ex post* monitoring to verify the assumptions made about the level of aid required and put in place a claw-back mechanism, as set out in point 53. The aid amount must not exceed the funding gap, as set out in points 50 and 51.

4.3.1.5 Avoidance of undue negative effects on competition and trade and balancing

160. The requirements set out in points 161 to 166 apply in addition to those set out in Section 3.2.2.
161. The Commission considers that certain aid measures have negative effects on competition and trade that are unlikely to be offset. In particular, measures that incentivise new investments in natural gas-fuelled (including CNG and LNG) transport vehicles may lead to a reduction in greenhouse gas emissions and other pollutants in the short run but aggravate negative environmental externalities in the longer run, compared to alternative investments. In addition, aid for the acquisition of clean transport vehicles may unduly distort competition where it displaces investments into cleaner alternatives that are already available on the market, or where it locks in certain technologies, hampering the wider development of a market for and the use of cleaner technologies. Therefore, in those cases, the Commission considers that the negative effects on competition of aid for the acquisition or leasing of natural gas-fuelled clean transport vehicles such as CNG and LNG vehicles are unlikely to be offset.
162. Aid for the acquisition or leasing of CNG and LNG vehicles may be regarded as not creating long-term lock-in effects and not displacing investments into cleaner technologies if, at the moment when the Member State notifies the Commission of its plans to implement the aid measure or when the aid measure is implemented, the Member State demonstrates that cleaner alternatives are not readily available on the market and are not expected to be available in the short term⁷¹. The aid may also be regarded as not having lock-in effects or displacing investments into cleaner technologies where the Member State commits to ensure that those vehicles would be operated using blending of biogas or renewable gaseous transport fuels of non-biological origin (minimum 20%).
163. Alternatives to vehicles using the most polluting fossil fuels, (such as diesel or liquid petroleum gas (LPG)) are already available on the market for use in the road transport, inland and sea and coastal water transport, and railway transport sectors. Therefore, aid for the acquisition or leasing of those vehicles, even new generation vehicles going beyond Union standards where applicable, is not considered to yield the same positive effects as aid for the acquisition or leasing of clean vehicles with lower direct (tailpipe/exhaust) CO₂ emissions. Firstly, the marginal improvement in terms of direct

⁷¹ For such an assessment, the Commission will generally consider a period of four years following the notification or the implementation of the aid measure. It will base its assessment on independent market studies submitted by the Member State or on any other appropriate evidence.

CO₂ and pollutant emission reduction is counterbalanced by the continuation of carbon emissions linked to the use of fossil fuels. Secondly, the granting of aid for acquiring those types of vehicles entails a significant risk of locking in fossil-based technologies and displacing investments into cleaner alternatives available on the market by shifting the demand away from non-fossil-based alternative fuel vehicles. This would also discourage the further development of the market for clean, future-proof non-fossil-based technologies. The Commission therefore considers that the negative effects on competition of aid for vehicles using the most polluting fossil fuels, such as diesel or LPG, are unlikely to be offset.

164. When assessing the distortion of competition of aid for the acquisition of clean transport vehicles, the Commission will consider whether bringing into service new transport vehicles would result in or aggravate existing market failures, such as overcapacity in the sector concerned.
165. As regards rail transport, in view of the additional capacity needs related to the targeted increase in the use of this transport mode, Member States must ensure that aid does not result in the premature scrapping of zero-emission rolling stock. To that end, zero-emission rolling stock that, as a result of the aid, is no longer used should be made available on the market during a minimum period of three months by way of a well-publicised, open, transparent, non-discriminatory and unconditional sale process, at market price.
166. As regards air transport the Member State must ensure that, where it is granted to an undertaking already active in the sector concerned, the aid is granted for the replacement of a less environmentally friendly aircraft with a clean aircraft in a comparable aircraft class and that it does not result in fleet expansion of the beneficiary.

4.3.2 Aid for the deployment of recharging or refuelling infrastructure

4.3.2.1 Rationale for the aid

167. A comprehensive network of recharging and refuelling infrastructure is necessary to enable a widespread uptake of clean transport vehicles, and to enable the shift towards zero emission mobility. In fact, a particularly critical barrier to the market uptake of clean transport vehicles is the limited availability of the infrastructure to recharge or refuel them. Furthermore, the recharging and refuelling infrastructure is not spread evenly across Member States. At the same time, as long as the share of clean transport vehicles in operation remains limited, the market alone may fail to deliver the recharging and refuelling infrastructure needed.
168. Directive 2014/94/EU of the European Parliament and of the Council⁷² creates a common framework of measures for the deployment of alternative fuels infrastructure for transport in the Union and sets provisions for the Member States for the deployment of such infrastructure. Moreover, other policies promoting the uptake of clean transport vehicles may already provide for investment signals for the deployment of recharging

⁷² Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure (OJ L 307, 28.10.2014, p. 1).

and refuelling infrastructure. However, those policies alone may not be sufficient to address in full the identified market failures. Member States may therefore grant aid to address those residual market failures and support the deployment of recharging and refuelling infrastructure.

4.3.2.2 Scope and activities supported

169. Aid may be granted for the construction and installation or the upgrade of recharging or refuelling infrastructure.
170. Projects may also include installations for smart charging operations and for the on-site production of electricity or hydrogen from renewable sources, connected to the recharging or refuelling infrastructure by means of a direct link, as well as on-site storage facilities for electricity and hydrogen to be supplied as transport fuels.

4.3.2.3 Minimisation of distortions of competition and trade

4.3.2.3.1 Necessity of the aid

171. The Member State must verify the necessity of aid to incentivise the deployment of recharging or refuelling infrastructure of the same category⁷³ by means of an *ex ante* open public consultation or an independent market study. In particular, the Member State must verify that similar infrastructure is not likely to be developed on commercial terms in the short term⁷⁴.
172. When assessing the necessity of aid for the deployment of recharging and refuelling infrastructure for zero-emission and clean transport vehicles that is open for access by third parties, including publicly accessible recharging or refuelling infrastructure, the market penetration of the clean transport vehicles that such infrastructure would serve may be considered.

4.3.2.3.2 Appropriateness

173. The requirements set out in points 174 and 175 apply in addition to those set out in Section 3.2.1.2.
174. The verification of appropriateness among alternative policy instruments should take into consideration the potential for new regulatory interventions to stimulate the shift towards clean mobility and their expected impact compared to that of the proposed measure. In particular, the Member State should consider the impact of an ETS, where applicable, and obligations such as those established by Directive 2014/94/EU.
175. As regards the verification of appropriateness among different aid instruments, aid for the deployment of recharging or refuelling infrastructure may be granted in any form, including grants, loans or guarantees. The Member State must justify its choice of aid

⁷³ For example, for recharging infrastructure, normal or high power.

⁷⁴ For such an assessment, the Commission will generally consider whether the recharging or refuelling infrastructure is expected to be deployed on commercial terms within a period of three years. It will base its assessment on the results of the *ex ante* public consultation referred to in point 171, independent market studies submitted by the Member State or on any other appropriate evidence.

instrument and explain why less distortive aid instruments would not deliver equally efficient outcomes.

4.3.2.3.3 Proportionality

176. The aid must not exceed the cost necessary to facilitate the development of the economic activity at issue in a manner that increases the level of environmental protection. The aid may be considered proportionate where the conditions in points 177 to 182 are met.
177. The eligible costs are the costs of the investment for the construction and installation, or the upgrade of the recharging or refuelling infrastructure. These may include the costs of:
 - (a) the recharging or refuelling infrastructure itself;
 - (b) the installation of or upgrades to electrical or other components, such as for the smart readiness of recharging infrastructure, including power transformers required for connecting the recharging or refuelling infrastructure to the grid or to a local electricity or hydrogen production or storage unit;
 - (c) the related technical equipment;
 - (d) the related civil engineering works;
 - (e) the related land or road adaptations;
 - (f) obtaining related permits.
178. Where a project includes the on-site production of renewable electricity or renewable hydrogen or the on-site storage of renewable electricity or renewable hydrogen, the eligible costs may include the investment costs of on-site renewable electricity or renewable hydrogen production units or of on-site renewable electricity or renewable hydrogen storage facilities.
179. The aid must be granted following a competitive bidding process conducted in accordance with the criteria in points 48 and 49. The design of the competitive bidding process must ensure that sufficient incentives remain for applicants to bid for projects concerning recharging or refuelling infrastructure supplying only renewable electricity or renewable hydrogen. The application of the award criteria must not result in projects concerning recharging or refuelling infrastructure supplying only renewable electricity or renewable hydrogen being put at a disadvantage compared to projects concerning recharging or refuelling infrastructure that also supplies carbon-intensive electricity or hydrogen.
180. By way of derogation from point 179, the aid may be granted on the basis of methods other than a competitive bidding process in the following cases:
 - (a) where the expected number of participants is not sufficient to ensure effective competition or avoid strategic bidding; or

- (b) where a competitive bidding process, as described in points 48 and 49, cannot be organised.
181. In the cases listed in point 180, the aid amount may be determined on the basis of a funding gap analysis as set out in points 47, 50 and 51. The Member State must conduct an *ex post* monitoring to verify the assumptions made about the level of aid required and put in place a claw-back mechanism as set out in point 53.
182. Alternatively to point 181, the basic aid intensity must not exceed 30 % of the eligible costs or 40 % of the eligible costs where the recharging or refuelling infrastructure supplies only renewable electricity or renewable hydrogen respectively. This aid intensity may be increased by 10 percentage points for medium-sized enterprises or by 20 percentage points for small enterprises. The aid intensity may be increased by 15 percentage points for investments located in assisted areas fulfilling the conditions in Article 107(3), point (a), of the Treaty or by 5 percentage points for investments located in assisted areas fulfilling the conditions in Article 107(3), point (c), of the Treaty.

4.3.2.4 Avoidance of undue negative effects on competition and trade and balancing

183. The requirements set out in points 184 to 189 apply in addition to those set out in Section 3.2.2.
184. Aid for the deployment or upgrade of refuelling infrastructure may unduly distort competition when it displaces investments into cleaner alternatives that are already available on the market, or where it locks in certain technologies, hampering the wider development of a market for and the use of cleaner technologies. Therefore, in those cases, the Commission considers that the negative effects on competition of aid for the deployment or upgrade of refuelling infrastructure supplying natural gas-based fuels such as CNG and LNG are unlikely to be offset.
185. Aid for the deployment or upgrade of CNG and LNG refuelling infrastructure may be regarded as not creating long-term lock-in effects and not displacing investments into cleaner technologies if, at the moment when the Member State notifies the Commission of its plans to implement the aid measure or when the aid measure is implemented, the Member State demonstrates that cleaner alternatives are not readily available on the market and are not expected to be available in the short term⁷⁵. Aid for the deployment or upgrade of CNG and LNG refuelling infrastructure may also be regarded as not creating long-term lock-in effects where the Member State commits to ensure that the CNG and LNG is blended with biogas or renewable gaseous transport fuels of non-biological origin (minimum 20%).
186. Alternatives to fossil-based fuels are already available on the market for use in the road transport, inland and sea and coastal water transport, and railway transport sectors. Therefore, aid for the deployment or upgrade of refuelling infrastructure supplying fossil-based fuels such as carbon-intensive hydrogen is not considered to yield the same positive effects as aid for the deployment of refuelling infrastructure supplying non-

⁷⁵ For such an assessment, the Commission will generally consider a period of four years following the notification or the implementation of the aid measure. It will base its assessment on independent market studies submitted by the Member State or on any other appropriate evidence.

fossil-based fuels. Firstly, the improvement in terms of CO₂ emission reductions achieved in the transport sector is likely counterbalanced by the continuation of carbon emissions linked to the production and use of fossil-based fuels. Secondly, in the absence of a commitment from the Member State that the refuelling infrastructure will supply renewable or at least low-carbon hydrogen, the granting of aid for deploying hydrogen refuelling infrastructure may entail a risk of locking in the production of carbon-intensive hydrogen, thereby displacing investments into cleaner alternatives by shifting demand away from non-fossil-based production processes. This would also discourage the further development of the market for clean, future-proof non-fossil-based technologies for zero emission mobility, and for the production of non-fossil fuels and energy. The Commission therefore considers it generally unlikely that the negative effects on competition of aid for the deployment or upgrade of refuelling infrastructure supplying fossil-based fuels such as carbon-intensive hydrogen will be offset.

187. In the absence of appropriate safeguards, the aid may result in the creation or the strengthening of market power positions, which may prevent or impair effective competition in nascent or developing markets. The Member State must therefore ensure that the design of the aid measure contains appropriate safeguards to address that risk. These can include, for instance, the establishment of a maximum percentage of the budget for the measure that can be allocated to one single undertaking.
188. Any concession or other entrustment to a third party to operate the recharging or refuelling infrastructure must be awarded on a competitive, transparent and non-discriminatory basis, having due regard to the Union public procurement rules, where applicable.
189. If aid is granted for the deployment or upgrade of recharging or refuelling infrastructure that is open for access by third parties, including publicly accessible recharging or refuelling infrastructure, the latter must be accessible to the public and provide non-discriminatory access to users, including, as appropriate, in relation to tariffs, authentication and payment methods and other terms and conditions of use. In addition, the Member State should ensure that the fees charged to third party users for using the recharging or refuelling infrastructure correspond to market price.

4.4 Aid for resource efficiency and for supporting the transition towards a circular economy

4.4.1 *Rationale for the aid*

190. The Circular Economy Action Plan (CEAP)⁷⁶ provides a future-oriented agenda which aims at accelerating the Union's transition to a circular economy as part of the transformational change promoted by the Green Deal Communication. The CEAP promotes circular economy processes, encourages sustainable consumption and production, and aims to ensure that waste is prevented and that resources used are kept in the Union economy for as long as possible. Those goals are also a prerequisite to

⁷⁶ Commission Communication – A new Circular Economy Action Plan For a cleaner and more competitive Europe, COM/2020/98 final.

achieving the Union's 2050 climate neutrality target and a cleaner and more sustainable economy.

191. The CEAP specifically mentions the need to reflect objectives linked to the circular economy in the context of the revision of the State aid guidelines in the field of the environment and energy. In this respect, financial support in the form of State aid, combined with broad, clear, and consistent rules, can play a key role in supporting circularity in production processes as part of a wider transformation of the Union industry towards climate-neutrality and long-term competitiveness. It can also play a key role in helping to create a well-functioning Union market for secondary raw materials that will reduce pressure on natural resources and will create sustainable growth and jobs.

4.4.2 *Scope and supported activities*

192. Aid under this Section may be granted for:

- (a) investments improving resource efficiency through either or both of the following:
 - (i) a net reduction in the resources consumed in the production of the same quantity of output⁷⁷;
 - (ii) the replacement of primary raw materials or feedstock with secondary (re-used or recycled) raw materials or feedstock;
- (b) investments for the reduction, prevention, preparing for re-use, preparing for recycling and recycling of waste⁷⁸ generated by the beneficiary or investments for the preparing for re-use, preparing for recycling and recycling of waste generated by third parties and which would otherwise be disposed of, or be treated based on a treatment operation that is situated lower in the priority order of the waste hierarchy⁷⁹ or in a less resource-efficient manner⁸⁰, or would lead to a lower quality of recycling;
- (c) investments for the preparing for re-use, preparing for recycling and recycling of other products, materials or substances⁸¹ generated by the beneficiary or by third

⁷⁷ The resources consumed may include all material resources consumed, with the exception of energy. The reduction may be determined by measuring or estimating consumption before and after the implementation of the aid measure, including any adjustment for external conditions that may affect resource consumption.

⁷⁸ See the definitions of re-use, preparing for re-use, recycling, and waste in points 18(54), (57), (66) and (79).

⁷⁹ The waste hierarchy consists of (a) prevention, (b) preparing for re-use, (c) recycling, (d) other recovery, for instance energy recovery, and (e) disposal. See Article 4, point (1), of Directive 2008/98/EC.

⁸⁰ Having regard to the investments improving resource efficiency described in point 192(a)(i) and (ii).

⁸¹ Other products, materials or substances may include by-products (as referred to in Article 5 of Directive 2008/98/EC), agricultural and forestry residues, waste water, rain water and runoff water, minerals, nutrients, residual gases from production processes, redundant products, parts and materials, etc. Redundant products, parts and materials are products, parts or materials that are no longer needed by or useful for its holder but are suitable for re-use.

parties and which would otherwise be unused, disposed of or recovered in a less resource-efficient manner⁸², or would lead to a lower quality of recycling;

- (d) investments for the separate collection⁸³ and sorting of waste or other products, materials or substances with a view to the preparing for re-use or recycling.

- 193. Under certain conditions, aid to cover operating costs may be granted for the separate collection and sorting of waste in relation to specific waste streams or types of waste (see point 216).
- 194. Aid relating to the recovery of residual heat from production processes or aid relating to CCU will be assessed under the conditions applicable to aid for the reduction of greenhouse gas emissions set out in Section 4.1.
- 195. This Section does not apply to measures referred to in point 192(a) to (d) that are supported by compensations for services of general economic interest.

4.4.3 *Incentive effect*

- 196. The requirements set out in points 197 to 201 apply in addition to those set out in Section 3.1.2.
- 197. The Member State must provide a credible counterfactual scenario. A counterfactual scenario generally corresponds to an investment with the same capacity, lifetime and, where appropriate, other relevant technical characteristics as the environmentally friendly investment.
- 198. The counterfactual scenario may also consist in maintaining the existing installations or equipment in operation for a period corresponding to the lifetime of the environmentally friendly investment. In that case, the discounted maintenance, repair and modernisation costs over that period should be taken into account.
- 199. In certain cases, the counterfactual scenario may consist in a later replacement of the installations or equipment, in which case the discounted value of the installations and equipment should be taken into account and the difference in the respective economic lifetime of the installations or equipment evened out.
- 200. In the case of equipment subject to leasing arrangements, the discounted value of the leasing of the environmentally friendly equipment should be compared with the discounted value of the leasing of the less environmentally friendly equipment that would be used in the absence of the aid.
- 201. In limited cases, the environmentally friendly investment may consist of installations or equipment that are added to an existing investment. In that case, the eligible costs should consist of the total investment costs.

⁸² See footnote 95.

⁸³ See the definition of 'separate collection' in Article 3, point (11) of Directive 2008/98/EC.

4.4.4 *Minimisation of distortions on competition and trade*

4.4.4.1 Necessity of the aid

202. The requirements set out in points 203 to 205 apply in addition to those set out in Section 3.2.1.1.
203. Aid may be considered necessary only where the waste or other substances or materials would otherwise be disposed of, would be treated based on a treatment operation that is situated lower in the priority order of the waste hierarchy or in a less resource-efficient manner or would otherwise be unused.
204. The aided investment must not correspond to an economically profitable practice. Therefore, the process or processes by which waste or other products, materials or substances are prepared for re-use or recycling or are recycled must not correspond to economically profitable or established commercial practice. Where appropriate, this must be verified from the perspective of practices generally applied throughout the Union and across technologies⁸⁴.
205. In the case of aid for the separate collection and sorting of waste or other products, materials or substances, the Member State must demonstrate that such separate collection and sorting is underdeveloped in that Member State. Where aid to cover operating costs is granted, the Member State must demonstrate that such aid is required during a transitional period to facilitate the transition towards circular economy, including and not limited to the preparing for re-use, the preparing for recycling, or recycling. The Member State must take into account any obligations under extended producer responsibility schemes.

4.4.4.2 Appropriateness

206. The requirements set out in point 207 apply in addition to those set out in Section 3.2.1.2.
207. In accordance with the ‘polluter pays’ principle⁸⁵, undertakings generating waste should not be relieved from the costs of waste treatment. The aid should therefore not relieve undertakings that generate waste from any costs or obligations relating to the treatment of waste for which they are liable under Union or national law, including under extended producer responsibility schemes. In addition, the aid should not relieve undertakings from costs that should be considered as normal costs for an undertaking.

4.4.4.3 Proportionality

208. The eligible costs are the extra investment costs consisting of the difference between the costs of the aided investment or activity and those of the investment under the counterfactual scenario, which may be one of the following:

⁸⁴ From a technological perspective, it may for instance be appropriate to verify whether the planned investment would lead to a higher degree of recyclability or to a higher quality of the recycled material as compared to normal practice.

⁸⁵ See the definition in point 18(53).

- (a) a comparable investment as described under point 197 that would credibly be realised without aid and which does not achieve the same level of resource efficiency;
 - (b) treating the waste based on a treatment operation that is situated lower in the priority order of the waste hierarchy or in a less resource-efficient way;
 - (c) the conventional production process relating to the primary raw material or product, if the re-used or recycled (secondary) product is technically and economically substitutable with the primary raw material or product; or
 - (d) any other counterfactual scenario based on duly justified assumptions.
209. Where the product, substance or material would constitute waste unless re-used and there is no legal requirement for that product, substance or material to be disposed of or otherwise be treated, the eligible costs may correspond to the investment necessary to recover the product, substance or material concerned.
210. The basic aid intensity must not exceed 40 % of the eligible costs.
211. The aid intensity may be increased by 10 percentage points for medium-sized enterprises or by 20 percentage points for small enterprises.
212. The aid intensity may be increased by 15 percentage points for investments located in assisted areas fulfilling the conditions in Article 107(3), point (a), of the Treaty or by 5 percentage points for investments located in assisted areas fulfilling the conditions in Article 107(3), point (c), of the Treaty.
213. The aid intensity may be increased by 10 percentage points for eco-innovation activities, provided that the following cumulative conditions are fulfilled:
- (a) the eco-innovation activity must be new or substantially improved compared to the state of the art in its industry in the Union⁸⁶;
 - (b) the expected environmental benefit must be significantly higher than the improvement resulting from the general evolution of the state of the art in comparable activities⁸⁷;

⁸⁶ The novelty could, for example, be demonstrated by the Member States on the basis of a precise description of the innovation and of market conditions for its introduction or diffusion, comparing it with state-of-the-art processes or organisational techniques generally used by other undertakings in the same industry.

⁸⁷ If quantitative parameters can be used to compare eco-innovative activities with standard, non-innovative activities, 'significantly higher' means that the marginal improvement expected from eco-innovative activities in terms of reduced environmental risk or pollution or improved efficiency in energy or resources should be at least twice as high as the marginal improvement expected from the general evolution of comparable non-innovative activities. Where the proposed approach is not appropriate for a given case, or if no quantitative comparison is possible, the application file for State aid should contain a detailed description of the method used to assess this criterion, ensuring a standard comparable to that of the proposed method.

- (c) the innovative character of the activity involves a clear degree of risk, in technological, market or financial terms, which is higher than the risk generally associated with comparable non-innovative activities⁸⁸.
214. By way of derogation from points 210 to 213, the Member State may also demonstrate, based on a funding gap analysis, as set out in points 47, 50 and 51, that a higher aid intensity is required. In such a case, the Member State must conduct an *ex post* monitoring to verify the assumptions made about the level of aid required and put in place a claw-back mechanism, as set out in point 53. The aid amount must not exceed the funding gap, as set out in points 50 and 51.
215. Where the aid is granted following a competitive bidding process conducted in accordance with the criteria in points 48 and 49, the aid amount is considered proportionate
216. The aid may also cover operating costs where it relates to the separate collection and sorting of waste or other products, materials or substances in relation to specific waste streams or types of waste with a view to the preparing for re-use or recycling, in which case the following conditions must be met:
- (a) the aid must be granted following a competitive bidding process conducted in accordance with the criteria in points 48 and 49 which must be open, on a non-discriminatory basis, to all operators providing separate collection and sorting services;
 - (b) where there is a high level of uncertainty about the future evolution of the operating costs for the duration of the measure, the design of the bidding process may include rules that limit compensation in certain well-identified circumstances, provided those rules and circumstances are transparently established *ex ante*;
 - (c) any investment aid granted to an installation used for the separate collection and sorting of waste in relation to specific waste streams or types of waste must be deducted from the operating aid granted to that same installation when both forms of aid cover the same eligible costs;
 - (d) the aid may be granted for a maximum period of five years.

4.4.5 Avoidance of undue negative effects on competition and trade

217. The requirements set out in points 218 to 221 apply in addition to those set out in Section 3.2.2.
218. The aid must not incentivise the generation of waste.

⁸⁸ This risk could be demonstrated by the Member State for instance in terms of: costs in relation to the undertaking's turnover, time required for the development, expected gains from the eco-innovation activity in comparison with the costs, and probability of failure.

219. The aid must not merely increase demand for the waste or other materials and resources intended to be re-used, recycled or recovered without increasing the collection of those materials.
220. When assessing the impact of the aid on the market, the Commission will take into account the potential effects of the aid on the functioning of the markets for both primary and secondary materials relating to the products concerned.
221. In particular, when assessing the impact on the market of aid for operating costs relating to the separate collection and sorting of waste or other products, materials or substances in relation to specific waste streams or types of waste in view of preparing for re-use or recycling, the Commission will take into account the potential interactions with extended producer responsibility schemes in the Member State concerned.

4.5 Aid for the prevention or the reduction of pollution other than from greenhouse gases

4.5.1 Rationale for the aid

222. The Green Deal Communication's zero pollution ambition for a toxic-free environment should ensure that, by 2050, pollution is reduced to levels no longer harmful for humans and natural ecosystems and that respect the boundaries our planet can cope with, thus creating a toxic-free environment, in line with the 2030 Agenda for Sustainable Development⁸⁹ and the long-term objectives of the 8th Environment Action Programme⁹⁰. The Union has set out specific targets for reducing the level of pollution, such as for cleaner air⁹¹ and for zero pollution of water bodies⁹², less noise, plastic litter

⁸⁹ See https://sustainabledevelopment.un.org/content/documents/21252030_Agenda_for_Sustainable_Development_web.pdf.

⁹⁰ Proposal for a Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2030, COM/2020/652 final.

⁹¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'A Clean Air Programme for Europe', COM/2013/0918 final. See also Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air (OJ L 23, 26.1.2005, p. 3) and Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (OJ L 152, 11.6.2008, p. 1) for ground-level ozone, particulate matter, nitrogen oxides, dangerous heavy metals and a number of other pollutants. See also Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (OJ L 344, 17.12.2016, p. 1) for the most important transboundary air pollutants: sulphur dioxides, nitrogen oxides, ammonia, non-methane volatile organic compounds and particulate matter.

⁹² Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1) requires, unless exemptions apply, good chemical status, for all surface and groundwater bodies.

and microplastics pollution and waste⁹³, as well as targets for excess nutrients and fertilizers, hazardous pesticides and substances causing antimicrobial resistance⁹⁴.

223. Financial support in the form of State aid can contribute substantially to the environmental objective of reducing forms of pollution other than from greenhouse gas emissions.

4.5.2 *Scope and activities supported*

224. Aid for the prevention or the reduction of pollution other than from greenhouse gases may be granted for investments enabling undertakings to go beyond Union standards for environmental protection, to increase the level of environmental protection in the absence of Union standards or to comply with Union standards that are not yet in force.
225. Where the aid is granted in the form of tradable permits⁹⁵, the aid measure must be designed in such a way as to achieve environmental objectives beyond those intended to be achieved on the basis of Union standards that are mandatory for the undertakings concerned.
226. The aid must primarily target the prevention or reduction of pollution directly linked to the beneficiary's own activities.
227. The aid must not merely displace pollution from one sector to another or from one environmental medium to another (for example, from air to water). Where the aid targets the reduction of pollution, it must achieve an overall reduction of pollution.
228. This Section does not apply to aid measures that fall within the scope of Section 4.1. Where a measure contributes to both the reduction of greenhouse gas emissions and the prevention or reduction of pollution other than from greenhouse gas emissions, the compatibility of the measure will be assessed either on the basis of Section 4.1 or of this Section, **depending on which of the two objectives is predominant.**

4.5.3 *Incentive effect*

229. The requirements set out in points 230 and 231 apply in addition to those set out in Section 3.1.2.
230. Aid for investments that enable the beneficiary to exceed the applicable Union standards contributes to the environmental or energy objective. In order not to discourage Member States from setting mandatory national standards which are more stringent than the corresponding Union standards, aid measures may have an incentive effect irrespective of the presence of mandatory national standards that are more

⁹³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'Pathway to a Healthy Planet for All EU Action Plan: Towards Zero Pollution for Air, Water and Soil', COM(2021) 400 final.

⁹⁴ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system', COM/2020/381 final.

⁹⁵ Tradable permits can involve State aid, in particular when Member States grant permits and allowances below their market value.

stringent than the Union standard. This includes, for instance, measures to improve the water and air quality beyond mandatory Union standards. Such a positive contribution also exists in the presence of mandatory national standards adopted in the absence of Union standards.

231. Aid for the adaptation to Union standards adopted but not yet in force will be considered to have an incentive effect if the investment is implemented and finalised at least 18 months before the Union standards enter into force.

4.5.4 *Minimisation of distortions on competition and trade*

4.5.4.1 Necessity of the aid

232. The requirements set out in point 233 apply in addition to those set out in Section 3.2.1.1.
233. For aid in the form of tradable permits⁹⁶, the Member State must demonstrate that the following cumulative conditions are complied with:
- (a) full auctioning leads to a substantial increase in production costs for each sector or category of individual beneficiaries;
 - (b) the substantial increase in production costs cannot be passed on to customers without leading to significant sales reductions⁹⁷;
 - (c) individual undertakings in the sector do not have the possibility to reduce emission levels in order to make the price of the certificates bearable. Irreducible consumption may be demonstrated by providing the emission levels derived from the best performing technique in the European Economic Area and using them as a benchmark. Any undertaking achieving the best performing technique can benefit at most from an allowance corresponding to the increase in production cost from the tradable permit scheme using the best performing technique, and which cannot be passed on to customers. Any undertaking having a worse environmental performance benefits from a lower allowance, proportionate to its environmental performance.

4.5.4.2 Proportionality

234. The eligible costs are the extra investment costs directly linked to the achievement of a higher level of environmental protection.
235. The extra investment costs consist of the difference between the aided investment costs and those of the investment under the counterfactual scenario as described in points 197 to 201. Where the project consists in the early adaptation to Union standards that are

⁹⁶ Tradable permits can involve State aid, in particular when Member States grant permits and allowances below their market value.

⁹⁷ The analysis may be conducted on the basis of estimates of the product price elasticity of the sector concerned, among other factors, as well as on estimates of lost sales as well as their impact on the profitability of the beneficiary.

not yet in force, the counterfactual scenario should in principle be that described in point 199.

236. The basic aid intensity must not exceed 40 % of the eligible costs.
237. The aid intensity may be increased by 10 percentage points for medium-sized enterprises or by 20 percentage points for small enterprises.
238. The aid intensity may be increased by 15 percentage points for investments located in assisted areas fulfilling the conditions in Article 107(3), point (a), of the Treaty or by 5 percentage points for investments located in assisted areas fulfilling the conditions in Article 107(3), point (c), of the Treaty.
239. The aid intensity may be increased by 10 percentage points for eco-innovation activities, provided that the conditions in point 213 are fulfilled.
240. By way of derogation from points 236 to 239, the Member State may also demonstrate, based on a funding gap analysis, as set out in points 47, 50 and 51, that a higher aid amount is required. In such a case, the Member State must conduct an *ex post* monitoring to verify the assumptions made about the level of aid required and put in place a claw-back mechanism, as set out in point 53. The aid amount must not exceed the funding gap, as set out points 50 and 51.
241. Where the aid is granted following a competitive bidding process conducted in accordance with the criteria in points 48 and 49, the aid amount is considered proportionate.
242. For aid in the form of tradable permits, the Commission will also verify that:
 - (a) the allocation is carried out in a transparent way, based on objective criteria and on data sources of the highest quality available;
 - (b) the total amount of tradable permits or allowances granted to each undertaking for a price below their market value is not higher than its expected needs as estimated for a situation without the trading scheme.

4.5.5 Avoidance of undue negative effects on competition and trade

243. The requirements set out in point 244 apply in addition to those set out in Section 3.2.2.
244. For aid in the form of tradable permits, the Commission will also verify that:
 - (a) the choice of beneficiaries is based on objective and transparent criteria and the aid is granted in principle in the same way for all competitors in the same sector if they are in a similar factual situation;

- (b) the allocation methodology does not favour certain undertakings⁹⁸ or certain sectors, unless it is justified by the environmental logic of the scheme itself or where such rules are necessary for consistency with other environmental policies;
- (c) new entrants do not receive permits or allowances on more favourable conditions than existing undertakings operating on the same markets;
- (d) where higher allocations are granted to existing installations compared to new entrants, this does not result in creating undue barriers to entry.

4.6 Aid for the remediation of contaminated sites, for the rehabilitation of natural habitats and ecosystems and for biodiversity and nature-based solutions

4.6.1 Rationale for the aid

- 245. The Biodiversity Strategy for 2030⁹⁹ aims at protecting nature, reversing the degradation of ecosystems and putting the Union's biodiversity on a path to recovery by 2030. As a core part of the Green Deal Communication, it sets ambitious targets and commitments for 2030 to achieve healthy and resilient ecosystems.
- 246. Financial support in the form of State aid can contribute substantially to the environmental objective of protecting and restoring biodiversity and ecosystems, in several ways, including by providing incentives to repair the damage to contaminated sites, rehabilitate degraded natural habitats and ecosystems or undertake investments for the protection of ecosystems.
- 247. The EU strategy for adaptation to climate change¹⁰⁰ aims at leveraging investments in nature-based solutions for adaptation¹⁰¹, given that their implementation on a large scale would increase climate resilience and contribute to multiple objectives of the European Green Deal.

4.6.2 Scope and activities supported

- 248. This Section covers compatibility rules for aid measures for the remediation of contaminated sites, for the rehabilitation of natural habitats and ecosystems, for protection and restoration of biodiversity, and nature-based solutions for climate change adaptation.
- 249. This Section does not apply to:
 - (a) rehabilitation following the closure of power plants and mining operations covered by Section 4.12;

⁹⁸ For example new entrants or on the contrary existing undertakings or installations.

⁹⁹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 'EU biodiversity Strategy for 2030 bringing nature back into our lives', COM/2020/380 final.

¹⁰⁰ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change, COM/2021/82 final.

¹⁰¹ <https://www.eea.europa.eu/publications/nature-based-solutions-in-europe/>.

- (b) measures aimed at the remediation of contaminated sites, the rehabilitation of natural habitats and ecosystems, the protection or restoration of biodiversity and nature-based solutions for climate change adaptation that are supported by compensations for services of general economic interest;
- (c) aid to make good the damage caused by natural disasters and by earthquakes, avalanches, landslides, floods, tornadoes, hurricanes, volcanic eruptions and wild fires of natural origin¹⁰².

250. Aid under this Section may be granted for the following activities:

- (a) the remediation of environmental damage, including damage to the quality of the soil or of surface water or groundwater;
- (b) the rehabilitation of natural habitats and ecosystems from a degraded state;
- (c) investments contributing to the protection or restoration of biodiversity or of ecosystems where those investments contribute to achieving the good condition of ecosystems or to protecting ecosystems that are already in good condition;
- (d) investments in nature-based solutions for climate change adaptation.

4.6.3 *Incentive effect*

251. The requirements set out in points 252 to 255 apply in addition to those set out in Section 3.1.2.

252. Aid for the remediation of contaminated sites and for the rehabilitation of natural habitats and ecosystems, for the protection and restoration of biodiversity and for nature-based solutions for climate change adaptation may be regarded as having an incentive effect only when the polluter is not identified or cannot be held legally liable for financing the works necessary to prevent and correct environmental degradation and contamination in accordance with the ‘polluter pays’ principle. The polluter is the entity liable under the law applicable in each Member State, without prejudice to Directive 2004/35/EU of the European Parliament and of the Council¹⁰³, or other relevant Union rules¹⁰⁴.

253. Without prejudice to the ‘polluter pays’ principle, aid to the entity liable under the applicable Union or national law may have an incentive effect where it covers the extra costs necessary to increase the scope or ambition of the decontamination or rehabilitation project beyond the legal obligations under the applicable Union or national law. The Member State must demonstrate that all reasonable efforts have been taken to identify the liable operator. Where the person liable under the applicable law is not identified or cannot be made to bear the costs, State aid for the entire

¹⁰² Aid to compensate for such damage is covered by Article 50 of Regulation (EU) No 651/2014.

¹⁰⁴ See the Commission Notice Guidelines providing a common understanding of the term ‘environmental damage’ as defined in Article 2 of Directive 2004/35/EC of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage 2021/C 118/01 (OJ C 118, 7.4.2021, p. 1).

decontamination or rehabilitation works may be regarded as having an incentive effect. Where the person having caused the contamination or other environmental damage is identified, the Member State must demonstrate that all legal steps have been taken to make the polluter bear the costs, including legal actions. The Commission may consider that an undertaking cannot be made to bear the costs of remediating the contamination it has caused where it ceased to legally exist and no other undertaking can be regarded as its legal successor¹⁰⁵, and where there is no or insufficient financial security to meet the costs of remediation.

254. State aid does not have an incentive effect where it is granted for the implementation of compensatory measures within the meaning of Article 6, point (4), of Council Directive 92/43/EEC¹⁰⁶. However, aid to cover the extra costs necessary to increase the scope or ambition of those measures beyond the legal obligations under Article 6, point (4), of that Directive may be found to have an incentive effect.
255. In addition, aid for remediation of contaminated sites and for the rehabilitation of natural habitats and ecosystems is considered to have an incentive effect when the remediation or rehabilitation costs exceed the increase in land value.

4.6.4 *Proportionality*

256. The eligible costs are:

- (a) the costs incurred for the remediation of environmental damage to the quality of the soil or of surface water or groundwater;
- (b) the costs incurred for the rehabilitation works;
- (c) the costs incurred for works undertaken to protect or restore biodiversity;
- (d) the costs incurred for the works to implement nature-based solutions for climate change adaptation.

257. All expenditure incurred for the remediation or rehabilitation of the site or the protection or restoration of biodiversity, or the implementation of nature-based solutions, may be considered eligible costs for the remediation or rehabilitation of contaminated sites or for the protection or restoration of biodiversity.
258. The aid may cover 100 % of the eligible costs minus the increase in the value of the land. Evaluations of the increase in value of the land resulting from the remediation or rehabilitation must be carried out by an independent qualified expert.

¹⁰⁵ See Commission Decision C(2012) 558 final of 17 October 2012 in case SA.33496 (2011/N) – Austria – Einzelfall, Altlast, DECON Umwelttechnik GmbH, recitals 65-69 (OJ C 14, 17.1.2013, p. 1).

¹⁰⁶ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

4.7 Aid in the form of reductions in taxes or parafiscal levies

4.7.1 *Aid in the form of reductions in environmental taxes and parafiscal levies*

4.7.1.1 Rationale for the aid

259. Environmental taxes or parafiscal levies are imposed in order to increase the costs of environmentally harmful behaviour, thereby discouraging such behaviour and increasing the level of environmental protection. In principle, environmental taxes and parafiscal levies should reflect the overall costs to society, and correspondingly, the amount of tax or parafiscal levy paid per unit of emissions; other pollutants, or resources consumed, should be the same for all undertakings, which are responsible for the environmentally harmful behaviour. While reductions in environmental taxes or parafiscal levies may adversely impact that objective, such an approach may nonetheless be needed where the beneficiaries would otherwise be placed at such a competitive disadvantage that it would not be feasible to introduce the environmental tax or parafiscal levy in the first place.

4.7.1.2 Scope and supported activity

260. Granting a more favourable treatment to some undertakings may facilitate a higher general level of environmental taxes or parafiscal levies. Accordingly, reductions in environmental taxes or levies can at least indirectly contribute to a higher level of environmental protection. However, the overall objective of the environmental tax or parafiscal levy to discourage environmentally harmful behaviour should not be undermined.
261. The Commission will consider that tax or levy reductions do not undermine the general objective pursued and contribute at least indirectly to an increased level of environmental protection, if a Member State demonstrates that both of the following conditions are fulfilled:
- (a) the reductions are well targeted at those undertakings most affected by a higher tax;
 - (b) a tax rate, which is generally applicable, is higher than would be the case without the reduction.
262. For this purpose, the Commission will assess the information provided by Member States. That information should include the sectors or categories of beneficiaries covered by the reductions and a description of the situation of the main beneficiaries in each sector concerned and an explanation of how the taxation may contribute to environmental protection. The sectors eligible for the reductions should be properly described and a list of the largest beneficiaries for each sector should be provided (considering, in particular, turnover, market shares and size of the tax base).

4.7.1.3 Minimisation of distortions of competition and trade

4.7.1.3.1 Necessity

263. The requirements set out in point 264 apply in addition to the requirements set out in Section 3.2.1.1.
264. The Commission will consider the aid to be necessary if the following cumulative conditions are met:
- (a) the choice of beneficiaries is based on objective and transparent criteria, and the aid is granted in principle in the same way for all competitors in the same sector if they are in a similar factual situation;
 - (b) the environmental tax or parafiscal levy without the reduction leads to a substantial increase in production costs calculated as a proportion of the gross value added for each sector or category of individual beneficiaries;
 - (c) the substantial increase in production costs could not be passed on to customers without leading to significant sales reductions.

4.7.1.3.2 Appropriateness

265. The requirements set out in points 266 and 267 apply in addition to the requirements set out in Section 3.2.1.2.
266. The Commission will authorise aid schemes for maximum periods of 10 years, after which a Member State can re-notify the measure if it re-evaluates the appropriateness of the aid measures concerned.
267. Member States can grant the aid in the form of a reduction of the tax or levy rate or as a fixed annual compensation amount (tax or levy refund), or as a combination of the two. The advantage of the tax refund approach is that undertakings remain exposed to the price signal, which the environmental tax or levy gives. Where used, the amount of the tax refund should be calculated on the basis of historical data, that is to say the level of production, and the consumption or pollution observed for the undertaking in a given base year.

4.7.1.3.3 Proportionality

268. Section 3.2.1.3 does not apply to aid in the form of reductions in environmental taxes and parafiscal levies.
269. The Commission will consider the aid to be proportionate if at least one of the following conditions is met:
- (a) aid beneficiaries pay at least 20 % of the national environmental tax or parafiscal levy;
 - (b) the tax or levy reduction does not exceed 100 % of the national environmental tax or parafiscal levy, and is conditional on the conclusion of agreements between the Member State and the beneficiaries or associations of beneficiaries whereby the beneficiaries or associations of beneficiaries commit themselves to achieve environmental protection objectives which have the same effect as if beneficiaries or associations of beneficiaries paid at least 20 % of the national tax or levy. Such

agreements or commitments may relate, among other things, to a reduction in energy consumption, a reduction in emissions and other pollutants, or any other environmental measure.

270. Such agreements must satisfy the following cumulative conditions:

- (a) the substance of the agreements is negotiated by the Member State, specifies the targets and fixes a time schedule for reaching the targets;
- (b) the Member State ensures independent and regular monitoring of the commitments in the agreements;
- (c) the agreements are revised periodically in the light of technological and other developments and provide for effective penalties in the event that the commitments are not met.

4.7.2 Aid for environmental protection in the form of reductions in taxes or parafiscal levies

4.7.2.1 Rationale for the aid

271. Member States may consider increasing the level of environmental protection by means of a reduction in taxes or parafiscal levies. Where such reductions aim at incentivising the beneficiaries to undertake projects or activities resulting in less pollution or consumption of resources, the Commission will assess the measures in the light of the requirements set out in Section 4.7.2.

4.7.2.2 Scope and supported activity

272. This Section covers aid for environmentally friendly projects and activities that fall within the scope of Sections 4.2 to 4.6 and which take the form of reductions in taxes or parafiscal levies.

273. Where the tax or levy reduction primarily pursues a decarbonisation objective, Section 4.1 applies and not Section 4.7.2.

4.7.2.3 Incentive effect

274. The requirements set out in points 275 and 276 apply in addition to those set out in Section 3.1.2.

275. For each eligible project or reference project for a category of beneficiaries, the Member State must submit a quantification, as set out in Section 3.2.1.3 (point 50)), or equivalent data, for assessment by the Commission comparing the profitability of the reference project or activity with and without the tax or parafiscal levy reduction and showing that the reduction incentivises the realisation of the environmentally friendly project or activity.

276. Aid for projects starting before the aid application is submitted is considered to have an incentive effect where the following cumulative conditions are satisfied:

- (a) the measure establishes a right to aid in accordance with objective and non-discriminatory criteria and without further exercise of discretion by the Member State;
- (b) the measure has been adopted and is in force before work on the aided project or activity has started, except in the case of fiscal successor schemes, where the activity was already covered by the previous schemes in the form of tax or parafiscal advantages.

4.7.2.4 Proportionality

- 277. Section 3.2.1.3 does not apply to aid for environmental protection in the form of reductions in taxes or parafiscal levies
- 278. The aid must not exceed the normal rate or amount of the tax or levy that would otherwise be applicable.
- 279. Where the tax or parafiscal levy reduction is linked to investment costs, the aid will be considered proportionate, provided it does not exceed the aid intensities and maximum aid amounts in Sections 4.2 to 4.6. Where those Sections require a competitive bidding process, that requirement does not apply to the tax or parafiscal levy reductions.
- 280. Where the tax or parafiscal levy reduction reduces recurrent operating costs, the aid amount must not exceed the difference between operating costs of the environmentally friendly solution and of the less environmentally friendly counterfactual scenario. Account must also be taken of potential cost savings or additional revenues stemming from the more environmentally friendly activity. Where there is no counterfactual activity or investment, the aid must not exceed the difference between operating costs and revenues, including a reasonable profit over the relevant period, and the Member State must put in place a claw-back mechanism to ensure that overpayments are recovered.

4.7.2.5 Avoidance of undue negative effects on competition and trade

- 281. The requirements set out in points 282 to 283 apply in addition to those set out in Section 3.2.2.
- 282. State aid must be granted, in principle, in the same way for all eligible undertakings operating in the same sector of economic activity that are in the same or similar factual situation in respect of the aims or objectives of the aid measure.
- 283. If the tax or parafiscal levy reduction concerns projects falling within the scope of Section 4.3.1, points 161 to 166 apply; if it concerns projects falling within the scope of Section 4.3.2, points 184 to 189 apply.

4.8 Aid for the security of electricity supply

4.8.1 *Rationale for the aid*

- 284. Market and regulatory failures may mean price signals fail to provide efficient investment incentives, leading for instance to inadequate electricity resource mix,

capacity, flexibility or location. Moreover, the significant transformation in the electricity sector due to technological change and climate challenges raises new challenges for ensuring the security of electricity supply. While an increasingly integrated electricity market will normally allow to exchange electricity EU wide, thereby mitigating national security of supply problems, situations may occur where even in coupled markets security of supply may not be guaranteed at all times in some Member States or regions. As a result, Member States may consider the introduction of measures to ensure certain levels of security of electricity supply.

4.8.2 *Scope and supported activity*

285. This Section covers compatibility rules for aid measures aimed at increasing the security of electricity supply. This includes capacity mechanisms and interruptibility schemes for dealing with long and short-term security of supply issues resulting from market failures preventing sufficient investment in electricity generation capacity, storage or demand response, as well as network reserves which aim to treat the insufficiency of electricity transmission and distribution networks.
286. Such measures may also be designed to support environmental protection objectives, for example through the exclusion of more polluting capacity or measures to give more environmentally beneficial capacity an advantage in the selection process.

4.8.3 *The aid must facilitate the development of an economic activity*

4.8.3.1 Facilitating the development of certain economic activities

287. As part of their notification, Member States should identify the economic activities that will be developed as a result of the aid. Aid for increasing the security of electricity supply directly facilitates the development of economic activities linked to electricity generation, storage and demand response, including new investments and the efficient refurbishment and maintenance of existing assets. It may also indirectly support a wide range of economic activity that relies on electricity as an input including the electrification of heat and transport.

4.8.3.2 Incentive effect

288. As an exception to points 25, 26 and 27, due to the general nature of the market failures leading to a potential need to incentivise additional security of electricity supply, Member States may rely on the evidence submitted under Section 4.8.4.1 to demonstrate the incentive effect of the proposed measure overall. The assessment required to demonstrate, analyse and quantify the necessity of a security of supply measure allows a comparison of the security of supply situation with the measure and the counterfactual situation without the measure.
289. The rules on incentive effect in points 28, 29, 30 and 31 apply.

4.8.4 *Minimisation of distortions of competition and trade*

4.8.4.1 Necessity

290. Section 3.2.1.1 does not apply to measures for the security of electricity supply.

291. The nature and causes of the security of electricity supply problem, and therefore of the need for State aid to ensure security of electricity supply, must be properly analysed and quantified, including when and where the problem is expected to arise with reference to the reliability standard as defined in Article 25 of Regulation (EU) 2019/943. The unit of measure for quantification should be described and its method of calculation should be provided, with reference to any relevant requirements in sectoral legislation.
292. Where applicable, the identification of a security of electricity supply problem should be consistent with the latest available analysis carried out by ENTSO-E for electricity in accordance with the internal energy market legislation, notably:
- (a) for measures targeting resource adequacy, the European resource adequacy assessments referred to in Article 23 of Regulation (EU) 2019/943;
 - (b) for measures targeting structural congestion, the reports on structural congestions and other major physical congestions between and within bidding zones, mentioned in Article 14, point (2), of Regulation (EU) 2019/943.
293. Member States may also rely on national resource adequacy assessments to demonstrate the necessity of security of supply measures, to the extent permitted under Article 24 of Regulation (EU) 2019/943.
294. Measures related to the risk of near term electricity crises should be identified in the national risk-preparedness plan provided for in Article 11 of Regulation (EU) 2019/941¹⁰⁷.
295. Member States proposing to introduce several measures targeting security of electricity supply must clearly explain how they interact with one another in reaching (but not going beyond) the reliability standard.
296. The regulatory or market failure(s), preventing a sufficient level of security of electricity supply (and of environmental protection if relevant) being achieved in the absence of intervention, must be identified.
297. Existing measures that already target the identified market failure(s) must also be identified.
298. Member States must clearly demonstrate the reasons why the market cannot be expected to deliver security of electricity supply in the absence of State aid, by taking account of on-going and planned market and technology developments.
299. In its assessment, the Commission will take account of the following elements to be provided by the Member State:
- (a) an assessment of the impact of variable generation, including that originating from neighbouring systems;

¹⁰⁷ Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector (risk-preparedness regulation) (*OJ L 158, 14.6.2019, p. 1*).

- (b) an assessment of the impact of demand-side participation, including a description of measures to encourage demand side management;
- (c) an assessment of the actual or potential existence of interconnectors and major transmission grid infrastructure, including a description of projects under construction and planned;
- (d) an assessment of any other element which might cause or exacerbate the security of electricity supply problem, such as caps on wholesale prices or other regulatory or market failures. Where required under Regulation (EU) 2019/943, the implementation plan referred to in Article 20 (3) of that Regulation must be subject to a Commission opinion before aid can be granted. The implementation plan and opinion will be taken into account in the necessity assessment.

4.8.4.2 Appropriateness

- 300. Section 3.2.1.2 does not apply to measures for the security of electricity supply.
- 301. Member States should primarily consider alternative ways of achieving security of electricity supply, in particular more efficient electricity market design that can alleviate the market failures that undermine security of electricity supply. For instance, improving the functioning of electricity imbalance settlement, better integrating variable generation, incentivising and integrating demand response and storage, enabling efficient price signals, removing barriers to cross-border trade, and improving infrastructure including interconnection. Aid may be found appropriate for security of supply measures where, despite appropriate improvements to market design and investments in network assets, whether already implemented or planned, a security of supply concern remains.

4.8.4.3 Eligibility

- 302. The aid measure should be open to all beneficiaries or projects technically capable of contributing efficiently to the achievement of the security of supply objective. This includes generation, storage and demand response, as well as the aggregation of small units of these forms of capacity into larger blocks.
- 303. Limitations on participation in security of supply measures that aim to ensure those measures do not undermine environmental protection are deemed appropriate (see points 325 and 326).
- 304. Member States are encouraged to introduce additional criteria or features in their security of supply measures to promote the participation of greener technologies (or reduce the participation of polluting technologies) necessary to support the delivery of the Union's environmental protection objectives. Such additional criteria or features must be objective, transparent and non-discriminatory in relation to clearly identified environmental protection objectives, and must not result in the overcompensation of beneficiaries.
- 305. Where technically feasible, measures for security of electricity supply must be open to direct cross-border participation of capacity providers located in another Member State. Member States must ensure that foreign capacity capable of providing equivalent

technical performance to domestic capacities has the opportunity to participate in the same competitive process as domestic capacity. Member States may require foreign capacity to be located in a Member State that has a direct network connection with the Member State applying the measure. The relevant rules set out in Article 26 of Regulation (EU) 2019/943 must also be complied with.

4.8.4.4 Public consultation

306. Prior to the notification of aid, other than in duly justified exceptional circumstances, Member States must consult publicly on measures to be notified under this Section. The obligation to consult does not apply in respect of amendments to already approved measures that do not alter their scope or eligibility, and the cases referred to in point 307. To determine whether a measure is justified, bearing in mind the criteria in these guidelines, the following public consultation is required:

- a) for measures where the estimated average annual aid to be granted is \geq EUR 100 million per year, a public consultation of at least 8 weeks' duration, covering:
 - (i) eligibility;
 - (ii) proposed use and scope of competitive bidding processes and any proposed exceptions;
 - (iii) main parameters for the aid allocation process¹⁰⁸ including for enabling competition between different types of beneficiary¹⁰⁹;
 - (iv) if a competitive bidding process is not used, the assumptions and data informing the quantification used to demonstrate the proportionality of the aid, including costs, revenues, operating assumptions and lifetime, and WACC; and
 - (v) ~~where new investments in natural gas based generation may be supported, proposed safeguards to ensure consistency with the Union's climate targets.~~
- b) for measures where the estimated average annual aid granted is $<$ EUR 100 million per year, a public consultation of at least 4 weeks' duration, covering:
 - (i) eligibility;
 - (ii) proposed use and scope of competitive bidding processes and any proposed exceptions; and

¹⁰⁸ For example the lead-time between the competitive process and the delivery period, bid/offer rules, pricing rules.

¹⁰⁹ For example if there are different contract durations, different methodologies for calculating the amount of eligible capacity / output from different technologies, different methodologies for calculating or paying subsidies.

- (iii) ~~where new investments in natural gas based generation may be supported, proposed safeguards to ensure consistency with the Union's climate targets.~~

307. No public consultation is required for measures falling under point 306 (b) where competitive bidding processes are used ~~and the measure does not support investments in fossil-fuel based energy generation.~~
308. Consultation questionnaires must be published on a public website. Member States must publish a response to the consultation summarising and addressing the responses received. This should include explaining how possible impacts on competition have been minimised through the scope/eligibility of the proposed measure. Member States must provide a link to their consultation response as part of the notification of aid measures under this section.
309. In exceptional and duly justified cases, the Commission might consider alternative methods of consultation provided that the views of interested parties are taken into account in the (continued) implementation of the aid. In such cases, the consultation might have to be combined with corrective actions to minimise possible distortive effects of the measure.

4.8.4.5 Proportionality

310. The rules set out in points 311, 312, 313 and 314 apply in addition to the rules set out in points 48, 49 and 50.
311. The lead-time between the granting of the aid and the deadline by when projects must be delivered should allow effective competition between the various eligible projects.
312. Exceptions from the requirement to allocate aid and determine the aid level through a competitive bidding process can only be justified where evidence is provided, including any evidence gathered in the public consultation, demonstrating that there is likely to be insufficient potential participation in such a bidding process to ensure competition.
313. For individual aid awards not awarded through a competitive bidding process, Member States must justify the proposed aid levels based on individual business plans for the specific project to be aided, including all the elements listed in points 50 and 51.
314. Member States may also use competitive certificates/supplier obligation schemes, provided that:
- (a) demand in the scheme is set below potential supply; and
 - (b) the buyout/penalty price that applies to a consumer/supplier that has not bought the number of certificates required (i.e. the price which constitutes the maximum that can be paid for support) is set based on the value of lost load.

4.8.5 Avoidance of undue negative effects on competition and trade and balancing

315. Section 3.2.2 does not apply to measures for the security of electricity supply.

316. Security of supply measures often aim to produce efficient incentives for sufficient overall investment across the system to reach the target reliability standard and are hence not always linked to specific identifiable investments by every beneficiary.
317. The aid must be designed to maintain the efficient functioning of markets and preserve efficient operating incentives and price signals.
318. Incentives must not be provided for generation of energy that would **displace** less polluting forms of energy.
319. The requirements in points 317 and 318 will generally be met when a measure pays for capacity (EUR per megawatt (MW)) rather than for electricity output (EUR/MWh). Where there is a payment per MWh, additional attention is needed to ensure adverse market effects are avoided, and less polluting generation sources are not displaced.
320. Security of supply measures must meet any relevant design conditions in Article 22 of Regulation (EU) 2019/943¹¹⁰.
321. For strategic reserves and any other measures where capacity is held outside the market, to ensure market price formation is not distorted the following additional cumulative requirements apply:
- (a) the resources of the measure are to be dispatched only if the transmission system operators are likely to exhaust their balancing resources to establish an equilibrium between demand and supply¹¹¹;
 - (b) during imbalance settlement periods where resources in the measure are dispatched, imbalances in the market are to be settled at least at the value of lost load¹¹² or at a higher value than the intraday technical price limit¹¹³, whichever is higher;
 - (c) the output of the measure following dispatch is to be attributed to balance responsible parties through the imbalance settlement mechanism;
 - (d) the resources in the measure are to be held outside the energy markets for at least the duration of the contractual period.
322. For capacity mechanisms, Member States must ensure that capacity obligations are transferable between eligible capacity providers.
323. Security of electricity supply measures should not:

¹¹⁰ For measures included in the risk preparedness plan referred to in Regulation (EU) 2019/941, see also Article 16(1) of that Regulation.

¹¹¹ That requirement is without prejudice to the activation of resources before actual dispatch in order to respect the ramping constraints and operating requirements of the resources. The output of the strategic reserve during activation must not be attributed to balance groups through wholesale markets and must not change their imbalances.

¹¹² As determined according to Article 11 of Regulation (EU) 2019/943.

¹¹³ As referred to in Article 10(1) of Regulation (EU) 2019/943.

- (a) create undue market distortions nor limit cross-zonal trade;
 - (b) reduce incentives to invest in interconnection capacity – for example by reducing congestion revenue for existing or new interconnectors;
 - (c) undermine market coupling, including intra-day and balancing markets;
 - (d) undermine investment decisions on capacity which preceded the measure.
324. To avoid undermining incentives for demand response and exacerbating the market failures that lead to the need for security of supply measures, and to ensure the security of supply intervention is as limited in size as possible, the costs of a security of supply measure should be borne by the market participants who contribute to the need for the measure. For example, this may be achieved by allocating the costs of a security of supply measure to electricity consumers in periods of peak electricity demand.
325. The Commission considers that certain aid measures have negative effects on competition and trade that are unlikely to be offset. In particular, certain aid measures may aggravate market failures, creating inefficiencies to the detriment of consumer and social welfare. For instance, measures – including network reserves and interruptibility schemes – that do not respect the emissions threshold applicable to capacity mechanisms set out in Article 22 of Regulation (EU) 2019/943 and that may incentivise new investments in energy based on the most polluting fossil fuels, such as coal, diesel, lignite, oil, peat and oil shale increase the negative environmental externalities in the market.
326. Measures that incentivise new investments in energy generation based on natural gas may support security of electricity supply but aggravate negative environmental externalities in the longer term, compared to alternative investments in non-emitting technologies. To enable the Commission to verify that the negative effects of such measures can be offset by positive effects in the balancing test, Member States should explain how they will ensure that such investment contributes to achieving the Union's 2030 climate target and 2050 climate neutrality target. In particular, the Member States should explain how a lock-in of this gas-fired energy generation will be avoided. ~~For example, this may include binding commitments by the beneficiary to implement decarbonisation technologies such as CCS/CCU or substitute natural gas by renewable or low carbon gas or to close the plant on a timeline consistent with the Union's climate targets.~~
327. For individual aid measures or schemes benefitting only a particularly limited number of beneficiaries or an incumbent beneficiary, Member States should, in addition, demonstrate that the proposed aid measure will not lead to increased market power.

4.9 Aid for energy infrastructure

4.9.1 Rationale for the aid

328. In order to meet the Union's climate targets, significant investment and upgrading of energy infrastructure will be required. A modern energy infrastructure is crucial for an integrated energy market that meets climate targets while ensuring security of supply of in the Union. Adequate energy infrastructure is a necessary element of an efficient

energy market. Improving energy infrastructure enhances system stability, resource adequacy, integration of different energy sources and energy supply in under-developed networks.

329. Where market operators cannot deliver the infrastructure needed, State aid may be necessary in order to overcome market failures and to ensure that the Union's considerable infrastructure needs are met. One market failure that may arise in the field of energy infrastructure is related to problems of coordination. Diverging interests among investors, uncertainty about the collaborative outcome and network effects may prevent the development of a project or its effective design. At the same time, energy infrastructure may generate substantial positive externalities, whereby the costs and benefits of the infrastructure may occur asymmetrically among the different market participants and Member States. The Commission therefore considers that aid to energy infrastructure can be beneficial to the internal market by contributing to addressing these market failures. This is particularly true for **infrastructure projects having a cross-border impact** such as Projects of Common Interest, as defined by Article 4 of Regulation (EC) No 347/2013.

4.9.2 *Scope*

330. This Section applies to support for the construction or upgrade of energy infrastructure, as defined in Section 2.4, point 18 (35). Unless the project is excluded from State aid control (see point 331), the Commission will assess it as set out in this Section.
331. **Energy infrastructure investments which are made within the framework of a legal monopoly are not subject to State aid rules. In the energy sector, this is particularly relevant for those Member States where the construction and operation of certain infrastructures is exclusively reserved by law for the TSO or DSO.**
332. The Commission considers that a legal monopoly which excludes distortions of competition exists where the following cumulative conditions are met:
- (a) the construction and operation of the infrastructure is subject to a legal monopoly established in compliance with Union law; this is the case where the TSO/DSO is legally the only entity entitled to make a certain type of investment and no other entity can operate an alternative network¹¹⁴;
 - (b) the legal monopoly not only excludes competition on the market, but also for the market, in that it excludes any possible competition to become the exclusive operator of the infrastructure in question;
 - (c) the service is not in competition with other services;

¹¹⁴ A legal monopoly exists where a given service is reserved by law or regulatory measures to an exclusive provider in a determined geographic area (also within one Member State), with a clear prohibition for any other operator to provide such service (not even to satisfy a possible residual demand from certain customer groups). However, the mere fact that the provision of a public service is entrusted to a specific undertaking does not mean that such undertaking enjoys a legal monopoly.

- (d) if the operator of the energy infrastructure is active in another (geographical or product) market that is open to competition, cross-subsidisation is excluded; this requires that separate accounts are used, costs and revenues are allocated in an appropriate way and public funding provided for the service subject to the legal monopoly cannot benefit other activities. As regards electricity and gas infrastructure, as Articles 31 of respectively both Directive 2009/72/EC of the European Parliament and of the Council and Directive 2009/73/EC of the European Parliament and of the Council require vertically integrated entities to keep separate accounts for each of their activities, this requirement will in all likelihood be satisfied.
333. Similarly, the Commission considers that there is no State aid involved in investments where the energy infrastructure is run under a ‘natural monopoly’, which is deemed to exist where the following cumulative conditions are met:
- (a) an infrastructure faces no direct competition, which is the case where the energy infrastructure cannot be economically replicated and hence where no operators other than the TSO/DSO are involved;
 - (b) alternative financing in the network infrastructure, in addition to the network financing, is insignificant in the sector and Member State concerned;
 - (c) the infrastructure is not designed to selectively favour a specific undertaking or sector but provides benefits for society at large, which is normally the case for gas and electricity infrastructure.
334. Member States also have to ensure that the funding provided for the construction of the energy network infrastructure cannot be used to cross-subsidise or indirectly subsidise other economic activities, including the operation of the infrastructure. For electricity and gas infrastructure, see point 332 (d).

4.9.3 *Minimisation of distortions of competition and trade*

4.9.3.1 *Necessity and appropriateness*

335. Sections 3.2.1.1. and 3.2.1.2 are not applicable to support to energy infrastructure.
336. Energy infrastructure is typically financed through user tariffs. For many infrastructure categories those tariffs are subject to regulation, in order to ensure the necessary level of investments while preserving user rights.
337. The granting of State aid is a way to overcome market failures which cannot be addressed by means of compulsory user tariffs. Therefore, to demonstrate the need for State aid, the following principles apply:
- (a) the Commission considers that for projects of common interest as defined by Article 4 of Regulation (EC) No 347/2013 which are fully subjected to internal energy market legislation, the market failures in terms of coordination problems are such that financing by means of tariffs may not be sufficient and State aid may be granted;

- (b) for Projects of Common Interest which are partially or fully exempted from internal energy market legislation, and for other infrastructure categories, the Commission will carry out a case-by-case assessment of the need for State aid. In its assessment, the Commission will consider the following factors: (i) the extent to which a market failure leads to a sub-optimal provision of the necessary infrastructure; (ii) the extent to which the infrastructure is open to third party access and subject to tariff regulation; and (iii) the extent to which the project contributes to the security of energy supply in the Union.

4.9.3.2 Proportionality of the aid

338. Proportionality will be assessed on the basis of the funding gap principle as set out in points 47, 50 and 51. For aid to infrastructure, as explained in point 51, the counterfactual scenario is presumed to be the situation in which the project would not take place. The introduction of claw-back mechanisms is necessary where there is a significant risk of windfall profits, e.g. when the aid is close to the maximum allowed, while keeping incentives for the beneficiaries to minimise their costs and develop their business in a more efficient manner over time.

4.9.4 *Avoidance of undue negative effects on competition and trade and balancing*

339. Section 3.2.2. is not applicable to energy infrastructure. In analyzing the impact of State aid to energy infrastructure on competition, the Commission's approach will be as follows:

- (a) In view of the existing requirements under the internal energy market legislation, which are aimed at strengthening competition, the Commission will generally consider that aid for energy infrastructure subject to full internal market regulation does not have undue distortive effects.
- (b) For infrastructure projects which are exempted, in whole or in part, from internal energy market legislation, the Commission will carry out a case-by-case assessment of the potential distortions of competition taking into account, in particular, the degree of third party access to the aided infrastructure, access to alternative infrastructure, crowding-out of private investment and the competitive position of the beneficiary or beneficiaries. For infrastructure exempted in whole from internal energy market legislation, the negative distortive effects on competition are considered particularly serious.
- (c) In addition to the approach above outlined, the Commission considers that for natural gas infrastructure investments, the positive effects on competition manifestly outweigh its negative effects on competition where the resulting infrastructure is fit for use for hydrogen and renewable gases or fuels of non-biological origin. Where this is not the case, in order to off-set the negative effects on competition, the Member State concerned needs to demonstrate the following: (i) why it is not possible to design the project so that it is fit for use for hydrogen and renewable gases or fuel of non-biological origin; (ii) why the project does not create a lock-in effect for the use of natural gas; and (iii) how the investment contributes to achieving the Union's 2030 climate target and 2050 climate neutrality target.

4.10 Aid for district heating or cooling

4.10.1 Rationale for the aid

340. The construction or the upgrade of district heating and cooling systems can make a positive contribution to environmental protection by increasing the energy efficiency and sustainability of the supported system. However, the environmental externalities associated with the operation of district heating and cooling can lead to inefficient underinvestment in the construction and upgrade of district heating and cooling systems. State aid can contribute to addressing this market failure by triggering additional efficient investment.

4.10.2 Scope and supported activity

341. This Section applies to support for the construction or upgrade of energy efficient district heating and cooling systems. Supported investments can concern heating or cooling generation and storage plants or the distribution network or both.
342. Such aid measures typically cover the construction or upgrade of the generation unit to use renewable energy, waste heat, or highly-efficient cogeneration including thermal storage solutions, or the upgrade of the distribution network to reduce losses and increase efficiency, including through smart and digital solutions.
343. Where a Member State invests in the upgrade of a district heating and cooling system without meeting the standard of energy efficiency, it needs to commit to start the works to reach that standard within three years following the upgrade works.

4.10.3 Necessity and appropriateness

344. Sections 3.2.1.1. and 3.2.1.2. do not apply to aid to district heating or cooling. The Commission considers that State aid can contribute to addressing market failures by triggering the investment needed for the creation of energy efficient district heating and cooling systems. In addition, State aid for energy efficient district heating and cooling systems using waste, including waste heat, as input fuel can make a positive contribution to environmental protection, provided that they do not circumvent the waste hierarchy principle¹¹⁵.

4.10.4 Proportionality of the aid measure

345. Proportionality will be assessed on the basis of the funding gap principle as set out in points 47, 50 and 51.
346. For the construction and upgrade of distribution networks, as set out in point 51, the counterfactual scenario would be the situation in which the project would not take place.

¹¹⁵ The waste hierarchy consists of (a) prevention, (b) preparing for re-use, (c) recycling, (d) other recovery, for instance energy recovery, and (e) disposal. See Article 4, point (1), of Directive 2008/98/EC.

4.10.5 *Avoidance of undue negative effects on competition and trade and balancing*

347. Section 3.2.2. does not apply to aid for district heating or cooling. The Commission considers that the upgrade or construction of district heating and cooling systems which rely on the most polluting fossil fuels such as coal, lignite, oil and diesel, have negative consequences on competition and trade which are unlikely to be offset unless the following cumulative conditions are fulfilled:

- (a) the support is limited to the upgrade of the distribution network;
- (b) the distribution network is or becomes fit for the transport of heat or cooling generated from renewable energy sources;
- (c) the investment does not result in increased generation of energy from the most polluting fossil fuels (for example, by connecting additional customers);
- (d) there is a clear timeline involving firm commitments for transitioning away from the most polluting fossil fuels, compatible with the Union's 2030 climate target and the 2050 climate neutrality target.

348. As regards the construction or upgrade of district heating generation installations, measures that incentivise new investments in energy based on natural gas may reduce greenhouse gas emissions in the short run but aggravate negative environmental externalities in the longer run, compared to alternative investments. For those investments in natural gas to be seen as having positive environmental effects, Member States must explain how they will ensure that the investment contributes to achieving the Union's 2030 climate target and 2050 climate neutrality target and, in particular, how a lock-in of the gas-fired energy generation or gas-fired production equipment will be avoided. For example, this may include binding commitments by/from the beneficiary to implement CCS/CCU or substitute natural gas by renewable or low carbon gas or to close the plant on a timeline consistent with the Union's climate targets.

349. In analysing the impact of State aid for district heating and cooling systems on competition and in balancing it against the supported economic activity, the Commission will carry out a case-by-case assessment balancing the benefits of the project in terms of energy efficiency and sustainability against the negative effects on competition and in particular the possible negative impact on alternative technologies or providers of heating and cooling services and networks.

4.11 Aid in the form of reductions from electricity levies for energy-intensive users

4.11.1 Rationale for the aid

350. The transformation of the Union's economy in line with the Green Deal Communication is partially financed through levies on electricity consumption. The realisation of the Green Deal requires that Member States put in place ambitious decarbonisation policies to significantly reduce Union greenhouse gas emissions by 2030 and reach climate neutrality by 2050. In this context, it is likely that Member States will continue to finance such policies through levies and it is therefore possible that those levies may increase.

351. For certain economic sectors which are particularly exposed to international trade and rely heavily on electricity for their value creation, the obligation to pay the full amount of such levies can create a significant additional burden. This burden can heighten a risk of activities in these sectors moving outside the European Union to locations where environmental disciplines are absent or less ambitious. In addition, such levies increase the cost of electricity compared to the cost of direct emissions and can therefore discourage the electrification of production processes, which is central to the successful decarbonisation of the Union economy. To mitigate those risks, Member States can grant reductions from such levies for companies active in the economic sectors concerned.
352. This Section sets out the criteria which the Commission will apply when assessing the development of an economic activity, incentive effect, necessity, appropriateness, proportionality and competition impacts of reductions in electricity levies for certain energy-intensive users. The compatibility criteria in Chapter 3 apply only for those criteria for which there are no specific rules in this Section.
353. The Commission has used appropriate measures to identify those sectors which find themselves particularly exposed to the risks mentioned in point 351 and it has introduced proportionality requirements taking into consideration that, if the reduced levies are too high or awarded to too many electricity consumers, the overall funding of support to energy from renewable sources might be threatened and distortions of competition and trade may be particularly high.

4.11.2 *Scope: Levies from which reductions can be granted*

354. Under this Section, Member States may grant reductions from levies on electricity consumption which finance an energy policy objective. This includes levies financing support to renewable sources or to combined heat and power and levies financing social tariffs or energy prices in isolated regions. This Section does not cover levies which reflect part of the cost of providing electricity to the beneficiaries in question. For example, exemptions from network charges or from charges financing capacity mechanisms are not covered by this Section. Levies on the consumption of other forms of energy, in particular natural gas, are also not covered by this Section.
355. The impact of levies from which reductions can be granted on the risk of relocation outside the Union depends on the combined financial effect of all the levies concerned and all reductions from such levies granted to the eligible beneficiaries. Member States wishing to introduce a measure to be assessed under this Section therefore have to include all such reductions in a single scheme and, as part of the notification, have to inform the Commission of the cumulative effect of all eligible levies and all reductions proposed. Should a Member State decide at a later stage to introduce additional reductions on levies covered by this Section, it will have to notify an amendment to the existing scheme.
356. ~~The Commission considers that Member States may grant reductions to levies under this Section only where the overall cumulative level of these levies (before any reductions) is at least [...] EUR/MWh.~~

4.11.3 *Minimisation of distortions on competition and trade*

4.11.3.1 Eligibility

357. The aid under this Section should be limited to sectors that are at a significant competitive disadvantage and risk of relocation outside the Union because of the eligible levies. The risk of relocation depends on the electro-intensity of the sector in question and its exposure to international trade. Accordingly, aid can only be granted if the undertaking belongs to a sector facing a trade intensity of at least 20 % at Union level and an electro-intensity of at least 10 % at Union level. In addition, the Commission considers that a similar risk exists in sectors that face an electro-intensity of at least 7% and face a trade intensity of at least 80%. The sectors meeting these eligibility criteria are listed in Annex I.
358. Should a Member State grant support only to a subset of eligible beneficiaries or grant different levels of reductions to different categories of eligible beneficiaries, it must demonstrate that that decision is made on the basis of objective, non-discriminatory and transparent criteria and that the aid is granted, in principle, the same way for all competitors in the same sector if they are in a similar factual situation.

4.11.3.2 Proportionality of the aid measure

359. The Commission will consider the aid to be proportionate if the beneficiaries pay at least 25 % of the costs generated by the electricity levies which a Member State includes in its scheme.
360. However, an own contribution of 25 % of the eligible electricity levies might go beyond what undertakings which are particularly exposed can bear. Therefore, the Member State may instead limit the additional costs resulting from the electricity levies to 1.5 % of the gross value added (GVA) of the undertaking concerned.
361. For the purpose of point 360 the GVA of an undertaking shall be the gross value added at factor costs, which is the GVA at market prices less any indirect taxes plus any subsidies. Gross value added at factor cost can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus changes in stocks, minus purchases of goods and services¹¹⁶, minus other taxes on products that are linked to turnover but not deductible, minus duties and taxes linked to production. Alternatively, GVA at factor cost can be calculated from gross operating surplus by adding personnel costs. Income and expenditure classified as financial or extraordinary in company accounts are excluded from the value added. The value added at factor costs is calculated at gross level, as value adjustments (such as depreciation) are not subtracted¹¹⁷.
362. For the purposes of point 361, the arithmetic mean over the most recent 3 years for which GVA data is available will be used.

¹¹⁶ 'Goods and services' do not include personnel costs.

¹¹⁷ Code 12 15 0 within the legal framework established by Council Regulation (EC, Euratom) No 58/97 of 20 December 1996 concerning structural business statistics (OJ L 014, 17.1.1997, p. 1).

4.11.3.3 Form of State aid

363. Member States can grant the aid in the form of a reduction in levies, as a fixed annual compensation amount (refund), or as a combination of the two¹¹⁸. Where the aid is granted in the form of a reduction in levies, an *ex post* monitoring mechanism needs to be put in place to ensure that any over-payment of aid will be repaid before 1 July of the following year. Where the aid is granted in the form of a refund, it must be calculated on the basis of the observed levels of electricity consumption and, if applicable, the gross value added over the period of time during which the eligible levies were applied.

4.11.3.4 Energy Audits and Management Systems

364. For aid granted under Section 4.11, the Member State must commit to verifying that the beneficiary complies with its obligation to conduct an energy audit within the meaning of Article 8 of Directive 2012/27/EU. It can be conducted either as a stand-alone energy audit or within the framework of a certified Energy Management System or Environmental Management System, for example the Union eco-management and audit scheme (EMAS)¹¹⁹.
365. The Member State must also commit to monitoring that beneficiaries required to conduct an energy audit under Article 8(4) of Directive 2012/27/EU do one or more of the following:
- (a) implement recommendations of the audit report, to the extent that the pay-back time for the relevant investments does not exceed 3 years and that the costs of their investments is proportionate;
 - (b) reduce the carbon footprint of their electricity consumption, so as to cover at least 30 % of their electricity consumption from carbon-free sources;
 - (c) invest a significant share of at least 50 % of the aid amount in projects that lead to substantial reductions of the installation's greenhouse gas emissions; where applicable, the investment should lead to reductions well below the relevant benchmark used for free allocation in the Union ETS.

4.11.3.5 Transitional rules

366. The Commission considers that non-notified aid granted in the form of reduced electricity levies for energy-intensive users in the period prior to the publication of these guidelines can be declared compatible with the internal market under the following conditions:

¹¹⁸ The use of fixed annual compensations (refunds) has the advantage that undertakings benefitting from the aid face the same increase in the marginal cost of electricity (i.e. the same increase in the cost of electricity for every extra MWh consumed), thereby limiting potential distortions of competition within the sector.

¹¹⁹ Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC (OJ L 342, 22.12.2009, p. 1).

- (a) that the aid was necessary for the development of the economic activities carried out by the beneficiaries, and
- (b) that excessive competition distortions have been avoided.

4.12 Aid for coal, peat and oil shale closure

367. The Sections 4.12.1 and 4.12.2 provide the compatibility rules applicable to two types of measures that Member States may take to support the closure of power plants that burn coal (including both hard coal and lignite), peat or oil shale and potentially also of mining operations for these fuels (together referred to as “coal, peat and oil shale activities”).
368. The two Sections below set out the criteria, which the Commission will apply when assessing the incentive effect, necessity, appropriateness, proportionality and effects on competition and trade. The compatibility criteria in Chapter 3 apply only for those criteria for which there are no specific rules in the two Sections below.

4.12.1 Aid for early closure

4.12.1.1 Rationale for the aid

369. The shift away from power generation based on coal, peat and oil shale is one of the most important drivers of decarbonisation in the power sector in the Union. This shift is largely driven by market forces such as the effects of carbon prices and competition from renewables with low marginal costs.
370. However, Member States may decide to accelerate this market driven transition by prohibiting the generation of power based on these fuels as of a certain date. This prohibition can create situations in which profitable coal, peat and oil shale activities have to close before the end of their economic lifetime and can hence result in foregone profit.

4.12.1.2 Scope and supported activities

371. This Section sets out compatibility rules for measures taken to compensate for the early closure of profitable coal, peat and oil shale activities.
372. Measures covered by this Section can facilitate the development of certain economic activities or areas. For instance, such measures can create space for the development of other, **likely environmentally friendly**, activities in order to offset the reduction in the power generation capacity caused by the early closure. In the absence of the measure, this development may not take place to the same extent. In addition, the predictability and legal certainty introduced by such measures can help to facilitate the ordered closure of coal, peat and oil shale activities.

4.12.1.3 Incentive effect

373. The measure needs to trigger a change in the economic behaviour of the operators, which close down their coal, peat and oil shale activities earlier than the end of their economic lifetime. To determine whether this is the case, the Commission will compare

the effects of the measure with a counterfactual scenario without the mandatory closure and related compensation. The counterfactual scenario should be based on justified assumptions in line with projected developments and reflect the projected revenues and costs of the installations in question. The closure of the coal, peat and oil shale activities should occur no later than one year from the award of the compensation, unless a correction mechanism is in place to update the calculation based on the most recent assumptions. In exceptional circumstances the Member State may justify why a longer period is necessary even without a correction mechanism. The measure should not lead to a circumvention of the rules applicable to measures for security of supply.

4.12.1.4 Necessity and appropriateness

374. Compensation for such foregone profit resulting from the early closure of profitable coal, peat and oil shale activities often helps to avoid legal disputes with the operators and ensures legal certainty and predictability. Compensation for lost profits decided by a national court in line with rules of domestic law applicable to any litigant in a similar situation is likely, because of its nature, to fall outside the scope of State aid control. The same rule does not apply for compensation decided on by the Member State authorities or agreed with the undertakings. In such cases, the Commission cannot exclude that these forms of compensation involve State aid, as the Commission cannot verify whether the compensation granted is equal to the compensation that would have been awarded under national law.

4.12.1.5 Proportionality

375. The aid must in principle be granted through a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria, in line with Section 3.2.1.3¹²⁰. This requirement does not apply where the Member State demonstrates that a bidding process is unlikely to be competitive for objective reasons. This can, for example, be the case where the number of potential participants is limited, provided this is not due to discriminatory eligibility criteria.
376. If the aid is granted through a competitive bidding process, the Commission will presume that the aid is proportionate and limited to the minimum necessary.
377. In the absence of a competitive bidding process, the Commission will assess proportionality on a case-by-case basis. In this context, the Commission will analyse in detail the assumptions used by the Member State to determine the foregone profits and additional costs due to early closure, by comparing the expected profitability in the factual and counterfactual scenarios. Additional costs cannot include costs that would also have occurred in the counterfactual scenario, such as dismantling costs. Where the closure of the coal, peat and oil shale activities occurs more than one year after the compensation has been awarded, the Member State must introduce a mechanism to update the calculation based on the most recent assumptions, unless it can demonstrate why the use of such a mechanism is not justified due to exceptional circumstances in the case at hand.

¹²⁰ The 25 % requirement set out in point 49 of the guidelines does not apply to bidding processes under this Section 4.12.

4.12.1.6 Avoidance of undue negative effects on competition and trade

378. The Member State must identify and quantify the expected environmental benefits of the measure, where possible in terms of subsidy per tonne of CO₂ equivalent emissions avoided. When assessing the benefits of the measure in terms of decarbonisation, the Commission will also ~~take into account whether the measure includes a voluntary cancellation of CO₂ emission allowances at national level.~~
379. It is important to ensure that the measure is structured in a way that limits to the minimum any distortion of competition in the market. If the aid is granted through a competitive bidding process open to all operators of coal, peat or oil shale on a non-discriminatory basis, the Commission will presume that the aid has limited distortive effects on competition and trade. In the absence of a competitive bidding process, the Commission will assess the aid's effects on competition and trade based on the design of the measure and its effect on the relevant market.

4.12.2 *Aid for exceptional costs*

4.12.2.1 Rationale for the aid

380. The closure of uncompetitive coal, peat and oil shale activities can generate significant social and environmental costs at the level of the power plants and the mining operations. Member States may decide to cover such exceptional costs to mitigate the social and regional consequences of the closure process.

4.12.2.2 Scope and supported activities

381. This Section sets out compatibility rules for measures taken to cover exceptional costs resulting from the closure of uncompetitive coal, peat and oil shale activities.
382. Measures covered by this Section can facilitate the social, environmental and safety transition of the area concerned.
383. This Section applies to the extent the measure is not covered by Council Decision of 10 December 2010 on State aid to facilitate the closure of uncompetitive coal mines.¹²¹

4.12.2.3 Necessity and appropriateness

384. The Commission will consider aid to cover exceptional costs necessary and appropriate to the extent it can help mitigate the social and environmental impact of the closure of uncompetitive coal, peat and oil shale activities in the region and the Member State concerned.

4.12.2.4 Incentive effect and proportionality

385. State aid for exceptional costs may only be used to cover the costs resulting from the closure of uncompetitive coal, peat and oil shale activities.

¹²¹ Council Decision of 10 December 2010 on State aid to facilitate the closure of uncompetitive coal mines (OJ L 336, 21.12.2010, p. 24–29).

386. The categories of eligible costs covered are defined in Annex II. Costs resulting from non-compliance with environmental regulations and costs related to current production are not eligible.
387. In particular with regard to aid to cover exceptional environmental costs, such aid may be granted only when the polluter is not identified or cannot be held legally liable for covering such costs in accordance with the “polluter pays” principle. The polluter is the entity liable under the law applicable in each Member State, without prejudice to Directive 2004/35/EU of the European Parliament and of the Council¹²², or other relevant Union rules¹²³.
388. Without prejudice to the ‘polluter pays’ principle, State aid may be granted to the entity liable under the applicable Union and national rules only to cover exceptional environmental costs going beyond the legal obligations under the applicable Union and national rules or under previous/contractual commitments.
389. Where the person liable under the applicable law is not identified or cannot be made to bear the costs, State aid may be granted to cover all the exceptional environmental costs. The Member State must demonstrate that all reasonable efforts have been taken to identify the liable entity. Where the person having caused the contamination or other environmental damage is identified, the Member State must demonstrate that all legal steps have been taken to make the polluter bear the costs, including legal actions. The Commission may consider that an undertaking cannot be made to bear the costs of remediating the contamination it has caused where it has ceased to legally exist and no other undertaking can be regarded as its legal successor and/or there is no or insufficient financial security to meet the costs of remediation.
390. The aid amount must be limited to the coverage of exceptional costs of the beneficiary and must not exceed the costs actually incurred. The Commission will require Member States to clearly and separately identify the aid amount for each category of eligible costs, as detailed in Annex II. Where the Member State covers such costs on the basis of estimations, before they are actually incurred by the beneficiary, it must carry out an *ex post* verification of the costs incurred on the basis of detailed statements provided by the beneficiary to the granting authority, including invoices or certificates showing the exceptional costs incurred, and adjust the amounts granted accordingly.

4.12.2.5 Avoidance of undue negative effects on competition and trade

391. Provided the aid is limited to the coverage of exceptional costs incurred by the beneficiary, the Commission considers that it has limited distortive effects on competition and trade.
392. The aid received should be shown in the profit-and-loss accounts of the beneficiary as a separate item of revenue distinct from turnover. Where the beneficiary continues

¹²³ See the Commission Notice Guidelines providing a common understanding of the term ‘environmental damage’ as defined in Article 2 of Directive 2004/35/EC of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage 2021/C 118/01 (OJ C 118, 7.4.2021, p. 1).

trading or operating after closing down the relevant coal, peat and oil shale activities, it must keep precise and separate accounts for those activities. The aid granted must be managed in such a way that there is no possibility of it being transferred to other economic activities of the same undertaking.

4.13 Aid for studies or consultancy services on environmental protection and energy matters

4.13.1 Scope and supported activity

393. This Section applies to aid for studies or consultancy services directly linked to projects or activities covered by these guidelines. Aid may be granted irrespective of whether the study or consultancy service is followed by an investment covered by these guidelines.

4.13.2 Incentive effect

394. The requirement set out in point 395 apply in addition to those set out in Section 3.1.2.

395. Aid for energy audits required by Directive 2012/27/EU may be considered to have an incentive effect only to the extent that the energy audit is carried out in addition to the mandatory energy audit under that Directive. However, if the energy audit is carried out in addition to the mandatory energy audit under that Directive, aid for the additional energy audit may be regarded as having an incentive effect.

4.13.3 Proportionality

396. The eligible costs are the costs of the study or consultancy services relating to projects or activities covered by these guidelines. Where only part of the study or consultancy service concerns investments covered by these guidelines, the eligible costs are the costs of the parts of the study or consultancy service relating to those investments.

397. The aid intensity must not exceed 60 % of the eligible costs.

398. The aid intensity may be increased by 20 percentage points for studies or consultancy services undertaken on behalf of small enterprises and by 10 percentage points for studies or consultancy services undertaken on behalf of medium-sized enterprises.

5. EVALUATION

399. To further ensure that distortions of competition and trade are limited, the Commission may require that notifiable aid schemes be subject to an ex post evaluation. Evaluations should be carried out for schemes where the potential distortions of competition and trade are particularly high, that is to say schemes that may risk significantly restricting or distorting competition if their implementation is not reviewed in due time.

400. *Ex post* evaluation will be required for schemes with large aid budgets, or containing novel characteristics, or when significant market, technology or regulatory changes are foreseen. In any event, *ex post* evaluation will be required for schemes when the State aid budget or accounted expenditures exceed EUR 150 million in any given year or EUR 750 million over the total duration of the schemes. The total duration of the

schemes includes the combined duration of the scheme and any predecessor scheme covering a similar objective and geographical area, starting from 1 January 2022. Given the objectives of the evaluation, and in order not to impose a disproportionate burden on Member States and on smaller aid projects, the *ex post* evaluation requirement only applies for aid schemes the total duration of which exceeds three years, starting from 1 January 2022.

401. Given its objectives and in order not to put a disproportionate burden on Member States and on smaller aid measures, the requirement notifiable aid schemes be subject to an *ex post* evaluation will apply only for aid schemes with large budgets, or containing novel characteristics or when significant market, technology or regulatory changes are foreseen.
402. The *ex post* evaluation requirement may be waived with respect to aid schemes that are the immediate successors of schemes covering a similar objective and geographical area that have been subject to an evaluation, delivered a final evaluation report in compliance with the evaluation plan approved by the Commission and have not generated any negative findings. Any scheme where the final evaluation report is not in compliance with the approved evaluation plan must be suspended with immediate effect.
403. The evaluation should aim at verifying whether the assumptions and conditions underlying the compatibility of the scheme have been achieved, in particular the necessity and the effectiveness of the aid measure in the light of its general and specific objectives and should provide indications on the impact of the scheme on competition and trade.
404. The Member State must notify a draft evaluation plan, which will be an integral part of the Commission's assessment of the scheme, as follows:
 - (a) together with the aid scheme, if its State aid budget exceeds EUR 150 million in any given year or EUR 750 million over its total duration, and;
 - (b) within 30 working days following a significant modification increasing the budget of the scheme to over EUR 150 million in any given year or EUR 750 million over the total duration of the scheme, and;
 - (c) within 30 working days after recording in official accounts expenditures in excess of EUR 150 million in the previous year.
405. The draft evaluation plan must be in accordance with the common methodological principles provided by the Commission¹²⁴. The evaluation plan approved by the Commission must be made public.
406. The *ex post* evaluation must be carried out by an expert independent from the aid granting authority on the basis of the evaluation plan. Each evaluation must include at least one interim and one final evaluation report. Both reports must be made public.

¹²⁴ Commission Staff Working Document, Common methodology for State aid evaluation, 28.5.2014, SWD(2014) 179 final.

407. In case of aid schemes excluded from the scope of a block exemption regulation exclusively on the grounds of their large budget, the Commission will assess their compatibility solely on the basis of the evaluation plan.
408. The final evaluation report must be submitted to the Commission in due time to allow for the assessment of the possible prolongation of the aid scheme and at the latest nine months before its expiry. That deadline could be reduced for schemes triggering the evaluation requirement in their last two years of implementation. The precise scope and arrangements for each evaluation will be set out in the decision approving the aid scheme. Any subsequent aid measure with a similar objective must describe how the results of the evaluation have been taken into account.

6. REPORTING AND MONITORING

409. In accordance with Regulations (EU) 2015/1589 and (EC) No 794/2004, Member States must submit annual reports to the Commission.
410. Member States must maintain detailed records regarding all aid measures. Such records must contain all information necessary to establish that the conditions regarding eligible costs and maximum aid intensities have been fulfilled. Those records must be maintained for 10 years from the date of award of the aid and must be provided to the Commission upon request.

7. APPLICABILITY

411. The Commission will apply these guidelines from 1 January 2022.
412. These guidelines replace the Guidelines on State aid for environmental protection and energy 2014-2020¹²⁵.
413. The Commission will apply these guidelines for assessing the compatibility of all notified aid in respect of which it is called upon to take a decision after 1 January 2022. Unlawful aid will be assessed in accordance with the rules applicable at the date on which the aid was awarded.
414. The Commission proposes the following appropriate measures to Member States under Article 108, point (1), of the Treaty:
- (a) Member States must amend, where necessary, their existing environmental protection and energy aid schemes in order to bring them into line with these guidelines no later than 31 December 2023;
 - (b) Member States should give their explicit unconditional agreement to the appropriate measures proposed in point 414(a) within two months from the date of publication of these guidelines in the Official Journal of the European Union. In the absence of any reply, the Commission will assume that the Member State in question does not agree with the proposed measures.

¹²⁵ Communication from the Commission — Guidelines on State aid for environmental protection and energy 2014-2020 (OJ C 200, 28.6.2014, p. 1).

8. REVISION

415. The Commission may decide to review or amend these guidelines at any time if this should be necessary for reasons associated with competition policy or to take account of other Union policies and international commitments or for any other justified reason.