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Subject: Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652

Delegations will find in annex the Presidency REV 1 of the Commission's proposal for the revision of the renewable energy directive.

In the current revision: new text in **bold underlined**, deleted text is in ~~striketrough~~.

Please note that unchanged parts of the text are **not** necessarily acceptable or accepted as they currently stand but it is the view of the Presidency that they should not be addressed at this stage.

Brussels, 14.7.2021
COM(2021) 557 final

2021/0218 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

**amending Directive (EU) 2018/2001 of the European Parliament and of the Council,
Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive
98/70/EC of the European Parliament and of the Council as regards the promotion of
energy from renewable sources, and repealing Council Directive (EU) 2015/652**

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{SWD(2021) 622 final}

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 114 and 194(2) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee¹,

Having regard to the opinion of the Committee of the Regions²,

Acting in accordance with the ordinary legislative procedure,

¹ OJ C , , p. .

² OJ C , , p. .

Whereas:

- (1) The European Green Deal³ establishes the objective of the Union becoming climate neutral in 2050 in a manner that contributes to the European economy, growth and job creation. That objective, and the objective of a 55% reduction in greenhouse gas emissions by 2030 as set out in the 2030 Climate Target Plan⁴ that was endorsed both by the European Parliament⁵ and by the European Council⁶, requires an energy transition and significantly higher shares of renewable energy sources in an integrated energy system.
- (2) Renewable energy plays a fundamental role in delivering the European Green Deal and for achieving climate neutrality by 2050, given that the energy sector contributes over 75% of total greenhouse gas emissions in the Union. By reducing those greenhouse gas emissions, renewable energy also contributes to tackling environmental-related challenges such as biodiversity loss.
- (3) Directive (EU) 2018/2001 of the European Parliament and of the Council⁷ sets a binding Union target to reach a share of at least 32 % of energy from renewable sources in the Union's gross final consumption of energy by 2030. Under the Climate Target Plan, the share of renewable energy in gross final energy consumption would need to increase to 40% by 2030 in order to achieve the Union's greenhouse gas emissions reduction target⁸. Therefore, the target set out in Article 3 of that Directive needs to be increased.

³ Communication from the Commission COM(2019) 640 final of 11.12.2019, The European Green Deal.

⁴ Communication from the Commission COM(2020) 562 final of 17.9.2020, Stepping up Europe's 2030 climate ambition Investing in a climate-neutral future for the benefit of our people

⁵ European Parliament resolution of 15 January 2020 on the European Green Deal (2019/2956(RSP))

⁶ European Council conclusions of 11 December 2020, <https://www.consilium.europa.eu/media/47296/1011-12-20-euco-conclusions-en.pdf>

⁷ 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. 82–209

⁸ Point 3 of the Communication from the Commission COM(2020) 562 final of 17.9.2020, Stepping up Europe's 2030 climate ambition Investing in a climate-neutral future for the benefit of our people

(4) There is a growing recognition of the need for alignment of bioenergy policies with the cascading principle of biomass use⁹, with a view to ensuring fair access to the biomass raw material market for the development of innovative, high value-added bio-based solutions and a sustainable circular bioeconomy. When developing support schemes for bioenergy, Member States should therefore take into consideration the available sustainable supply of biomass for energy and non-energy uses and the maintenance of the national forest carbon sinks and ecosystems as well as the principles of the circular economy and the biomass cascading use, and the waste hierarchy established in Directive 2008/98/EC of the European Parliament and of the Council¹⁰. For this, they should grant no support to the production of energy from saw logs, veener logs, stumps and roots and avoid promoting the use of quality roundwood for energy except in well-defined circumstances. In line with the cascading principle, woody biomass should be used according to its highest economic and environmental added value in the following order of priorities: 1) wood-based products, 2) extending their service life, 3) re-use, 4) recycling, 5) bio-energy and 6) disposal. Where no other use for woody biomass is economically viable or environmentally appropriate, energy recovery helps to reduce energy generation from non-renewable sources. Member States' support schemes for bioenergy should therefore be directed to such feedstocks for which little market competition exists with the material sectors, and whose sourcing is considered positive for both climate and biodiversity, in order to avoid negative incentives for unsustainable bioenergy pathways, as identified in the JRC report 'The use of woody biomass for energy production in the EU'¹¹. On the other hand, in defining the further implications of the cascading principle, it is necessary to recognise the national specificities which guide Member States in the design of their support schemes. Waste prevention, reuse and recycling of waste should be the priority option. Member States should avoid creating support schemes which would be counter to targets on treatment of waste and which would lead to the inefficient use of recyclable waste. Moreover, in order to ensure a more efficient use of bioenergy, from 2026 on Member States

⁹ The cascading principle aims to achieve resource efficiency of biomass use through prioritising biomass material use to energy use wherever possible, increasing thus the amount of biomass available within the system. In line with the cascading principle, woody biomass should be used according to its highest economic and environmental added value in the following order of priorities: 1) wood-based products, 2) extending their service life, 3) re-use, 4) recycling, 5) bio-energy and 6) disposal.

¹⁰ 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).

¹¹ <https://publications.jrc.ec.europa.eu/repository/handle/JRC122719>

should not give support anymore to electricity-only plants-, unless the installations are in regions with a specific use status as regards their transition away from fossil fuels or if the installations use carbon capture and storage.

- (5) The rapid growth and increasing cost-competitiveness of renewable electricity production can be used to satisfy a growing share of energy demand, for instance using heat pumps for space heating or low-temperature industrial processes, electric vehicles for transport, or electric furnaces in certain industries. Renewable electricity can also be used to produce synthetic fuels for consumption in hard-to-decarbonise transport sectors such as aviation and maritime transport. A framework for electrification needs to enable robust and efficient coordination and expand market mechanisms to match both supply and demand in space and time, stimulate investments in flexibility, and help integrate large shares of variable renewable generation. Member States should therefore ensure that the deployment of renewable electricity continues to increase at an adequate pace to meet growing demand. For this, Member States should establish a framework that includes market-compatible mechanisms to tackle remaining barriers to have secure and adequate electricity systems fit for a high level of renewable energy, as well as storage facilities, fully integrated into the electricity system. In particular, this framework ~~should~~shall tackle remaining barriers, including non-financial ones such as insufficient digital and human resources of authorities to process a growing number of permitting applications.
- (6) When calculating the share of renewables in a Member State, renewable fuels of non-biological origin should be counted in the sector where they are consumed (electricity, heating and cooling, or transport). To avoid double-counting, the renewable electricity used to produce these fuels should not be counted. This would result in a harmonisation of the accounting rules for these fuels throughout the Directive, regardless of whether they are counted for the overall renewable energy target or for any sub-target. It would also allow to count the real energy consumed, taking account of energy losses in the process to produce those fuels. Moreover, it would allow for the accounting of renewable fuels of non-biological origin imported into and consumed in the Union.

- (7) Member States' cooperation to promote renewable energy can take the form of statistical transfers, support schemes or joint projects. It allows for a cost-efficient deployment of renewable energy across Europe and contributes to market integration. Despite its potential, cooperation has been very limited, thus leading to suboptimal results in terms of efficiency in increasing renewable energy. Member States should therefore be obliged to test cooperation through implementing a pilot project. Projects financed by national contributions under the Union renewable energy financing mechanism established by Commission Implementing Regulation (EU) 2020/1294¹² would meet this obligation for the Member States involved.
- (8) The Offshore Renewable Energy Strategy introduces an ambitious objective of 300 GW of offshore wind and 40 GW of ocean energy across all the Union's sea basins by 2050. To ensure this step change, Member States will need to work together across borders at sea-basin level. Member States should therefore jointly define the amount of offshore renewable generation to be deployed within each sea basin by 2050, with intermediate steps in 2030 and 2040. These objectives should be reflected in the updated national energy and climate plans that will be submitted in 2023 and 2024 pursuant to Regulation (EU) 2018/1999. In defining the amount, Member States should take into account the offshore renewable energy potential of each sea basin, environmental protection, climate adaptation and other uses of the sea, as well as the Union's decarbonisation targets. In addition, Member States should increasingly consider the possibility of combining offshore renewable energy generation with transmission lines interconnecting several Member States, in the form of hybrid projects or, at a later stage, a more meshed grid. This would allow electricity to flow in different directions, thus maximising socio-economic welfare, optimising infrastructure expenditure and enabling a more sustainable usage of the sea.

¹² Commission Implementing Regulation (EU) 2020/1294 of 15 September 2020 on the Union renewable energy financing mechanism (OJ L 303, 17.9.2020, p. 1).

- (9) The market for renewable power purchase agreements is rapidly growing and provides a complementary route to the market of renewable power generation in addition to support schemes by Member States or to selling directly on the wholesale electricity market. At the same time, the market for renewable power purchase agreements is still limited to a small number of Member States and large companies, with significant administrative, technical and financial barriers remaining in large parts of the Union's market. The existing measures in Article 15 to encourage the uptake of renewable power purchase agreements should therefore be strengthened further, by exploring the use of credit guarantees to reduce these agreements' financial risks, taking into account that these guarantees, where public, should not crowd out private financing.
- (10) Overly complex and excessively long administrative procedures constitute a major barrier for the deployment of renewable energy. On the basis of the measures to improve administrative procedures for renewable energy installations that Member States are to report on by 15 March 2023 in their first integrated national energy and climate progress reports pursuant to Regulation (EU) 2018/1999 of the European Parliament and of the Council¹³, the Commission should assess whether the provisions included in this Directive to streamline these procedures have resulted in smooth and proportionate procedures. If that assessment reveals significant scope for improvement, the Commission should take appropriate measures to ensure Member States have streamlined and efficient administrative procedures in place.

¹³ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1).

- (11) Buildings have a large untapped potential to contribute effectively to the reduction in greenhouse gas emissions in the Union. The decarbonisation of heating and cooling in this sector through an increased share in production and use of renewable energy will be needed to meet the ambition set in the Climate Target Plan to achieve the Union objective of climate neutrality. However, progress on the use of renewables for heating and cooling has been stagnant in the last decade, largely relying on increased use of biomass. Without the establishment of targets to increase the production and use of renewable energy in buildings, there will be no ability to track progress and identify bottlenecks in the uptake of renewables. Furthermore, the creation of targets will provide a long-term signal to investors, including for the period immediately after 2030. This will complement obligations related to energy efficiency and the energy performance of buildings. Therefore, indicative targets for the use of renewable energy in buildings should be set to guide and incentivise Member States' efforts to exploit the potential of using and producing renewable energy in buildings, encourage the development of and integration of technologies which produce renewable energy while providing certainty for investors and local level engagement.
- (12) Insufficient numbers of skilled workers, in particular installers and designers of renewable heating and cooling systems, slow down the replacement of fossil fuel heating systems by renewable energy based systems and is a major barrier to integrating renewables in buildings, industry and agriculture. Member States should cooperate with social partners and renewable energy communities to anticipate the skills that will be needed. A sufficient number of high-quality training programmes and certification possibilities ensuring proper installation and reliable operation of a wide range of renewable heating and cooling systems should be made available and designed in a way to attract participation in such training programmes and certification systems. Member States should consider what actions should be taken to attract groups currently under-represented in the occupational areas in question. The list of trained and certified installers should be made public to ensure consumer trust and easy access to tailored designer and installer skills guaranteeing proper installation and operation of renewable heating and cooling.

- (13) Guarantees of origin are a key tool for consumer information as well as for the further uptake of renewable power purchase agreements. In order to establish a coherent Union base for the use of guarantees of origin and to provide access to appropriate supporting evidence for persons concluding renewable power purchase agreements, all renewable energy producers should be able to receive a guarantee of origin without prejudice to Member States' obligation to take into account the market value of the guarantees of origin if the energy producers receive financial support.
- (14) Infrastructure development for district heating and cooling networks should be stepped up and steered towards harnessing a wider range of renewable heat and cold sources in an efficient and flexible way in order to increase the deployment of renewable energy and deepen energy system integration. It is therefore appropriate to update the list of renewable energy sources that district heating and cooling networks should increasingly accommodate and **to** require the integration of thermal energy storage as a source of flexibility, greater energy efficiency and more cost-effective operation.
- (15) With more than 30 million electric vehicles expected in the Union by 2030 it is necessary to ensure that they can fully contribute to the system integration of renewable electricity, and thus allow reaching higher shares of renewable electricity in a cost-optimal manner. The potential of electric vehicles to absorb renewable electricity at times when it is abundant and feed it back into a grid when there is scarcity has to be fully utilised. -It is therefore appropriate to introduce specific measures on electric vehicles and information about renewable energy and how and when to access it which complement those in Directive (EU) 2014/94 of the European Parliament and of the Council¹⁴ and the [proposed Regulation concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020].

¹⁴ 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)

- (16) In order for flexibility and balancing services from the aggregation of distributed storage assets to be developed in a competitive manner, real-time access to basic battery information such as state of health, state of charge, capacity and power set point should be provided under non-discriminatory terms and free of charge to the owners or users of the batteries and the entities acting on their behalf, such as building energy system managers, mobility service providers and other electricity market participants. It is therefore appropriate to introduce measures addressing the need of access to such data for facilitating the integration-related operations of domestic batteries and electric vehicles, complementing the provisions on access to battery data related to facilitating the repurposing of batteries in [the proposed ~~Commission Regulation~~ **Regulation of the European Parliament and of the Council** concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020]. The provisions on access to battery data of electric vehicles should apply in addition to any laid down in Union law on type approval of vehicles.
- (17) The increasing number of electric vehicles in road, rail, maritime and other transport modes will require that recharging operations are optimised and managed in a way that does not cause congestion and takes full advantage of the availability of renewable electricity and low electricity prices in the system. In situations where bidirectional charging would assist further penetration of renewable electricity by electric vehicle fleets in transport and the electricity system in general, such functionality should also be made available. In view of the long life span of recharging points, requirements for charging infrastructure should be kept updated in a way that would cater for future needs and would not result in negative lock-in effects to the development of technology and services.

- (18) Electric vehicle users entering into contractual agreements with electromobility service providers and electricity market participants should have the right to receive information and explanations on how the terms of the agreement will affect the use of their vehicle and the state of health of its battery. Electromobility service providers and electricity market participants should explain clearly to electric vehicle users how they will be remunerated for the flexibility, balancing and storage services provided to the electricity system and market by the use of their electric vehicle. Electric vehicle users also need to have their consumer rights secured when entering into such agreements, in particular regarding the protection of their personal data such as location and driving habits, in connection to the use of their vehicle. Electric vehicle users' preference regarding the type of electricity purchased for use in their electric vehicle, as well as other preferences, can also be part of such agreements. For the above reasons, it is important that electric vehicle users can use their subscription at multiple recharging points. This will also allow the electric vehicle user's service provider of choice to optimally integrate the electric vehicle in the electricity system, through predictable planning and incentives based on the electric vehicle user preferences. This is also in line with the principles of a consumer-centric and prosumer-based energy system, and the right of supplier choice of electric vehicle users as final customers as per the provisions of Directive (EU) 2019/944.
- (19) Distributed storage assets, such as domestic batteries and batteries of electric vehicles have the potential to offer considerable flexibility and balancing services to the grid through aggregation. In order to facilitate the development of such services, the regulatory provisions concerning connection and operation of the storage assets, such as tariffs, commitment times and connection specifications, should be designed in a way that does not hamper the potential of all storage assets, including small and mobile ones, to offer flexibility and balancing services to the system and to contribute to the further penetration renewable electricity, in comparison with larger, stationary storage assets.

- (20) Recharging points where electric vehicles typically park for extended periods of time, such as where people park for reasons of residence or employment, are highly relevant to energy system integration, therefore smart charging functionalities need to be ensured. In this regard, the operation of non-publicly accessible normal charging infrastructure is particularly important for the integration of electric vehicles in the electricity system as it is located where electric vehicles are parked repeatedly for long periods of time, such as in buildings with restricted access, employee parking or parking facilities rented out to natural or legal persons.
- (21) Industry accounts for 25% of the Union's energy consumption, and is a major consumer of heating and cooling, which is currently supplied 91% by fossil fuels. However, 50% of heating and cooling demand is low-temperature (<200 °C) for which there are cost-effective renewable energy options, including through electrification. In addition, industry uses non-renewable sources as raw materials to produce products such as steel or chemicals. Industrial investment decisions today will determine the future industrial processes and energy options that can be considered by industry, so it is important that those investments decisions are future-proof. Therefore, benchmarks should be put in place to incentivise industry to switch to a renewables-based production processes that not only are fueled by renewable energy, but also use renewable-based raw materials such as renewable hydrogen. Moreover, a common methodology for products that are labelled as having been produced partially or fully using renewable energy or using renewable fuels of non-biological origin as feedstock is required, taking into account existing Union product labelling methodologies and sustainable product initiatives. This would avoid deceptive practices and increase consumers trust. Furthermore, given consumer preference for products that contribute to environmental and climate change objectives, it would stimulate a market demand for those products.
- (22) Renewable fuels of non-biological origin can be used for energy purposes, but also for non-energy purposes as feedstock or raw material in industries such as steel or chemicals. The use of renewable fuels of non-biological origin for both purposes exploits their full potential to replace fossil fuels used as feedstock and to reduce greenhouse gas emissions in industry and should therefore be included in a target for the use of renewable fuels of non-biological origin. National measures to support the uptake of renewable fuels of non-biological origin in industry should not result in net pollution increases due to an increased demand for electricity generation that is satisfied by the most polluting fossil fuels, such as coal, diesel, lignite, oil, peat and oil shale.

- (23) Increasing ambition in the heating and cooling sector is key to delivering the overall renewable energy target given that heating and cooling constitutes around half of the Union's energy consumption, covering a wide range of end uses and technologies in buildings, industry and district heating and cooling. To accelerate the increase of renewables in heating and cooling, an annual 1.1 percentage point increase at Member State level should be made binding as a minimum for all Member States. For those Member States, which already have renewable shares above 50% in the heating and cooling sector, it should remain possible to only apply half of the binding annual increase rate and Member States with 60% or above may count any such share as fulfilling the average annual increase rate in accordance with points b) and c) of paragraph 2 of Article 23. In addition, Member State-specific top-ups should be set, redistributing the additional efforts to the desired level of renewables in 2030 among Member States based on GDP and cost-effectiveness. A longer list of different measures should also be included in Directive (EU) 2018/2001 to facilitate increasing the share of renewables in heating and cooling. Member States may implement one or more measures from the list of measures.
- (24) To ensure that a greater role of district heating and cooling is accompanied by better information for consumers, it is appropriate to clarify and strengthen the disclosure of the renewables share and energy efficiency of these systems.
- (25) Modern renewable-based efficient district heating and cooling systems have demonstrated their potential to provide cost-effective solutions for integrating renewable energy, increased energy efficiency and energy system integration, facilitating the overall decarbonisation of the heating and cooling sector. To ensure this potential is harnessed, the annual increase of renewable energy and/or waste heat in district heating and cooling should be raised from 1 percentage point to 2.1 without changing the indicative nature of this increase, reflecting the uneven development of this type of network across the Union.
- (26) To reflect the increased importance of district heating and cooling and the need to steer the development of these networks towards the integration of more renewable energy, it is appropriate to set requirements to ensure the connection of third party suppliers of renewable energy and waste heat and cold with district heating or cooling networks systems above 25MW.

- (27) Waste heat and cold are underused despite their wide availability, leading to a waste of resources, lower energy efficiency in national energy systems and higher than necessary energy consumption in the Union. Requirements for closer coordination between district heating and cooling operators, industrial and tertiary sectors, and local authorities could facilitate the dialogue and cooperation necessary to harness cost-effective waste heat and cold potentials via district heating and cooling systems.
- (28) To ensure district heating and cooling participate fully in energy sector integration, it is necessary to extend the cooperation with electricity distribution system operators to electricity transmission system operators and widen the scope of cooperation to grid investment planning and markets to better utilise the potential of district heating and cooling for providing flexibility services in electricity markets. Further cooperation with gas network operators, including hydrogen and other energy networks, should also be made possible to ensure a wider integration across energy carriers and their most cost-effective use.

- (29) The use of renewable fuels and renewable electricity in transport can contribute to the decarbonisation of the Union transport sector in a cost-effective manner, and improve, amongst other **matters**, energy diversification in that sector while promoting innovation, growth and jobs in the Union economy and reducing reliance on energy imports. With a view to achieving the increased target for greenhouse gas emission savings defined by the Union, the level of renewable energy supplied to all transport modes in the Union should be increased. Expressing the transport target as a greenhouse gas intensity reduction target would stimulate an increasing use of the most cost-effective and performing fuels, in terms of greenhouse gas savings, in transport. In addition, a greenhouse gas intensity reduction target would stimulate innovation and set out a clear benchmark to compare across fuel types and renewable electricity depending on their greenhouse gas intensity. Complementary to this, increasing the level of the energy-based target on advanced biofuels and biogas and introducing a target for renewable fuels of non-biological origin would ensure an increased use of the renewable fuels with smallest environmental impact in transport modes that are difficult to electrify. The achievement of those targets should be ensured by obligations on fuel suppliers as well as by other measures included in [Regulation (EU) 2021/XXX on the use of renewable and low-carbon fuels in maritime transport - FuelEU Maritime and Regulation (EU) 2021/XXX on ensuring a level playing field for sustainable air transport]. Dedicated obligations on aviation fuel suppliers should be set only pursuant to [Regulation (EU) 2021/XXX on ensuring a level playing field for sustainable air transport].
- (30) Electromobility will play an essential role in decarbonising the transport sector. To foster the further development of electromobility, Member States should establish a credit mechanism enabling operators of charging points accessible to the public to contribute, by supplying renewable electricity, towards the fulfilment of the obligation set up by Member States on fuel suppliers. While supporting electricity in transport through such a mechanism, it is important that Member States continue setting a high level of ambition for the decarbonisation of their liquid fuel mix in transport.

- (31) The Union's renewable energy policy aims to contribute to achieving the climate change mitigation objectives of the European Union in terms of the reduction of greenhouse gas emissions. In the pursuit of this goal, it is essential to also contribute to wider environmental objectives, and in particular the prevention of biodiversity loss, which is negatively impacted by the indirect land use change associated to the production of certain biofuels, bioliquids and biomass fuels. Contributing to these climate and environmental objectives constitutes a deep and longstanding intergenerational concern for Union citizens and the Union legislator. As a consequence, the changes in the way the transport target is calculated should not affect the limits established on how to account toward that target certain fuels produced from food and feed crops on the one hand and high indirect land-use change-risk fuels on the other hand. In addition, in order not to create an incentive to use biofuels and biogas produced from food and feed crops in transport, Member States should continue to be able to choose whether **to** count them or not towards the transport target. If they do not count them, they may reduce the greenhouse gas intensity reduction target accordingly, assuming that food and feed crop-based biofuels save 50% greenhouse gas emissions, which corresponds to the typical values set out in an annex to this Directive for the greenhouse gas emission savings of the most relevant production pathways of food and feed crop-based biofuels as well as the minimum savings threshold applying to most installations producing such biofuels.
- (32) Expressing the transport target as a greenhouse gas intensity reduction target makes it unnecessary to use multipliers to promote certain renewable energy sources. This is because different renewable energy sources save different amounts of greenhouse gas emissions and, therefore, contribute differently to a target. Renewable electricity should be considered to have zero emissions, meaning it saves 100% emissions compared to electricity produced from fossil fuels. This will create an incentive for the use of renewable electricity since renewable fuels and recycled carbon fuels are unlikely to achieve such a high percentage of savings. Electrification relying on renewable energy sources would therefore become the most efficient way to decarbonise road transport. In addition, in order to promote the use of advanced biofuels and biogas and renewable fuels of non-biological origin in the aviation and maritime **transport** modes, which are difficult to electrify, it is appropriate to keep the multiplier for those fuels supplied in those modes when counted towards the specific targets set for those fuels.

- (33) Direct electrification of end-use sectors, including the transport sector, contributes to the efficiency and facilitates the transition to an energy system based on renewable energy. It is therefore in itself an effective means to reduce greenhouse gas emissions. The creation of a framework on additionality applying specifically to renewable electricity supplied to electric vehicles in the transport sector is therefore not required.
- (34) Since renewable fuels of non-biological origin are to be counted as renewable energy regardless of the sector in which they are consumed, the rules to determine their renewable nature when produced from electricity, which were applicable only to those fuels when consumed in the transport sector, should be extended to all renewable fuels of non-biological origin, regardless of the sector ~~where~~ in which they are consumed.
- (35) To ensure higher environmental effectiveness of the Union sustainability and greenhouse emissions saving criteria for solid biomass fuels in installations producing heating, electricity and cooling, the minimum threshold for the applicability of such criteria should be lowered from the current 20 MW to 5 MW.
- (36) Directive (EU) 2018/2001 strengthened the bioenergy sustainability and greenhouse gas savings framework by setting criteria for all end-use sectors. It set out specific rules for biofuels, bioliquids and biomass fuels produced from forest biomass, requiring the sustainability of harvesting operations and the accounting of land-use change emissions. To achieve an enhanced protection of especially biodiverse and carbon-rich habitats, such as primary forests, highly biodiverse forests, grasslands and peat lands, exclusions and limitations to source forest biomass from those areas should be introduced, in line with the approach for biofuels, bioliquids and biomass fuels produced from agricultural biomass. In addition, the greenhouse gas emission saving criteria should also apply to existing biomass-based installations to ensure that bioenergy production in all such installations leads to greenhouse gas emission reductions compared to energy produced from fossil fuels.

- (37) In order to reduce the administrative burden for producers of renewable fuels and recycled carbon fuels and for Member States, where voluntary or national schemes have been recognised by the Commission through an implementing act as giving evidence or providing accurate data regarding the compliance with sustainability and greenhouse gas emissions saving criteria as well as other requirements set in this Directive, Member States should accept the results of the certification issued by such schemes within the scope of the Commission's recognition. In order to reduce the burden on small installations, Member States should establish a simplified verification mechanism for installations **with a total thermal input** of between 5 and 10MW.
- (38) The Union database to be set up by the Commission aims at enabling the tracing of liquid and gaseous renewable fuels and recycled carbon fuels. Its scope should be extended from transport to all other end-use sectors in which such fuels are consumed. This should make a vital contribution to the comprehensive monitoring of the production and consumption of those fuels, mitigating risks of double-counting or irregularities along the supply chains covered by the Union database. In addition, to avoid any risk of double claims on the same renewable gas, a guarantee of origin issued for any consignment of renewable gas registered in the database should be cancelled.

(38a) This Directive is based on Article 194(2) of the Treaty on the Functioning of the European Union (TFEU), which provides the legal basis for proposing measures to develop new and renewable forms of energy, one of the goals of the Union's energy policy, set out in Article 194(1)(c) TFEU. Directive (EU) 2018/2001, which is amended by this Directive, was also adopted under Article 194(2) TFEU. Article 114 TFEU, the internal market legal basis, is added in order to amend Directive 98/70/EC on fuel quality, which is based on that provision.

- (39) The Governance Regulation (EU) 2018/1999 makes several references in a number of places to the Union-level binding target of at least 32 % for the share of renewable energy consumed in the Union in 2030. As that target needs to be increased in order to contribute effectively to the ambition to decrease greenhouse gas emissions by 55 % by 2030, those references should be amended. Any additional planning and reporting requirements set will not create a new planning and reporting system, but should be subject to the existing planning and reporting framework under Regulation (EU) 2018/1999.

- (40) The scope of Directive 98/70/EC of the European Parliament and of the Council¹⁵ should be amended in order to avoid a duplication of regulatory requirements with regard to transport fuel decarbonisation objectives and align with Directive (EU) 2018/2001.
- (41) The definitions of Directive 98/70/EC should be amended in order to align them with Directive (EU) 2018/2001 and thereby avoid different definitions being applied in those two acts.
- (42) The obligations regarding the greenhouse gas emissions reduction and the use of biofuels in Directive 98/70/EC should be deleted in order to streamline and avoid double regulation with regards to the strengthened transport fuel decarbonisation obligations which are provided for in Directive (EU) 2018/2001.
- (43) The obligations regarding the monitoring of and reporting on the greenhouse gas emission reductions set out in Directive 98/70/EC should be deleted to avoid regulating reporting obligations twice.
- (44) Council Directive (EU) 2015/652, which provides the detailed rules for the uniform implementation of Article 7a of Directive 98/70/EC, should be repealed as it becomes obsolete with the repeal of Article 7a of Directive 98/70/EC by this Directive.
- (45) As regards bio-based components in diesel fuel, the reference in Directive 98/70/EC to diesel fuel B7, that is diesel fuel containing up to 7 % fatty acid methyl esters (FAME), limits available options to attain higher biofuel incorporation targets as set out in Directive (EU) 2018/2001. That is due to the fact that almost the entire Union supply of diesel fuel is already B7. For that reason the maximum share of bio-based components should be increased from 7% to 10%. Sustaining the market uptake of B10, that is diesel fuel containing up to 10 % fatty acid methyl esters (FAME), requires a Union-wide B7 protection grade for 7% FAME in diesel fuel due to the sizeable proportion of vehicles not compatible with B10 expected to be present in the fleet by 2030. This should be reflected in Article 4, paragraph 1, second subparagraph of Directive 98/70/EC as amended by this act.

¹⁵ Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (OJ L 350, 28.12.1998, p. 58).

- (46) The transitional provisions should allow for an ordered continuation of data collection and the fulfilment of reporting obligations with respect to the articles of Directive 98/70/EC deleted by this Directive.
- (47) In accordance with the Joint Political Declaration of 28 September 2011 of Member States and the Commission on explanatory documents¹⁶, Member States have undertaken to accompany, in justified cases, the notification of their transposition measures with one or more documents explaining the relationship between the components of a directive and the corresponding parts of national transposition instruments. With regard to this Directive, the legislator considers the transmission of such documents to be justified, in particular following the judgment of the European Court of Justice in Case Commission vs Belgium¹⁷ (case C-543/17).

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Amendments to Directive (EU) 2018/2001

Directive (EU) 2018/2001 is amended as follows:

- (1) in Article 2, the second paragraph is amended as follows:

(a) **point (4) is replaced by the following:**

‘gross final consumption of energy’ means the energy commodities delivered for energy purposes to industry, transport, households, services including public services, agriculture, forestry and fisheries, the consumption of electricity and heat by the energy branch for electricity and heat and transport fuel production, and losses of electricity and heat in distribution and transmission

¹⁶ OJ C 369, 17.12.2011, p. 14.

¹⁷ Judgment of the Court of Justice of 8 July 2019, Commission v Belgium, C-543/17, ECLI: EU: C:2019:573.

(a) point (36) is replaced by the following:

‘(36) ‘renewable fuels of non-biological origin’ means liquid and gaseous fuels the energy content of which is derived from renewable sources other than biomass;’;

(b) point (47) is replaced by the following:

‘(47) ‘default value’ means a value derived from a typical value by the application of pre-determined factors and that may, in circumstances specified in this Directive, be used in place of an actual value;’;

(c) the following points are added:

‘(1a) ‘quality roundwood’ means roundwood felled or otherwise harvested and removed, whose characteristics, such as species, dimensions, rectitude, and node density, make it suitable for industrial use, as defined and duly justified by Member States according to the relevant forest conditions. This does not include pre-commercial thinning operations or trees extracted from forests affected by fires, pests, diseases or damage due to abiotic factors ;

(14a) ‘bidding zone’ means a bidding zone as defined in Article 2, point (65) of Regulation (EU) 2019/943 of the European Parliament and of the Council¹⁸;

(14b) ‘smart metering system’ means smart metering system as defined in Article 2, point (23) of Directive (EU) 2019/944 of the European Parliament and of the Council¹⁹;

(14c) ‘recharging point’ means recharging point as defined in ~~point 33 of~~ Article 2, point (33) of Directive (EU) No 2019/944;

¹⁸ 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).

¹⁹ Directive ~~Regulation~~ (EU) 2019/944 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).

(14d) ‘market participant’ means market participant as defined in ~~point (25) of Article 2,~~ point (25) of Regulation (EU) 2019/943;

(14e) ‘electricity market’ means electricity market as defined in Article 2, point (9) of Directive 2019/944;

(14f) ‘domestic battery’ means a stand-alone rechargeable battery of rated capacity greater than 2 kwh, which is suitable for installation and use in a domestic environment;

(14g) ‘electric vehicle battery’ means an electric vehicle battery as defined in Article 2, point (12) of [the proposed Regulation concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020²⁰];

(14h) ‘industrial battery’ means industrial battery as defined in Article 2. point (11) of [the proposed Regulation concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020];

(14i) ‘state of health’ means state of health as defined in point (25) of Article 2, point (25) of [the proposal for a Regulation concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020 ²¹];

(14j) ‘state of charge’ means state of charge as defined in Article 2, point (24) of [the proposal for a Regulation concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) 2019/1020];

(14k) ‘power set point’ means the **dynamic** information held in a battery’s management system prescribing the electric power settings at which the battery **should optimally** operates during a recharging or a discharging operation, so that its state of health and operational use are optimised;

²⁰ COM(2020) 798 final

²¹ the proposal for a ~~Commission~~ Regulation **of the European Parliament and of the Council** ‘concerning batteries and waste batteries, –repealing Directive 2006/66/EC and amending Regulation (EU) 2019/1020 (xxxx).

(14l) ‘smart charging’ means a recharging operation in which the intensity of electricity delivered to the battery is adjusted in real-time, based on information received through electronic communication;

(14m) ‘regulatory authority’ means regulatory authority defined in Article 2, point (2) of Regulation (EU) 2019/943;

(14n) ‘bidirectional charging’ means smart charging where the direction of electric ~~current-charge~~ may be reversed, so that electric **power is transferred** ~~-charge flows~~ from the battery to the recharging point it is connected to;

(14o) ‘normal power recharging point’ means ‘normal power recharging point’ as defined in Article 2 point 31 of [the proposal for a Regulation concerning the deployment of alternative fuel infrastructure, repealing Directive 2014/94/EU];

(18a) ‘industry’ means companies and products that fall **under** sections B, C, **and F** and **under section J**, division (63) of the statistical classification of economic activities (NACE REV.2) ²²;

(18b) ‘non-energy purpose’ means the use of fuels as raw materials in an industrial process, instead of being used to produce energy;

(22a) ‘renewable fuels’ means biofuels, bioliquids, biomass fuels and renewable fuels of non-biological origin;

(44a) ‘plantation forest’ means a planted forest that is intensively managed and meets, at planting and stand maturity, all the following criteria: one or two species, even age class, and regular spacing. It includes short rotation plantations for wood, fibre and energy, and excludes forests planted for protection or ecosystem restoration, as well as forests established through planting or seeding which at stand maturity resemble or will resemble naturally regenerating forests;

²² Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains (OJ L 393, 30.12.2006, p. 1).’;

(44b) ‘planted forest’ means forest predominantly composed of trees established through planting and/or deliberate seeding provided that the planted or seeded trees are expected to constitute more than fifty percent of the growing stock at maturity; it includes coppice from trees that were originally planted or seeded;’;

(2) Article 3 is amended as follows:

(a) paragraph 1 is replaced by the following:

‘1. Member States shall collectively ensure that the share of energy from renewable sources in the Union’s gross final consumption of energy in 2030 is at least 40%.’;

(b) paragraph 3 is replaced by the following:

‘3. Member States shall take measures to ensure that energy from biomass is produced in a way that minimises undue distortive effects on the biomass raw material market and harmful impacts on biodiversity. To that end-, they shall take into account the waste hierarchy as set out in Article 4 of Directive 2008/98/EC and the cascading principle referred to in the third subparagraph.

As part of the measures referred to in the first subparagraph:

(a) Member States shall grant no support for:

(i) the use of saw logs, veneer logs, stumps and roots to produce energy.

(ii) the production of renewable energy produced from the incineration of waste if the separate collection obligations laid down in Directive 2008/98/EC have not been complied with.

(iii) practices which are not in line with the delegated act referred to in the third subparagraph.

(b) From 31 December 2026, and without prejudice to the obligations in the first subparagraph, Member States shall grant no support to the production of electricity from forest biomass in electricity-only-installations, unless such electricity meets at least one of the following conditions:

(i) it is produced in a region identified in a territorial just transition plan approved by the European Commission, in accordance with Regulation (EU) 2021/... of the European Parliament and the Council establishing the Just Transition Fund due to its reliance on solid fossil fuels, and meets the relevant requirements set in Article 29(11) **of this Directive**;

(ii) it is produced applying Biomass CO₂ Capture and Storage and meets the requirements set in Article 29(11), second subparagraph **of this Directive**.

By ~~No later than~~ one year after [the entry into force of this amending Directive], the Commission shall adopt a delegated act in accordance with Article 35 on how to apply the cascading principle for biomass, in particular on how to minimise the use of quality roundwood for energy production, with a focus on support schemes and with due regard to national specificities.

By 2026 the Commission shall present a report on the impact of the Member States' support schemes for biomass, including on biodiversity and possible market distortions, and **shall will** assess the possibility for further limitations regarding support schemes to forest biomass.';

(c) the following paragraph 4a is inserted:

'4a. Member States shall establish a framework, which may include support schemes and **measures** facilitating the uptake of renewable power purchase agreements, enabling the deployment of renewable electricity to a level that is consistent with the Member State's national contribution referred to in paragraph 2 and at a pace that is consistent with the indicative trajectories referred to in Article 4(a)(2) of Regulation (EU) 2018/1999. In particular, that framework shall tackle remaining barriers, including those related to permitting procedures, to a high level of renewable electricity supply. When designing that framework, Member States shall take into account the additional renewable electricity required to meet demand in the transport, industry, building and heating and cooling sectors and for the production of renewable fuels of non-biological origin.';

(3) Article 7 is amended as follows:

(a) in paragraph 1, the second subparagraph is replaced by the following:

‘With regard to the first subparagraph, point (a), (b), or (c), gas and electricity from renewable sources shall be considered only once for the purposes of calculating the share of gross final consumption of energy from renewable sources. Energy produced from renewable fuels of non-biological origin shall be accounted in the sector - electricity, heating and cooling or transport - where it is consumed.’

Member States may agree, via a specific cooperation agreement, to account the renewable fuels of non-biological origin consumed in one Member State towards the share of gross final consumption of energy from renewable sources in the Member State where they were produced. In order to monitor that the same renewable fuels of non-biological origin are not accounted in both the Member State where they are produced and in the Member State where they are consumed and to record the amount claimed, the Commission shall be notified of any such agreement, including the amount of RFNBOs to be counted in total and for each Member State and the date on which such agreement will become operational.

(b) in paragraph 2, the first subparagraph is replaced by the following:

‘For the purposes of paragraph 1, first subparagraph, point (a), gross final consumption of electricity from renewable sources shall be calculated as the quantity of electricity produced in a Member State from renewable sources, including the production of electricity from renewables self-consumers and renewable energy communities and electricity from renewable fuels of non-biological origin and excluding the production of electricity in pumped storage units from water that has previously been pumped uphill as well as the electricity used to produce renewable fuels of non-biological origin.’;

(c) in paragraph 4, point (a) is replaced by the following:

‘(a) Final consumption of energy from renewable sources in the transport sector shall be calculated as the sum of all biofuels, biogas and renewable fuels of non-biological origin consumed in the transport sector.’;

(4) Article 9 is amended as follows:

(a) the following paragraph 1a is inserted:

‘1a. By 31 December 2025, each Member State shall **endeavour to** agree ~~on~~ **establishing** at least one joint project with one or more other Member States for the production of renewable energy.~~’~~-The Commission shall be notified of such an agreement, including the date on which the project is expected to become operational. Projects financed by national contributions under the Union renewable energy financing mechanism established by Commission Implementing Regulation (EU) 2020/1294²³ shall be deemed to satisfy this obligation for the Member States involved.’;

(b) the following paragraph is inserted:

‘7a. Member States bordering a sea basin shall cooperate ~~to jointly define~~ **on** the amount of offshore renewable energy they plan to produce in that sea basin by 2050, with intermediate steps in 2030 and 2040, **in accordance with [Revised Regulation (EU) No 347/2013]**. They shall take into account the specificities and development in each region, the offshore renewable potential of the sea basin and the importance of ensuring the associated integrated grid planning. Member States shall notify that amount in the updated integrated national energy and climate plans submitted pursuant to Article 14 of Regulation (EU) 2018/1999.’;

(5) Article 15 is amended as follows:

(a) paragraph 2 is replaced as follows:

‘2. Member States shall clearly define any technical specifications which are to be met by renewable energy equipment and systems in order to benefit from support schemes. Where harmonised standards or European standards exist, including technical reference systems established by the European standardisation organisations, such technical specifications shall be expressed in terms of those standards. Precedence shall be given to harmonised standards, the references of which have been published in the Official Journal of the European Union in support of European legislation, in their absence, other harmonised standards and European standards shall be used, in that order. Such technical specifications shall not prescribe where the equipment and systems are to be certified and shall not impede the proper functioning of the internal market.’;

²³ Commission Implementing Regulation (EU) 2020/1294 of 15 September 2020 on the Union renewable energy financing mechanism (OJ L 303, 17.9.2020, p. 1).

(b) paragraphs 4, 5, 6 and 7 are deleted;

(c) paragraph 8 is replaced by the following:

‘8. Member States shall assess the regulatory and administrative barriers to long-term renewables power purchase agreements, and shall remove unjustified barriers to, and promote the uptake of, such agreements, including by exploring how to reduce the financial risks associated with them, in particular by using credit guarantees. Member States shall ensure that those agreements are not subject to disproportionate or discriminatory procedures or charges, and that any associated guarantees of origin can be transferred to the buyer of the renewable energy under the renewable power purchase agreement.

Member States shall describe their policies and measures promoting the uptake of renewables power purchase agreements in their integrated national energy and climate plans referred to in Articles 3 and 14 of Regulation (EU) 2018/1999 and progress reports submitted pursuant to Article 17 of that Regulation. They shall also provide, in those reports, an indication of the volume of renewable power generation supported by renewables power purchase agreements.’;

Following the assessment of Member States under the first subparagraph, the Commission shall analyse the barriers to long-term power purchase agreements and in particular to the deployment of cross-border renewable power purchase agreements and issue guidance on the removal of these barriers’;

In the planning and permit-granting process, the deployment of energy from renewable sources and the related grid infrastructure is considered as being in the public interest and serving public safety without prejudice of Union and national laws on environmental protection.

(d) the following paragraph 9 is added:

‘9. By [one year] after the entry into force of this amending Directive, the Commission shall review, and where appropriate, propose modifications to, the rules on administrative procedures set out in Articles 15 **(1) and (3)**, 16 and 17 and their application, and may ~~take~~ **consider** additional measures to support Member States in their implementation.’;

(6) the following Article **15a** is inserted:

‘Article 15a

Mainstreaming renewable energy in buildings

1. In order to promote the production and use of renewable energy in the building sector, Member States shall **define** ~~set an indicative target for the~~ share of renewables in final energy consumption in their buildings sector in 2030 that is consistent with an indicative target of at least a [49]% share of energy from renewable sources in the buildings sector ~~at in~~ the Union’s **level** final consumption of energy in 2030. The national **indicative share** ~~target~~ shall be expressed in terms of ~~share of~~ national final energy consumption and calculated in accordance with the methodology set out in Article 7. Member States shall include their ~~share target~~ in the ~~updated~~ integrated national energy and climate plans ~~submitted~~ **referred to in Articles 3 and** ~~pursuant to Article 14 of Regulation (EU) 2018/1999~~ as well as information on how they plan to achieve it.
2. Member States shall introduce **appropriate** measures in their building regulations and codes and, where applicable, in their support schemes, to increase the share of electricity and heating and cooling from renewable sources in the building stock. **This may**, ~~including~~ national measures relating to substantial increases in renewables self-consumption, renewable energy communities and local energy storage, in combination with energy efficiency improvements relating to cogeneration and passive, nearly zero-energy and zero-energy buildings.

To achieve the indicative share of renewables set out in paragraph 1, Member States shall, in their building regulations and codes and, where applicable, in their support schemes or by other means with equivalent effect, require the use of minimum levels of energy from renewable sources in buildings, in line with the provisions of Directive 2010/31/EU. Member States shall allow those minimum levels to be fulfilled, among others, through efficient district heating and cooling.

For existing buildings, the first subparagraph shall apply to the armed forces only to the extent that its application does not cause any conflict with the nature and primary aim of the activities of the armed forces and with the exception of material used exclusively for military purposes.

3. Member States shall ensure that public buildings at national, regional and local level, fulfil an exemplary role as regards the share of renewable energy used, in accordance with the provisions of Article 9 of Directive 2010/31/EU and Article 5 of Directive 2012/27/EU. Member States may, among others, allow that obligation to be fulfilled by providing for the roofs of public or mixed private-public buildings to be used by third parties for installations that produce energy from renewable sources.
 4. In order to achieve the indicative share of renewable energy set out in paragraph 1, Member States shall promote the use of renewable heating and cooling systems and equipment. To that end, Member States shall use all appropriate measures, tools and incentives, including, among others, energy labels developed under Regulation (EU) 2017/1369 of the European Parliament and of the Council²⁴, energy performance certificates pursuant to Directive 2010/31/EU, or other appropriate certificates or standards developed at national or Union level, and shall ensure the provision of adequate information and advice on renewable, highly energy efficient alternatives as well as on financial instruments and incentives available to promote an increased replacement rate of old heating systems and an increased switch to solutions based on renewable energy.?’;
- (7) in Article 18, paragraphs 3 and 4 are replaced by the following:

²⁴ Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU (OJ L 198, 28.7.2017, p. 1).

‘3. Member States shall ensure that certification schemes are available for installers and designers of all forms of renewable heating and cooling systems in buildings, industry and agriculture, and for installers of solar photovoltaic systems. Those schemes may take into account existing schemes and structures as appropriate, and shall be based on the criteria laid down in Annex IV. Each Member State shall recognise the certification awarded by other Member States in accordance with those criteria.

Member States shall **set up the framework** ensuring that trained and qualified installers of renewable heating and cooling systems are available in sufficient numbers for the relevant technologies to service the growth of renewable heating and cooling required to contribute to the annual increase in the share of renewable energy in the heating and cooling sector as set out in Article 23.

To achieve such sufficient numbers of installers and designers, Member States shall ensure that sufficient training programmes leading to qualification or certification covering renewable heating and cooling technologies, and their latest innovative solutions, are ~~made~~ available. Member States shall put in place measures to promote participation in such programmes, in particular by small and medium-sized enterprises and the self-employed. Member States may put in place voluntary agreements with the relevant technology providers and vendors to train sufficient numbers of installers, which may be based on estimates of sales, in the latest innovative solutions and technologies available on the market.

4. Member States shall make information on the certification schemes referred to in paragraph 3 available to the public. Member States shall ensure that the list of installers who are qualified or certified in accordance with paragraph 3 is regularly updated and made available to the public.’;

(8) Article 19 is amended as follows:

(a) paragraph 2 is amended as follows:

(i) the first subparagraph is replaced by the following:

‘To that end, Member States shall ensure that a guarantee of origin is issued in response to a request from a producer of energy from renewable sources.

Member States may arrange for guarantees of origin to be issued for energy from non-renewable sources. Issuance of guarantees of origin may be made subject to a minimum capacity limit. A guarantee of origin shall be of the standard size of 1 MWh. No more than one guarantee of origin shall be issued in respect of each unit of energy produced.²;

By way of derogation to the paragraph above, Member States that have decided, for the purposes of accounting, not to issue such a guarantee of origin to a producer that receives financial support from a support scheme, may continue to do so for a transitional period up to 31 December 2024’;

(ii) the fifth subparagraph is deleted;

(b) in paragraph 8, the first subparagraph is replaced by the following:

‘Where an electricity supplier is required to demonstrate the share or quantity of energy from renewable sources in its energy mix for the purposes of Article 3(9), point (a) of Directive 2009/72/EC, it shall do so by using guarantees of origin except as regards the share of its energy mix corresponding to non-tracked commercial offers, if any, for which the supplier may use the residual mix.’;

(9) in Article 20, paragraph 3 is replaced by the following:

‘3. Subject to their assessment included in the integrated national energy and climate plans in accordance with Annex I to Regulation (EU) 2018/1999 on the necessity to build new infrastructure for district heating and cooling from renewable sources in order to achieve the Union target set in Article 3(1) of this Directive, Member States shall, where relevant, take the necessary steps with a view to developing efficient district heating and cooling infrastructure to promote heating and cooling from renewable energy sources, including solar energy, ambient energy, geothermal energy, biomass, biogas, bioliquids and waste heat and cold, in combination with thermal energy storage.’;

(10) the following Article 20a is inserted:

Facilitating system integration of renewable electricity

‘1. Member States shall require transmission system operators and, **when appropriate,** distribution system operators in their territory to make available information on the share of renewable electricity and the greenhouse gas emissions content of the electricity supplied in each bidding zone, as accurately as possible and as close to real time as possible but in time intervals of no more than one hour, with forecasting where available. This information shall be made available digitally in a manner that ensures it can be used by electricity market participants, aggregators, consumers and end-users, and that it can be read by electronic communication devices such as smart metering systems, electric vehicle recharging points, heating and cooling systems and building energy management systems.

2. In addition to the requirements in [the proposal for a Regulation concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020], Member States shall ensure that manufacturers of domestic and industrial batteries enable real-time access to basic battery management system information, including battery capacity, state of health, state of charge and power set point, to battery owners and users as well as to third parties acting on their behalf, such as building energy management companies and electricity market participants, under non-discriminatory terms and at no cost.

Member States shall ensure that vehicle manufacturers make available, in real-time, in-vehicle data related to the battery state of health, battery state of charge, battery power set point, battery capacity, as well as the location of electric vehicles to electric vehicle owners and users, as well as to third parties acting on the owners’ and users’ behalf, such as electricity market participants and electromobility service providers, under non-discriminatory terms and at no cost, in addition to further requirements in the type approval and market surveillance regulation.

3. -In addition to the requirements in [the proposal for a Regulation concerning the deployment of alternative fuel infrastructure, repealing Directive 2014/94/EU], Member States shall ensure that non–publicly accessible normal power recharging points installed in their territory from [the transposition deadline of this amending Directive] can support smart charging functionalities and, where appropriate based on assessment by the regulatory authority, bidirectional charging functionalities.

4. Member States shall ensure that the national regulatory framework does not discriminate against participation in the electricity markets, including congestion management and the provision of flexibility and balancing services, of small or mobile systems such as domestic batteries and electric vehicles, both directly and through aggregation.’;

(11) the following Article 22a is inserted:

‘Article 22a

Mainstreaming renewable energy in industry

1. Member States shall endeavour to increase the share of renewable sources in the amount of energy sources used for final energy and non-energy purposes in the industry sector by an indicative [average ~~minimum~~ annual increase of **of at least** 1.1 percentage points by 2030].

Member States shall include the measures planned and taken to achieve such indicative increase in their integrated national energy and climate plans and progress reports submitted pursuant to Articles 3, 14 and 17 of Regulation (EU) 2018/1999.

Member States shall ensure that the contribution of renewable fuels of non-biological origin used for final energy and non-energy purposes shall be [50] % of the hydrogen used for final energy and non-energy purposes in industry by 2030. For the calculation of that percentage, the following rules shall apply:

- (a) For the calculation of the denominator, the energy content of hydrogen for final energy and non-energy purposes shall be taken into account, excluding hydrogen used as intermediate products for the production of conventional transport fuels.
- (b) For the calculation of the numerator, the energy content of the renewable fuels of non-biological origin consumed in the industry sector for final energy and non-energy purposes shall be taken into account, excluding renewable fuels of non-biological origin used as intermediate products for the production of conventional transport fuels.
- (c) For the calculation of the numerator and the denominator, the values regarding the energy content of fuels set out in Annex III shall be used.

2. Member States shall ensure that industrial products that are labelled or claimed to be produced with renewable energy and renewable fuels of non-biological origin shall indicate the percentage of renewable energy used or renewable fuels of non-biological origin used in the raw material acquisition and pre-processing, manufacturing and distribution stage, calculated on the basis of the methodologies laid down in Recommendation 2013/179/EU²⁵ or, alternatively, ISO 14067:2018.’;

(12) Article 23 is amended as follows:

(a) paragraph 1 is replaced by the following:

‘1. In order to promote the use of renewable energy in the heating and cooling sector, each Member State shall increase the share of renewable energy in that sector by at least 1.1 percentage points as an annual average calculated for the periods 2021 to 2025 and 2026 to 2030, starting from the share of renewable energy in the heating and cooling sector in 2020, expressed in terms of national share of gross final energy consumption and calculated in accordance with the methodology set out in Article 7.

²⁵ 2013/179/EU: Commission Recommendation of 9 April 2013 on the use of common methods to measure and communicate the life cycle environmental performance of products and organisations, OJ L 124, 4.5.2013, p. 1–210

That increase shall be of [1.5] percentage points for Member States where waste heat and cold is used. In that case, Member States may count waste heat and cold up to 40 % of the average annual increase.

In addition to the minimum 1.1 percentage points annual increase referred to in the first subparagraph, each Member State shall endeavour to increase the share of renewable energy in their heating and cooling sector by the resulting shares as amount set out in Annex 1a.?’;

(b) the following paragraph 1a is inserted:

‘1a. Member States shall carry out an assessment of their potential of energy from renewable sources and of the use of waste heat and cold in the heating and cooling sector including, where appropriate, an analysis of areas suitable for their deployment at low ecological risk and of the potential for small-scale household projects. The assessment shall set out milestones and measures to increase renewables in heating and cooling and, where appropriate, the use of waste heat and cold through district heating and cooling with a view of establishing a long-term national strategy to decarbonise heating and cooling. The assessment shall be part of the integrated national energy and climate plans referred to in Articles 3 and 14 of Regulation (EU) 2018/1999, and shall accompany the comprehensive heating and cooling assessment required by Article 14(1) of Directive 2012/27/EU.’;

(c) in paragraph 2, first subparagraph, point (a) is deleted.

(d) paragraph 4 is replaced by the following:

‘4. To achieve the average annual increase referred to in paragraph 1, first subparagraph, Member States may implement one or more of the following measures:

- (a) physical incorporation of renewable energy or waste heat and cold in the energy sources and fuels supplied for heating and cooling;
- (b) installation of highly efficient renewable heating and cooling systems in buildings, or use of renewable energy or waste heat and cold in industrial heating and cooling processes;

- (c) measures covered by tradable certificates proving compliance with the obligation laid down in paragraph 1, first subparagraph, through support to installation measures under point (b) of this paragraph, carried out by another economic operator such as an independent renewable technology installer or an energy service company providing renewable installation services;
- (d) capacity building for national and local authorities to plan and implement renewable projects and infrastructures;
- (e) creation of risk mitigation frameworks to reduce the cost of capital for renewable heat and cooling projects;
- (f) promotion of heat purchase agreements for corporate **consumers** and collective small consumers;
- (g) planned replacement schemes of fossil heating systems or fossil phase-out schemes with milestones;
- (h) **requirements at local and regional level concerning** renewable heat planning, encompassing cooling, ~~requirements at local and regional level~~;
- (i) other policy measures, with an equivalent effect, including fiscal measures, support schemes or other financial incentives.

When adopting and implementing those measures, Member States shall ensure their accessibility to all consumers, in particular those in low-income or vulnerable households, who would not otherwise possess sufficient up-front capital to benefit.’;

(13) Article 24 is amended as follows:

- (a) paragraph 1 is replaced by the following:

‘1. Member States shall ensure that information on the energy performance and the share of renewable energy in their district heating and cooling systems is provided to final consumers in an easily accessible manner, such as on bills or on the suppliers' websites and on request. The information on the renewable energy share shall be expressed at least as a percentage of gross final **energy** consumption of heating and cooling assigned to the customers of a given district heating and cooling system, including information on how much energy was used to deliver one unit of heating to the customer or end-user.’;

(b) paragraph 4 is replaced by the following:

‘4. Member States shall endeavour to increase the share of energy from renewable sources and from waste heat and cold in district heating and cooling by [at least 2.1] percentage points as an annual average calculated for the period 2021 to 2025 and for the period 2026 to 2030, starting from the share of energy from renewable sources and from waste heat and cold in district heating and cooling in 2020, and shall lay down the measures necessary to that end. The share of renewable energy shall be expressed in terms of share of gross final energy consumption in district heating and cooling adjusted to normal average climatic conditions.

Member States with a share of energy from renewable sources and from waste heat and cold in district heating and cooling above 60 % may count any such share as fulfilling the average annual increase referred to in the first subparagraph. **Member States with a share of energy from renewable sources and from waste heat and cold in district heating and cooling above 50% and up to 60 % may count any such share as fulfilling half of the average annual increase referred to in the first subparagraph.**

Member States shall lay down the necessary measures to implement the average annual increase referred to in the first subparagraph in their integrated national energy and climate plans pursuant to Annex I to Regulation (EU) 2018/1999.’;

(c) the following paragraph 4a is inserted:

‘4a. Member States shall ensure that operators of district heating or cooling systems above 25 MWth capacity are obliged to connect third party suppliers of energy from renewable sources and from waste heat and cold or are obliged to offer to connect and purchase heat or cold from renewable sources and from waste heat and cold from third-party suppliers based on non-discriminatory criteria set by the competent authority of the Member State concerned, where such operators need to do one or more of the following:

- (a) meet demand from new customers;
- (b) replace existing heat or cold generation capacity;
- (c) expand existing heat or cold generation capacity.’;
- (d) paragraphs 5 and 6 are replaced by the following:

‘5. Member States may allow an operator of a district heating or cooling system to refuse to connect and to purchase heat or cold from a third-party supplier in any of the following situations:

- (a) the system lacks the necessary capacity due to other supplies of heat or cold from renewable sources or of waste heat and cold;
- (b) the heat or cold from the third-party supplier does not meet the technical parameters necessary to connect and ensure the reliable and safe operation of the district heating and cooling system;
- (c) the operator can demonstrate that providing access would lead to an excessive heat or cold cost increase for final customers compared to the cost of using the main local heat or cold supply with which the renewable source or waste heat and cold would compete;
- (d) the operator’s system meets the definition of efficient district heating and cooling set out in [Article x of the proposed recast of the Energy Efficiency Directive].

Member States shall ensure that, when an operator of a district heating or cooling system refuses to connect a supplier of heating or cooling pursuant to the first subparagraph, information on the reasons for the refusal, as well as the conditions to be met and measures to be taken in the system in order to enable the connection, is provided by that operator to the competent authority. Member States shall ensure that an appropriate process is in place to remedy unjustified refusals.

6. Member States shall put in place a coordination framework between district heating and cooling system operators and the potential sources of waste heat and cold in the industrial and tertiary sectors to facilitate the use of waste heat and cold. That coordination framework shall ensure dialogue as regards the use of waste heat and cold involving at least:

- (a) district heating and cooling system operators;
- (b) industrial and tertiary sector enterprises generating waste heat and cold that can be economically recovered via district heating and cooling systems, such as data centres, industrial plants, large commercial buildings and public transport; and
- (c) local authorities responsible for planning and approving energy infrastructures.’;
- (e) paragraphs 8, 9 and 10 are replaced by the following:

‘8. Member States shall establish a framework under which electricity distribution system operators will assess, at least every four years, in cooperation with the operators of district heating and cooling systems in their respective areas, the potential for district heating and cooling systems to provide balancing and other system services, including demand response and thermal storage of excess electricity from renewable sources, and whether the use of the identified potential would be more resource- and cost-efficient than alternative solutions.

Member States shall ensure that electricity transmission and distribution system operators take due account of the results of the assessment required under the first subparagraph in grid planning, grid investment and infrastructure development in their respective territories.

Member States shall facilitate coordination between operators of district heating and cooling systems and electricity transmission and distribution system operators to ensure that balancing, storage and other flexibility services, such as demand response, provided by district heating and district cooling system operators, can participate in their electricity markets.

Member States may extend the assessment and coordination requirements under the first and third subparagraphs to gas transmission and distribution system operators, including hydrogen networks and other energy networks.

9. Member States shall ensure that the rights of consumers and the rules for operating district heating and cooling systems in accordance with this Article are clearly defined, publicly available and enforced by the competent authority.

10. A Member State shall not be required to apply paragraphs 2 ~~to~~ and 9 where at least one of the following conditions is met:

- (a) its share of district heating and cooling was less than or equal to 2 % of the gross final energy consumption in heating and cooling on 24 December 2018;
- (b) its share of district heating and cooling is increased above 2 % of the gross final energy consumption in heating and cooling on 24 December 2018 by developing new efficient district heating and cooling based on its integrated national energy and climate plan pursuant to Annex I to Regulation (EU) 2018/1999 and the assessment referred to in Article 23(1a) of this Directive;
- (c) 90 % of the gross final energy consumption in district heating and cooling systems takes place in district heating and cooling systems meeting the definition laid down in [Article x of the proposed recast of the Energy Efficiency Directive].?;

(14) Article 25 is replaced by the following:

Greenhouse gas intensity reduction in the transport sector from the use of renewable energy

1. Each Member State shall set an obligation on fuel suppliers to ensure that:
 - (a) the amount of renewable fuels and renewable electricity supplied to the transport sector leads to a greenhouse gas intensity reduction of at least [13] % by 2030, compared to the baseline set out in Article 27(1), point (b), in accordance with an indicative trajectory set by the Member State;
 - (b) the share of advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX in the energy supplied to the transport sector is at least 0,2 % in 2022, 0,5 % in 2025 and [2,2] % in 2030, and the share of renewable fuels of non-biological origin is at least [2,6] % in 2030.

For the calculation of the reduction referred to in point (a) and the share referred to in point (b), Member States shall take into account renewable fuels of non-biological origin also when they are used as intermediate products for the production of conventional **transport** fuels. For the calculation of the reduction referred to in point (a), Member States may take into account recycled carbon fuels.

When setting the obligation on fuel suppliers, Member States may exempt fuel suppliers supplying electricity or renewable liquid and gaseous transport fuels of non-biological origin from the requirement to comply with the minimum share of advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX with respect to those fuels.

When setting the obligation referred to in points (a) and (b) of the first subparagraph to ensure the achievement of the targets set out therein, Member States may do so by means of measures targeting volumes, energy content or greenhouse gas emissions, provided that it is demonstrated that the greenhouse gas intensity reduction and minimum shares referred to in points (a) and (b) of the first subparagraph are achieved.

2. Member States shall establish a mechanism allowing fuel suppliers in their territory to exchange credits for supplying renewable energy to the transport sector. Economic operators that supply renewable electricity to electric vehicles through public recharging stations shall receive credits, irrespectively of whether the economic operators are subject to the obligation set by the Member State on fuel suppliers, and may sell those credits to fuel suppliers, which shall be allowed to use the credits to fulfil the obligation set out in paragraph 1, first subparagraph.’;

(15) Article 26 is amended as follows:

(a) paragraph 1 is amended as follows:

(i) the first subparagraph is replaced by the following:

‘For the calculation of a Member State's gross final consumption of energy from renewable sources referred to in Article 7 and of the greenhouse gas intensity reduction target referred to in Article 25(1), first subparagraph, point (a), the share of biofuels and bioliquids, as well as of biomass fuels consumed in transport, where produced from food and feed crops, shall be no more than one percentage point higher than the share of such fuels in the final consumption of energy in the transport sector in 2020 in that Member State, with a maximum of 7 % of final consumption of energy in the transport sector in that Member State.’;

(ii) the fourth subparagraph is replaced by the following:

‘Where the share of biofuels and bioliquids, as well as of biomass fuels consumed in transport, produced from food and feed crops in a Member State is limited to a share lower than 7 % or a Member State decides to limit the share further, that Member State may reduce the greenhouse gas intensity reduction target referred to in Article 25(1), first subparagraph, point (a), accordingly, in view of the contribution these fuels would have made in terms of greenhouse gas emissions saving. For that purpose, Member States shall consider those fuels save 50 % greenhouse gas emissions.’;

- (b) in paragraph 2, first and fifth subparagraphs, ‘the minimum share referred to in the first subparagraph of Article 25(1)’ is replaced by ‘the greenhouse gas **intensity emission** reduction target referred to in Article 25(1), first subparagraph, point (a)’;

(16) Article 27 is amended as follows:

- (a) the title is replaced by the following:

‘Calculation rules in the transport sector and with regard to renewable fuels of non-biological origin regardless of their end use’;

- (b) paragraph 1 is replaced by the following:

‘1. For the calculation of the greenhouse gas intensity reduction referred to in Article 25(1), first subparagraph, point (a), the following rules shall apply:

- (a) the greenhouse gas emissions savings shall be calculated as follows:

(i) for biofuel and biogas, by multiplying the amount of these fuels supplied to all transport modes by their emissions savings determined in accordance with Article 31;

(ii) for renewable fuels of non-biological origin and recycled carbon fuels, by multiplying the amount of these fuels that is supplied to all transport modes by their emissions savings determined in accordance with delegated acts adopted pursuant to Article 29a(3);

- (iii) for renewable electricity, by multiplying the amount of renewable electricity that is supplied to all transport modes by the fossil fuel comparator $EC_{F(e)}$ set out in Annex V;
- (b) the baseline referred to in Article 25(1) shall be calculated by multiplying the amount of energy supplied to ~~the transport~~ **modes** ~~sector~~ by the fossil fuel comparator $E_{F(t)}$ set out in Annex V;
- (c) for the calculation of the relevant amounts of energy, the following rules shall apply:
- (i) in order to determine the amount of energy supplied to the transport sector, the values regarding the energy content of transport fuels set out in Annex III shall be used;
- (ii) in order to determine the energy content of transport fuels not included in Annex III, the Member States shall use the relevant European standards for the determination of the calorific values of fuels. Where no European standard has been adopted for that purpose, the relevant ISO standards shall be used;
- (iii) the amount of renewable electricity supplied to the transport sector is determined by multiplying the amount of electricity supplied to that sector by the average share of renewable electricity supplied in the territory of the Member State in the two previous years. By way of exception, where electricity is obtained from a direct connection to an installation generating renewable electricity and supplied to the transport sector, that electricity shall be fully counted as renewable;
- (iv) the share of biofuels and biogas produced from the feedstock listed in Part B of Annex IX in the energy content of fuels and electricity supplied to the transport sector shall, except in Cyprus and Malta, be limited to 1,7 %;

- (d) the greenhouse gas intensity reduction from the use of renewable energy is determined by dividing the greenhouse gas emissions saving from the use of biofuels, biogas, **renewables fuels of non-biological origin** -and renewable electricity supplied to all transport modes by the baseline. **Member States may take into account recycled carbon fuels.**

The Commission is empowered to adopt delegated acts in accordance with Article 35 to supplement this Directive by adapting the energy content of transport fuels, as set out in Annex III, in accordance with scientific and technical progress;’;

- (c) the following paragraph 1a is inserted:

‘1a. For the calculation of the targets referred to in Article 25(1), first subparagraph, point (b), the following rules shall apply:

- (a) for the calculation of the denominator, that is the amount of energy consumed in the transport sector, all fuels and electricity supplied to the transport sector shall be taken into account;
- (b) for the calculation of the numerator, the energy content of advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX and renewable fuels of non-biological origin supplied to all transport modes in the territory of the Union shall be taken into account;
- (c) the shares of advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX and of renewable fuels of non-biological origin supplied in the aviation and maritime modes shall be considered to be 1,2 times their energy content.’;

- (d) paragraph 2 is deleted.

- ~~(e)~~ paragraph 3 is amended as follows:

- (i) the first, second and third subparagraphs are deleted;
- (ii) the fourth subparagraph is replaced by the following:

‘Where electricity is used for the production of renewable fuels of non-biological origin, either directly or for the production of intermediate products, the average share of electricity from renewable sources in the country of production, as measured two years before the year in question, shall be used to determine the share of renewable energy.’;

(iii) in the fifth subparagraph, the introductory phrase is replaced by the following:

‘However, electricity obtained from direct connection to an installation generating renewable electricity may be fully counted as renewable electricity where it is used for the production of renewable fuels of non-biological origin, provided that the installation:’;

(17) Article 28 is amended as follows:

- (a) paragraphs 2, 3 and 4 are deleted.
- (b) paragraph 5 is replaced by the following:

‘By 31 December 2024, the Commission shall adopt delegated acts in accordance with Article 35 to supplement this Directive by specifying the methodology to determine the share of biofuel, and biogas for transport, resulting from biomass being processed with fossil fuels in a common process.’;

- (c) in paragraph 7, ‘laid down in the fourth subparagraph of Article 25(1)’ is replaced by ‘laid down in Article 25(1), first subparagraph, point (b)’;

(18) Article 29 is amended as follows:

- (a) paragraph 1 is amended as follows:
 - (i) in the first subparagraph, point (a) is replaced by the following:

‘(a) contributing towards the renewable energy shares of Member States and the targets referred to in Articles 3(1),15a(1), 22a(1), 23(1), 24(4), and 25(1) of this Directive;’;

(ii) the fourth subparagraph is replaced by the following:

‘Biomass fuels shall fulfil the sustainability and greenhouse gas emissions saving criteria laid down in paragraphs 2 to 7 and 10 if used,

- (a) in the case of solid biomass fuels, in installations producing electricity, heating and cooling with a total rated thermal input equal to or exceeding [5] MW,
- (b) in the case of gaseous biomass fuels, in installations producing electricity, heating and cooling with a total rated thermal input equal to or exceeding 2 MW,
- (c) in the case of installations producing gaseous biomass fuels with the following average biomethane flow rate:

(i) above 200 m³ methane equivalent/h measured at standard conditions of temperature and pressure (i.e. 0°C and 1 bar atmospheric pressure);

(ii) if biogas is composed of a mixture of methane and non-combustible other gases, for the methane flow rate, the threshold set out in point (i), recalculated proportionally to the volumetric share of methane in the mixture;

(iii) the following subparagraph is inserted after the fourth subparagraph:

‘Member States may apply the sustainability and greenhouse gas emissions saving criteria to installations with lower total rated thermal input or biomethane flow rate.’;

(b) in paragraph 3, the following subparagraph is inserted after the first subparagraph:

‘This paragraph, with the exception of the first subparagraph, point (c), also applies to biofuels, bioliquids and biomass fuels produced from forest biomass.’;

(c) in paragraph 4, the following subparagraph is added:

‘The first subparagraph, with the exception of points (b) and (c), and the second subparagraph also apply to biofuels, bioliquids and biomass fuels produced from forest biomass.’;

- (d) paragraph 5 is replaced by the following:

‘5. Biofuels, bioliquids and biomass fuels produced from agricultural or forest biomass taken into account for the purposes referred to in paragraph 1, first subparagraph, points (a), (b) and (c), shall not be made from raw material obtained from land that was peatland in January 2008, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.’;

- (e) in paragraph 6, first subparagraph, point (a), point (iv) is replaced by the following:

‘(iv) that harvesting is carried out considering maintenance of soil quality and biodiversity with the aim of minimising negative impacts, in a way that avoids harvesting of stumps and roots, degradation of primary forests or their conversion into plantation forests, and harvesting on vulnerable soils; minimises large clear-cuts and ensures locally appropriate thresholds for deadwood extraction and requirements to use logging systems that minimise impacts on soil quality, including soil compaction, and on biodiversity features and habitats.’;

- (f) in paragraph 6, first subparagraph, point (b), point (iv) is replaced by the following:

‘(iv) that harvesting is carried out considering maintenance of soil quality and biodiversity with the aim of minimising negative impacts, in a way that avoids harvesting of stumps and roots, degradation of primary forests or their conversion into plantation forests, and harvesting on vulnerable soils; minimises large clear-cuts and ensures locally appropriate thresholds for deadwood extraction and requirements to use logging systems that minimise impacts on soil quality, including soil compaction, and on biodiversity features and habitats.’;

- (g) in paragraph 10, first subparagraph, point (d) is replaced by the following:

‘(d) at least 70 % for electricity, heating and cooling production from biomass fuels used in installations until 31 December 2025, and at least 80 % from 1 January 2026.’;

(19) the following Article 29a is inserted:

‘Article 29a

Greenhouse gas emissions saving criteria for renewable fuels of non-biological origin and recycled carbon fuels

1. Energy from renewable fuels of non-biological origin shall be counted towards Member States’ shares of renewable energy and the targets referred to in Articles 3(1), 15a(1), 22a(1), 23(1), 24(4) and 25(1) only if the greenhouse gas emissions savings from the use of those fuels are at least 70 %.
2. Energy from recycled carbon fuels may be counted towards the greenhouse gas emissions reduction target referred to in Article 25(1), first subparagraph, point (a), only if the greenhouse gas emissions savings from the use of those fuels are at least 70%.
3. The Commission is empowered to adopt delegated acts in accordance with Article 35 to supplement this Directive by specifying the methodology for assessing greenhouse gas emissions savings from renewable fuels of non-biological origin and from recycled carbon fuels. The methodology shall ensure that credit for avoided emissions is not given for CO₂ the capture of which has already received an emission credit under other provisions of law.’;

(20) Article 30 is amended as follows:

- (a) in paragraph 1, first subparagraph, the introductory phrase is replaced by the following:

‘Where renewable fuels and recycled carbon fuels are to be counted towards the targets referred to in Articles 3(1), 15a(1), 22a(1), 23(1), 24(4) and 25(1), Member States shall require economic operators to show that the sustainability and greenhouse gas emissions saving criteria laid down in Articles 29(2) to (7) and (10) and 29a(1) and (2) for renewable fuels and recycled-carbon fuels have been fulfilled. For that purpose, they shall require economic operators to use a mass balance system which:’;

- (b) in paragraph 3, the first and second subparagraphs are replaced by the following:

‘Member States shall take measures to ensure that economic operators submit reliable information regarding the compliance with the sustainability and greenhouse gas emissions saving criteria laid down in Articles 29(2) to (7) and (10) and 29a(1) and (2), and that economic operators make available to the relevant Member State, upon request, the data used to develop that information. **Member States shall require economic operators to arrange for an adequate standard of independent auditing of the information submitted, and to provide evidence that this has been done. In order to comply with point (a) of Article 29(6) and point (a) of Article 29(7), the first or second party auditing may be used up to the first gathering point of the forest biomass. The auditing shall verify that the systems used by economic operators are accurate, reliable and protected against fraud, including verification ensuring that materials are not intentionally modified or discarded so that the consignment or part thereof could become a waste or residue. It shall evaluate the frequency and methodology of sampling and the robustness of the data.**

The obligations laid down in this paragraph shall apply regardless of whether renewable fuels and recycled carbon fuels are produced within the Union or are imported. Information about the geographic origin and feedstock type of biofuels, bioliquids and biomass fuels per fuel supplier shall be made available to consumers on the websites of operators, suppliers or the relevant competent authorities and shall be updated on an annual basis.’;

- (c) in paragraph 4, the first subparagraph is replaced by the following:

‘The Commission may decide that voluntary national or international schemes setting standards for the production of renewable fuels and recycled carbon fuels, provide accurate data on greenhouse gas emission savings for the purposes of Articles 29(10) and 29a (1) and (2), demonstrate compliance with Articles 27(3) and 31a(5), or demonstrate that consignments of biofuels, bioliquids and biomass fuels comply with the sustainability criteria laid down in Article 29(2) to (7). When demonstrating that the criteria laid down in Article 29(6) and (7) are met, the operators may provide the required evidence directly at sourcing area level. The Commission may recognise areas for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by intergovernmental organisations or the International Union for the Conservation of Nature for the purposes of Article 29(3), first subparagraph, point (c)(ii).’;

- (d) paragraph 6 is replaced by the following:

‘6. Member States may set up national schemes where compliance with the sustainability and greenhouse gas emissions saving criteria laid down in Articles 29(2) to (7) and (10) and 29a(1) and (2), in accordance with the methodology developed under Article 29a(3), is verified throughout the entire chain of custody involving competent national authorities. Those schemes may also be used to verify the accuracy and completeness of the information included by economic operators in the Union database, to demonstrate compliance with Article 27(3) and for the certification of biofuels, bioliquids and biomass fuels with low indirect land-use change-risk.

A Member State may notify such a national scheme to the Commission. The Commission shall give priority to the assessment of such a scheme in order to facilitate mutual bilateral and multilateral recognition of those schemes. The Commission may decide, by means of implementing acts, whether such a notified national scheme complies with the conditions laid down in this Directive. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 34(3).

Where the decision is positive, other schemes recognised by the Commission in accordance with this Article shall not refuse mutual recognition with that Member State’s national scheme as regards verification of compliance with the criteria for which it has been recognised by the Commission.

For installations producing electricity, heating and cooling with a total rated thermal input between [5 and 10 MW], Member States shall establish simplified national verification schemes to ensure the fulfillment of the sustainability and greenhouse gas emissions criteria set out in paragraphs (2) to (7) and (10) of Article 29.’;

(e) in paragraph 9, the first subparagraph is replaced by the following:

‘Where an economic operator provides evidence or data obtained in accordance with a scheme that has been the subject of a decision pursuant to paragraph 4 or 6, a Member State shall not require the economic operator to provide further evidence of compliance with the elements covered by the scheme for which the scheme has been recognised by the Commission.’;

(f) paragraph 10 is replaced by the following:

‘At the request of a Member State, which may be based on the request of an economic operator, the Commission shall, on the basis of all available evidence, examine whether the sustainability and greenhouse gas emissions saving criteria laid down in Article 29(2) to (7) and (10) and Article 29a(1) and (2) in relation to a source of renewable fuels and recycled carbon fuels have been met.

Within six months of receipt of such a request and in accordance with the examination procedure referred to in Article 34(3), the Commission shall, by means of implementing acts, decide whether the Member State concerned may either:

- (a) take into account the renewable fuels and recycled carbon fuels from that source for the purposes referred to in points (a), (b) and (c) of the first subparagraph of Article 29(1); or
- (b) by way of derogation from paragraph 9 of this Article, require suppliers of the source of renewable fuels and recycled carbon fuels to provide further evidence of compliance with those sustainability and greenhouse gas emissions saving criteria and those greenhouse gas emissions savings thresholds.’;

(21) in Article 31, paragraphs 2, 3 and 4 are deleted:

(22) the following Article **31a** is inserted:

Union database

1. The Commission shall ensure that a Union database is set up to enable the tracing of liquid and gaseous renewable fuels and recycled carbon fuels.
2. Member States shall require the relevant economic operators to enter in a timely manner accurate information into that database on the transactions made and the sustainability characteristics of the fuels subject to those transactions, including their life-cycle greenhouse gas emissions, starting from their point of production to the moment it is consumed in the Union. Information on whether support has been provided for the production of a specific consignment of fuel, and if so, on the type of support scheme, shall also be included in the database.

Where appropriate to improve traceability of data along the entire supply chain, the Commission is empowered to adopt delegated acts in accordance with Article 35 to further extend the scope of the information to be included in the Union database to cover relevant data from the point of production or collection of the raw material used for the fuel production.

Member States shall require fuel suppliers to enter the information necessary to verify compliance with the requirements laid down in Article 25(1), first subparagraph, into the Union database.

3. Member States shall have access to the Union database for the purposes of monitoring and data verification.
4. If guarantees of origin have been issued for the production of a consignment of renewable gases, Member States shall ensure that those guarantees of origin are cancelled before the consignment of renewable gases can be registered in the database.
5. Member States shall ensure that the accuracy and completeness of the information included by economic operators in the database is verified, for instance by using voluntary or national schemes.

For data verification, voluntary or national schemes recognised by the Commission pursuant to Article 30(4), (5) and (6) may use third party information systems as intermediaries to collect the data, provided that such use has been notified to the Commission.

(23) Article 35 is amended as follows:

(a) paragraph 2 is replaced by the following:

‘The power to adopt delegated acts referred to in **Article 3(3)(b), second subparagraph, Article 7(3),** Article 8(3), second subparagraph, **Article 25 (2), second paragraph,** ~~Article 29a(3)~~, Article 26(2), fourth subparagraph, Article 26(2) fifth subparagraph, Article 27(1), second subparagraph, Article 27(3), ~~fourth~~ **seventh** subparagraph, Article 28(5), Article 28(6), second subparagraph, **Article 29a(3),** Article 31(5), second subparagraph, and Article 31a(2), second subparagraph, shall be conferred on the Commission for a period of five years from [the entry into force of this amending Directive]. The Commission shall draw up a report in respect of the delegation of power not later than nine months before the end of the five-year period. The delegation of power shall be tacitly extended for periods of an identical duration, unless the European Parliament or the Council opposes such extension not later than three months before the end of each period.’;

(b) paragraph 4 is replaced by the following:

‘The delegation of power referred to in **Article 3(3)(b), second subparagraph, Article 7(3), fifth subparagraph,** Article 8(3), second subparagraph, **Article 25 (2), second paragraph,** ~~Article 29a(3)~~, Article 26(2), fourth subparagraph, Article 26(2) fifth subparagraph, Article 27(1), second subparagraph, Article 27(3), ~~fourth~~ **seventh** subparagraph, Article 28(5), Article 28(6), second subparagraph, **Article 29a(3),** Article 31(5), and Article 31a(2), second subparagraph, may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.’;

- (c) paragraph 7 is replaced by the following:

‘A delegated act adopted pursuant to **Article 3(3)(b), second subparagraph**, Article 7(3), fifth subparagraph, Article 8(3), second subparagraph, ~~Article 29a(3)~~, **Article 25 (2), second paragraph**, Article 26(2), fourth subparagraph, Article 26(2) fifth subparagraph, Article 27(1), second subparagraph, Article 27(3), ~~fourth~~ **seventh** subparagraph, Article 28(5), Article 28(6), second subparagraph, **Article 29a(3)**, Article 31(5), and Article 31a(2), second subparagraph, shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and to the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.’;

- (24) the Annexes are amended in accordance with the Annexes to this Directive.

Article 2

Amendments to Regulation (EU) 2018/1999

- (1) Article 2 is amended as follows:

- (a) point 11 is replaced by the following:

‘(11) ‘the Union's 2030 targets for energy and climate’ means the Union-wide binding target of at least 40 % domestic reduction in economy-wide greenhouse gas emissions as compared to 1990 to be achieved by 2030, the Union's binding target for renewable energy in 2030 as referred to in Article 3 of Directive (EU) 2018/2001, the Union-level headline target of at least 32,5 % for improving energy efficiency in 2030, and the 15 % electricity interconnection target for 2030 or any subsequent targets in this regard agreed by the **European Council** or by the European Parliament and by the Council for 2030.’;

(b) in point 20, point (b) is replaced by the following:

‘(b) in the context of Commission recommendations based on the assessment pursuant to point (b) of Article 29(1) with regard to energy from renewable sources, a Member State's early implementation of its contribution to the Union's binding target for renewable energy in 2030 as referred to in Article 3 of Directive (EU) 2018/2001 as measured against its national reference points for renewable energy.’;

(2) In Article 4, point (a)(2) is replaced by the following:

‘(2) with respect to renewable energy:

With a view to achieving the Union's binding target for renewable energy in 2030 as referred to in Article 3 of Directive (EU) 2018/2001, a contribution to that target in terms of the Member State's share of energy from renewable sources in gross final consumption of energy in 2030, with an indicative trajectory for that contribution from 2021 onwards. By 2022, the indicative trajectory shall reach a reference point of at least 18 % of the total increase in the share of energy from renewable sources between that Member State's binding 2020 national target, and its contribution to the 2030 target. By 2025, the indicative trajectory shall reach a reference point of at least 43 % of the total increase in the share of energy from renewable sources between that Member State's binding 2020 national target and its contribution to the 2030 target. By 2027, the indicative trajectory shall reach a reference point of at least 65 % of the total increase in the share of energy from renewable sources between that Member State's binding 2020 national target and its contribution to the 2030 target.

By 2030, the indicative trajectory shall reach at least the Member State's planned contribution. If a Member State expects to surpass its binding 2020 national target, its indicative trajectory may start at the level it is projected to achieve. The Member States' indicative trajectories, taken together, shall add up to the Union reference points in 2022, 2025 and 2027 and to the Union's binding target for renewable energy in 2030 as referred to in Article 3 of Directive (EU) 2018/2001. Separately from its contribution to the Union target and its indicative trajectory for the purposes of this Regulation, a Member State shall be free to indicate higher ambitions for national policy purposes.’;

(3) In Article 5, paragraph 2 is replaced by the following:

‘2. Member States shall collectively ensure that the sum of their contributions amounts to at least the level of the Union's binding target for renewable energy in 2030 as referred to in Article 3 of Directive (EU) 2018/2001.’;

(4) In Article 29, paragraph 2 is replaced by the following:

‘2. In the area of renewable energy, as part of its assessment referred to in paragraph 1, the Commission shall assess the progress made in the share of energy from renewable sources in the Union's gross final consumption on the basis of an indicative Union trajectory that starts from 20 % in 2020, reaches reference points of at least 18 % in 2022, 43 % in 2025 and 65 % in 2027 of the total increase in the share of energy from renewable sources between the Union's 2020 renewable energy target and the Union's 2030 renewable energy target, and reaches the Union's binding target for renewable energy in 2030 as referred to in Article 3 of Directive (EU) 2018/2001.’;

Article 3

Amendments to Directive 98/70/EC

Directive 98/70/EC is amended as follows:

(1) Article 1 is replaced by the following:

‘Article 1

Scope

This Directive sets, in respect of road vehicles, and non-road mobile machinery (including inland waterway vessels when not at sea), agricultural and forestry tractors, and recreational craft when not at sea, technical specifications on health and environmental grounds for fuels to be used with positive ignition and compression-ignition engines, taking account of the technical requirements of those engines.’;

(2) Article 2 is amended as follows:

(a) points 1, 2 and 3 are replaced by the following:

‘1. ‘petrol’ means any volatile mineral oil intended for the operation of internal combustion positive-ignition engines for the propulsion of vehicles and falling within CN codes 2710 12 41, 2710 12 45 and 2710 12 49;

2. ‘diesel fuels’ means gas oils falling within CN code 2710 19 43²⁶ as referred to in Regulation (EC) No 715/2007 of the European Parliament and the Council²⁷ and Regulation (EC) 595/2009 of the European Parliament and of the Council²⁸ and used for self-propelling vehicles;

²⁶ The numbering of these CN codes as specified in the Common Customs Tariff, Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff (OJ L 256 7.9.1987, p. 1).

²⁷ Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 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~~ (OJ L 171, 29.6.2007, p. 1).

²⁸ Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) ~~and on access to vehicle repair and maintenance information~~ and amending Regulation (EC) No 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC (OJ L 188, 18.7.2009, p. 1);

‘3. ‘gas oils intended for use by non-road mobile machinery (including inland waterway vessels), agricultural and forestry tractors, and recreational craft’ means any petroleum-derived liquid, falling within CN codes 27101943²⁹, referred to in Directive 2013/53/EU of the European Parliament and of the Council³⁰, Regulation (EU) 167/2013 of the European Parliament and of the Council³¹ and Regulation (EU) 2016/1628 of the European Parliament and of the Council³² and intended for use in compression ignition engines.’;

(b) points 8 and 9 are replaced by the following:

‘8. ‘supplier’ means ‘fuel supplier’ as defined in Article 2, first paragraph, point (38) of Directive (EU) 2018/2001 of the European Parliament and of the Council³³;

‘9. ‘biofuels’ means ‘biofuels’ as defined in Article 2, first paragraph, point (33) of Directive (EU) 2018/2001’;

(3) Article 4 is amended as follows:

(a) In paragraph 1, the second subparagraph is replaced by the following:

‘Member States shall require suppliers to ensure the placing on the market of diesel with a fatty acid methyl ester (FAME) content of up to 7%.’

(b) Paragraph 2 is replaced by the following:

²⁹ The numbering of these CN codes as specified in the Common Customs Tariff, Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff (OJ L 256 7.9.1987, p. 1).

³⁰ Directive 2013/53/EU of the European Parliament and of the Council of 20 November 2013 on recreational craft and personal watercraft and repealing Directive 94/25/EC (OJ L 354, 28.12.2013, p.90).

³¹ Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5.02.2013 on the approval and market surveillance of agricultural and forestry vehicles, (OJ L 060 of 2.3.2013, p. 1).

³² Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) No 1024/2012 and (EU) No 167/2013, and amending and repealing Directive 97/68/EC, (OJ L 354 of 28.12.2013, p.53).

³³ Directive (EU) 2018/2001 of the European Parliament and of the Council on the promotion of the use of energy from renewable sources, (OJ L 328 of 21.12.2018, p. 82.)

‘2, Member States shall ensure that the maximum permissible sulphur content of gas oils intended for use by non-road mobile machinery (including inland waterway vessels), agricultural and forestry tractors and recreational craft is 10 mg/kg. Member States shall ensure that liquid fuels other than those gas oils may be used in inland waterway vessels and recreational craft only if the sulphur content of those liquid fuels does not exceed the maximum permissible content of those gas oils.’;

- (4) Articles 7a to 7e are deleted.
- (5) Article 9 is amended as follows:
 - (a) in paragraph 1, points (g), (h), (i) and (k) are deleted;
 - (b) paragraph 2 is deleted;
- (6) Annexes I, II, IV and V are amended in accordance with Annex I to this Directive.

Article 4

Transitional provisions

- (1) Member States shall ensure that the data collected and reported to the authority designated by the Member State with respect to the year [~~OPJ~~: replace by calendar year during which the repeal takes effect] or a part thereof in accordance with Article 7a(1), third subparagraph, and Article 7a(7) of Directive 98/70/EC, which are deleted by Article 3(4) of this Directive, are submitted to the Commission.
- (2) The Commission shall include the data referred to in paragraph 1 of this Article in any report it is obliged to submit under Directive 98/70/EC.

Article 5

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 December 2024 at the latest. They shall forthwith communicate to the Commission the text of those provisions.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 6

Repeal

Council Directive (EU) 2015/652³⁴ is repealed with effect from [OJ: replace by calendar year during which the repeal takes effect].

Article 7

Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Directive is addressed to the Member States.

³⁴ Council Directive (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements pursuant to Directive 98/70/EC of the European Parliament and of the Council relating to the quality of petrol and diesel fuels, OJ L 107, 25.4.2015, p. 26–67

Done at Brussels,

For the European Parliament

The President

For the Council

The President

The Annexes to Directive (EU) 2018/2001 are amended as follows:

- (1) in Annex I, the final row in the table is deleted;
- (2) the following Annex 1a is inserted:

‘ANNEX 1a

ANNUAL NATIONAL HEATING AND COOLING SHARES OF ENERGY FROM RENEWABLE SOURCES IN GROSS FINAL CONSUMPTION OF ENERGY FOR 2020-2030

	<u>Baseline shares—increase (in percentage points) (REF20/NECPs) Additional top ups to Article 23(1) (in percentage points)³⁵</u>	<u>Resulting shares including top ups without waste heat (in percentage points)renewable heating and cooling shares in 2030 in percentage points including top-ups (at least)</u>
Belgium	0,3%	1,4%
Bulgaria	<u>0,3</u> 0,9%	1,4%
Czech Republic	<u>0,3</u> 0,5%	1,4%
Denmark	<u>0,3</u> 0,9%	1,4%
Germany	<u>0,4</u> 0,9%	1,5%
Estonia	<u>0,4</u> 1,2%	1,5%
Ireland	<u>1,8</u> 2,%	2,9%
Greece	<u>0,9</u> 1,6%	2,0%
Spain	<u>0,3</u> 1,1%	1,4%
France	<u>0,7</u> 1,4%	1,8%

³⁵ **The flexibilities of Article 23 (2) (b) and (c) where taken into account when calculating the top ups and resulting shares.**

Croatia	<u>0,3</u> 0,7%	1,4%
Italy	<u>0,5</u> 1,2%	1,6%
Cyprus	0,5%	1,6%
Latvia	<u>0,45</u> 0,8%	1,0%
Lithuania	<u>0,9</u> 1,6%	2,0%
Luxembourg	<u>1,6</u> 2,0%	2,7%
Hungary	<u>0,4</u> 0,9%	1,5%
Malta	<u>0,4</u> 0,5%	1,5%
Netherlands	<u>0,3</u> 0,7%	1,4%
Austria	<u>0,4</u> 0,7%	1,5%
Poland	<u>0,4</u> 1,0%	1,5%
Portugal	<u>0,3</u> 1,0%	1,4%
Romania	<u>0,3</u> 0,6%	1,4%
Slovenia	<u>0,3</u> 0,7%	1,4%
Slovakia	0,3%	1,4%
Finland	<u>0,35</u> 0,5%	0,8%
Sweden	<u>0,6</u> 0,3%	0,6%

(3) Annex III is replaced by the following:

ENERGY CONTENT OF FUELS

Fuel	Energy content by weight (lower calorific value, MJ/kg)	Energy content by volume (lower calorific value, MJ/l)
FUELS FROM BIOMASS AND/OR BIOMASS PROCESSING OPERATIONS		
Bio-Propane	46	24
Pure vegetable oil (oil produced from oil plants through pressing, extraction or comparable procedures, crude or refined but chemically unmodified)	37	34
Biodiesel - fatty acid methyl ester (methyl-ester produced from oil of biomass origin)	37	33
Biodiesel - fatty acid ethyl ester (ethyl-ester produced from oil of biomass origin)	38	34
Biogas that can be purified to natural gas quality	50	—
Hydrotreated (thermochemically treated with hydrogen) oil of biomass origin, to be used for replacement of diesel	44	34
Hydrotreated (thermochemically treated with hydrogen) oil of biomass origin, to be used for replacement of petrol	45	30
Hydrotreated (thermochemically treated with hydrogen) oil of biomass origin, to be used for replacement of jet fuel	44	34
Hydrotreated oil (thermochemically treated with hydrogen) of biomass origin, to be used for replacement of liquefied petroleum gas	46	24
Co-processed oil (processed in a refinery simultaneously with fossil fuel) of biomass or pyrolysed biomass origin to be used for replacement of diesel	43	36
Co-processed oil (processed in a refinery simultaneously with fossil fuel) of biomass or pyrolysed biomass origin, to be used to replace petrol	44	32

Co-processed oil (processed in a refinery simultaneously with fossil fuel) of biomass or pyrolysed biomass origin, to be used to replace jet fuel	43	33
Co-processed oil (processed in a refinery simultaneously with fossil fuel) of biomass or pyrolysed biomass origin, to be used to replace liquefied petroleum gas	46	23
RENEWABLE FUELS THAT CAN BE PRODUCED FROM VARIOUS RENEWABLE SOURCES, INCLUDING BIOMASS		
Methanol from renewable sources	20	16
Ethanol from renewable sources	27	21
Propanol from renewable sources	31	25
Butanol from renewable sources	33	27
Fischer-Tropsch diesel (a synthetic hydrocarbon or mixture of synthetic hydrocarbons to be used for replacement of diesel)	44	34
Fischer-Tropsch petrol (a synthetic hydrocarbon or mixture of synthetic hydrocarbons produced from biomass, to be used for replacement of petrol)	44	33
Fischer-Tropsch jet fuel (a synthetic hydrocarbon or mixture of synthetic hydrocarbons produced from biomass, to be used for replacement of jet fuel)	44	33
Fischer-Tropsch liquefied petroleum gas (a synthetic hydrocarbon or mixture of synthetic hydrocarbons, to be used for replacement of liquefied petroleum gas)	46	24
DME (dimethylether)	28	19
Hydrogen from renewable sources	120	—
ETBE (ethyl-tertio-butyl-ether produced on the basis of ethanol)	36 (of which 37 % from renewable sources)	27 (of which 37 % from renewable sources)

MTBE (methyl-tertio-butyl-ether produced on the basis of methanol)	35 (of which 22 % from renewable sources)	26 (of which 22 % from renewable sources)
TAAE (tertiary-amyl-ethyl-ether produced on the basis of ethanol)	38 (of which 29 % from renewable sources)	29 (of which 29 % from renewable sources)
TAME (tertiary-amyl-methyl-ether produced on the basis of methanol)	36 (of which 18 % from renewable sources)	28 (of which 18 % from renewable sources)
THxEE (tertiary-hexyl-ethyl-ether produced on the basis of ethanol)	38 (of which 25 % from renewable sources)	30 (of which 25 % from renewable sources)
THxME (tertiary-hexyl-methyl-ether produced on the basis of methanol)	38 of which 14 % from renewable sources)	30 (of which 14 % from renewable sources)
NON-RENEWABLE FUELS		
Petrol	43	32
Diesel	43	36
Hydrogen from non-renewable sources	120	—

(4) Annex IV is amended as follows:

a) the title is replaced by the following:

‘TRAINING AND CERTIFICATION OF INSTALLERS AND DESIGNERS OF RENEWABLE ENERGY INSTALLATIONS’

b) the introductory sentence and the first point are replaced by the following:

‘The certification schemes and training programmes referred to in Article 18(3) shall be based on the following criteria:

1. The certification process shall be transparent and clearly defined by the Member States or by the administrative body that they appoint.’;

c) The following points 1a and 1b are inserted:

‘1a. The certificates issued by certification bodies shall be clearly defined and easy to identify for workers and professionals seeking certification.

1b. The certification process shall enable installers to **acquire the necessary theoretical and practical knowledge and guarantee the existence of skills needed to put in place high quality installations that operate reliably.**’;

d) Points 2 and 3 are replaced by the following:

‘2. Installers of **systems using** biomass, heat pump, shallow geothermal, solar photovoltaic and solar thermal energy shall be certified by an accredited training programme or training provider.’

3. The accreditation of the training programme or provider shall be effected by Member States or by the administrative body that they appoint. The accrediting body shall ensure that the training programme offered by the training provider has continuity and regional or national coverage.

The training provider shall have adequate technical facilities to provide practical training, including sufficient laboratory equipment or corresponding facilities to provide practical training.

The training provider shall offer, in addition to the basic training, shorter refresher and upskilling courses organised in training modules allowing installers and designers to add new competences, widen and diversify their skills across several technologies and their combinations. The training provider shall ensure adaptation of training to new renewable technologies in the context of buildings, industry and agriculture. Training providers shall recognise acquired relevant skills.

The training programmes and modules shall be designed to enable life-long learning in renewable installations and be compatible with vocational training for first time job seekers and adults seeking reskilling or new employment.

The training programmes shall be designed in order to facilitate acquiring qualification in different technologies and solutions and avoid limited specialisation in a specific brand or technology. The training provider may be the manufacturer of the equipment or system, institutes or associations.’;

e) In point 6(c) the following points (iv) and (v) are added :

‘(iv) an understanding of feasibility and design studies;

(v) an understanding of drilling, in the case of geothermal heat pumps.’;

(5) In Annex V, part C is amended as follows:

a) points 5 and 6 are replaced by the following:

‘5. Emissions from the extraction or cultivation of raw materials, eec, shall, include emissions from the extraction or cultivation process itself; from the collection, drying and storage of raw materials; from waste and leakages; and from the production of chemicals or products used in extraction or cultivation. Capture of CO₂ in the cultivation of raw materials shall be excluded. If available, the disaggregated default values for soil N₂O emissions set out in Part D shall be applied in the calculation. It is allowed to calculate averages based on local farming practices based on data of a group of farms, as an alternative to using actual values.’;

6. For the purposes of the calculation referred to in point 1(a), greenhouse gas emissions savings from improved agriculture management, esca, such as shifting to reduced or zero-tillage, improved **crops and crop**/rotation, the use of cover crops, including crop residue management, and the use of organic soil improver (e.g. compost, manure fermentation digestate), shall be taken into account only if they do not risk to negatively affect biodiversity. Further, solid and verifiable evidence shall be provided that the soil carbon has increased or that it is reasonable to expect to have increased over the period in which the raw materials concerned were cultivated while taking into account the emissions where such practices lead to increased fertiliser and herbicide use³⁶;

- b) point 15 is deleted:
- c) point 18 is replaced by the following:

³⁶ Measurements of soil carbon can constitute such evidence, e.g. by a first measurement in advance of the cultivation and subsequent ones at regular intervals several years apart. In such a case, before the second measurement is available, increase in soil carbon would be estimated on the basis of representative experiments or soil models. From the second measurement onwards, the measurements would constitute the basis for determining the existence of an increase in soil carbon and its magnitude.

‘18. For the purposes of the calculations referred to in point 17, the emissions to be divided shall be $e_{ec} + e_l + e_{sca}$ + those fractions of e_p , e_{td} , **and** e_{ccs} ~~and e_{eer}~~ that take place up to and including the process step at which a co-product is produced. If any allocation to co-products has taken place at an earlier process step in the life-cycle, the fraction of those emissions assigned in the last such process step to the intermediate fuel product shall be used for those purposes instead of the total of those emissions. In the case of **biofuels** ~~biogas~~ and **bioliquids** ~~biomethane~~, all co-products that do not fall under the scope of point 7 shall be taken into account for the purposes of that calculation. No emissions shall be allocated to wastes and residues. Co-products that have a negative energy content shall be considered to have an energy content of zero for the purposes of the calculation. Wastes and residues including all wastes and residues included in Annex IX shall be considered to have zero life-cycle greenhouse gas emissions up to the process of collection of those materials irrespectively of whether they are processed to interim products before being transformed into the final product. Residues that are not included in Annex IX and fit for use in the food or feed market shall be considered to have the same amount of emissions from the extraction, harvesting or cultivation of raw materials, e_{ec} as their closest substitute in the food and feed market that is included in the table in part D. In the case of biomass fuels produced in refineries, other than the combination of processing plants with boilers or cogeneration units providing heat and/or electricity to the processing plant, the unit of analysis for the purposes of the calculation referred to in point 17 shall be the refinery’;

(6) In Annex VI, part B is amended as follows:

a) points 5 and 6 are replaced by the following:

‘5. Emissions from the extraction or cultivation of raw materials, eec, shall, include emissions from the extraction or cultivation process itself; from the collection, drying and storage of raw materials; from waste and leakages; and from the production of chemicals or products used in extraction or cultivation. Capture of CO₂ in the cultivation of raw materials shall be excluded. If available, the disaggregated default values for soil N₂O emissions set out in Part D shall be applied in the calculation. It is allowed to calculate averages based on local farming practises based on data of a group of farms, as an alternative to using actual values.’

6. For the purposes of the calculation referred to in point 1(a), greenhouse gas emissions savings from improved agriculture management, esca, such as shifting to reduced or zero-tillage, improved crop/rotation, the use of cover crops, including crop residue management, and the use of organic soil improver (e.g. compost, manure fermentation digestate), shall be taken into account only if they do not risk to negatively affect biodiversity. Further, solid and verifiable evidence shall be provided that the soil carbon has increased or that it is reasonable to expect to have increased over the period in which the raw materials concerned were cultivated while taking into account the emissions where such practices lead to increased fertiliser and herbicide use³⁷;

b) point 15 is deleted:

c) point 18 is replaced by the following:

³⁷ Measurements of soil carbon can constitute such evidence, e.g. by a first measurement in advance of the cultivation and subsequent ones at regular intervals several years apart. In such a case, before the second measurement is available, increase in soil carbon would be estimated on the basis of representative experiments or soil models. From the second measurement onwards, the measurements would constitute the basis for determining the existence of an increase in soil carbon and its magnitude.

‘18. For the purposes of the calculations referred to in point 17, the emissions to be divided shall be $e_{ec} + e_l + e_{sca}$ + those fractions of e_p , e_{td} , **and** e_{ccs} ~~and e_{eer}~~ that take place up to and including the process step at which a co-product is produced. If any allocation to co-products has taken place at an earlier process step in the life-cycle, the fraction of those emissions assigned in the last such process step to the intermediate fuel product shall be used for those purposes instead of the total of those emissions.

In the case of biogas and biomethane, all co-products that do not fall under the scope of point **17** shall be taken into account for the purposes of that calculation. No emissions shall be allocated to wastes and residues. Co-products that have a negative energy content shall be considered to have an energy content of zero for the purposes of the calculation.

Wastes and residues including all wastes and residues included in Annex IX shall be considered to have zero life-cycle greenhouse gas emissions up to the process of collection of those materials irrespectively of whether they are processed to interim products before being transformed into the final product. Residues that are not included in Annex IX and fit for use in the food or feed market shall be considered to have the same amount of emissions from the extraction, harvesting or cultivation of raw materials, e_{ec} as their closest substitute in the food and feed market that is included in the table in part D of Annex V.

In the case of biomass fuels produced in refineries, other than the combination of processing plants with boilers or cogeneration units providing heat and/or electricity to the processing plant, the unit of analysis for the purposes of the calculation referred to in point 17 shall be the refinery’

- (7) in Annex VII, in the definition of ‘ Q_{usable} ’, the reference to Article 7(4) is replaced by a reference to Article 7(3).

(8) Annex IX is amended as follows:

(a) in Part A, the introductory phrase is replaced by the following:

‘Feedstocks for the production of biogas for transport and advanced biofuels:’

(b) In Part B, the introductory phrase is replaced by the following:

‘Feedstocks for the production of biofuels and biogas for transport, the contribution of which towards the greenhouse gas emissions reduction target established in Article 25(1), first subparagraph, point (a), shall be limited:’;

Annexes I, II, IV and V to Directive 98/70/EC are amended as follows:

(1) Annex I is amended as follows:

(a) the text of footnote 1 is replaced by the following:

‘(1) Test methods shall be those specified in EN 228:2012+A1:2017. Member States may adopt the analytical method specified in replacement EN 228:2012+A1:2017 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.’ ;

(b) the text of footnote 2 is replaced by the following:

‘(2) the values quoted in the specification are ‘true values’. In the establishment of their limit values, the terms of EN ISO 4259-1:2017/A1:2021 ‘Petroleum and related products — Precision of measurement methods and results – Part 1: Determination of precision data in relation to methods of test’ have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in EN ISO 4259-2:2017/A1:2019.’;

(c) the text of footnote 6 is replaced by the following:

‘(6) Other mono-alcohols and ethers with a final boiling point no higher than that stated in EN 228:2012 +A1:2017.’

(2) Annex II is amended as follows:

(a) in the last line of the table, ‘FAME content – EN 14078, the entry in the last column ‘Limits’ ‘Maximum’, ‘7,0’ is replaced by ‘10.0’;

(b) the text of footnote 1 is replaced by the following:

‘(1) Test methods shall be those specified in EN 590:2013+A1:2017. Member States may adopt the analytical method specified in replacement EN 590:2013+A1:2017 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.’;

(c) the text of footnote 2 is replaced by the following:

‘(2) The values quoted in the specification are ‘true values’. In the establishment of their limit values, the terms of EN ISO 4259-1:2017/A1:2021 ‘Petroleum and related products — Precision or measurement methods and results – Part 1: Determination of precision data in relation to methods of test’ have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in EN ISO 4259-2:2017/A1:2019.’;

(3) Annexes IV and V are deleted.
