



EUROPEAN UNION

THE EUROPEAN PARLIAMENT

THE COUNCIL

**Strasbourg, 13 September 2023
(OR. en)**

**2021/0203 (COD)
LEX 2255**

**PE-CONS 15/1/23
REV 1**

**ENER 175
ENV 332
TRANS 127
ECOFIN 307
RECH 119
CLIMA 177
IND 160
COMPET 296
CONSOM 113
CODEC 540**

**DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
ON ENERGY EFFICIENCY AND AMENDING REGULATION (EU) 2023/955
(RECAST)**

DIRECTIVE (EU) 2023/...
OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 13 September 2023

on energy efficiency and amending Regulation (EU) 2023/955
(recast)

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 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 procedure³,

¹ OJ C 152, 6.4.2022, p. 134.

² OJ C 301, 5.8.2022, p. 139.

³ Position of the European Parliament of 11 July 2023 (not yet published in the Official Journal) and decision of the Council of 25 July 2023.

Whereas:

- (1) Directive 2012/27/EU of the European Parliament and of the Council¹ has been substantially amended several times². Since further amendments are to be made, that Directive should be recast in the interests of clarity.
- (2) In its communication of 17 September 2020 on ‘Stepping up Europe’s 2030 climate ambition - Investing in a climate-neutral future for the benefit of our people’ (the ‘Climate Target Plan’), the Commission proposed to raise the Union’s climate ambition by increasing the greenhouse gas (GHG) emissions target to at least 55 % below 1990 levels by 2030. That is a substantial increase compared to the existing 40 % reduction target. The proposal delivered on the commitment made in the communication of the Commission of 11 December 2019 on ‘The European Green Deal’ (the ‘European Green Deal’) to put forward a comprehensive plan to increase the Union’s target for 2030 towards 55 % in a responsible way. It is also in accordance with the objectives of the Paris Agreement adopted on 12 December 2015 under the United Nations Framework Convention on Climate Change (the ‘Paris Agreement’) to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1,5°C.

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

² See Part A of Annex XVI.

- (3) The conclusions of the European Council of 10-11 December 2020 endorsed the Union's binding domestic reduction target for net GHG emissions of at least 55% by 2030 compared to 1990. The European Council concluded that the climate ambition needed to be raised in a manner that would spur sustainable economic growth, create jobs, deliver health and environmental benefits for Union citizens, and contribute to the long-term global competitiveness of the Union's economy by promoting innovation in green technologies.
- (4) To implement those objectives, the Commission, in its communication of 19 October 2020 on 'Commission Work Programme 2021 - A Union of vitality in a world of fragility', announced a legislative package to reduce GHG emissions by at least 55 % by 2030 (the 'Fit for 55 package'), and to achieve a climate-neutral European Union by 2050. That package covers a range of policy areas including energy efficiency, renewable energy, land use, land change and forestry, energy taxation, effort sharing and emissions trading.
- (5) The purpose of the Fit for 55 package is to safeguard and create jobs in the Union and to enable the Union to become a world leader in the development and uptake of clean technologies in the global energy transition, including energy efficiency solutions.
- (6) Projections indicate that, with the full implementation of current policies, GHG emission reductions by 2030 would be around 45 % compared to 1990 levels, when excluding land use emissions and absorptions, and around 47 %, when including them. The Climate Target Plan therefore provides for a set of required actions across all sectors of the economy and revisions of the key legislative instruments to reach that increased climate ambition.

- (7) In its communication of 28 November 2018 on ‘A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy’, the Commission stated that energy efficiency is a key area of action, without which the full decarbonisation of the Union’s economy cannot be achieved. The need to capture the cost-effective energy saving opportunities has led to the Union’s current energy efficiency policy. In December 2018, a new 2030 Union headline energy efficiency target of at least 32,5 %, compared to projected energy use in 2030, was included as part of the Clean Energy for All Europeans package, which aimed at putting energy efficiency first, achieving global leadership in renewable energies and providing a fair deal for consumers.
- (8) The impact assessment accompanying the Climate Target Plan demonstrated that, to achieve the increased climate ambition, energy efficiency improvements will need to be significantly raised from the current level of 32,5 %.
- (9) An increase in the Union’s 2030 energy efficiency target can reduce energy prices and be crucial in reducing GHG emissions, accompanied by an increase and uptake of electrification, hydrogen, e-fuels and other relevant technologies necessary for the green transition, including in the transport sector. Even with the rapid growth of renewable electricity generation, energy efficiency can reduce the need of new power generation capacity and the costs relating to storage, transmission and distribution. Increased energy efficiency is also particularly important for the security of the energy supply of the Union, by lowering the Union’s dependence on the import of fuels from third countries. Energy efficiency is one of the cleanest and most cost-efficient measures by which to address that dependence.

- (10) The sum of national contributions communicated by Member States in their national energy and climate plans falls short of the Union's target of 32,5 %. The contributions would collectively lead to a reduction of 29,7 % for primary energy consumption and 29,4 % for final energy consumption compared to the projections from the Commission's 2007 EU Reference Scenario for 2030. That would translate in a collective gap of 2,8 percentage points for primary energy consumption and 3,1 percentage points for final energy consumption for the EU-27.
- (11) A number of Member States presented ambitious national energy and climate plans, which were assessed by the Commission as 'sufficient', and which contained measures that allow those Member States to contribute to reaching the collective targets for energy efficiency with a ratio larger than the Union average. In addition, a number of Member States have documented 'early efforts' in achieving energy savings, namely energy savings above the Union average trajectories in the last years. Both cases are significant efforts that should be recognised and should be included in the Union's future modelling projections and that can serve as good examples of how all Member States can work on their energy efficiency potential to deliver significant benefits to their economies and societies.

- (12) In some cases, the assumptions used by the Commission in its 2020 EU Reference Scenario and the assumptions used by some Member States for their reference scenarios underpinning their national energy and climate plans are different. This may lead to divergences as regards the calculation of primary energy consumption but both approaches are valid with regard to primary energy consumption.
- (13) While the energy savings potential remains large in all sectors, there is a particular challenge relating to transport, as it is responsible for more than 30 % of final energy consumption, and to buildings, since 75 % of the Union's building stock has a poor energy performance. Another increasingly important sector is the information and communications technology (ICT) sector, which is responsible for 5 to 9 % of the world's total electricity use and more than 2 % of global emissions. In 2018, data centres accounted for 2,7 % of the electricity demand in the EU-28. In that context, the Commission, in its communication of 19 February 2020 on 'Shaping Europe's digital future' (the 'Union's Digital Strategy'), highlighted the need for highly energy-efficient and sustainable data centres and transparency measures for telecoms operators as regards their environmental footprint. Furthermore, the possible increase in industry's energy demand that may result from its decarbonisation, particularly for energy intensive processes, should also be taken into account.

- (14) The higher level of ambition requires a stronger promotion of cost-effective energy efficiency measures in all areas of the energy system and in all relevant sectors where activity affects energy demand, such as the transport, water and agriculture sectors. Improving energy efficiency throughout the full energy chain, including energy generation, transmission, distribution and end-use, will benefit the environment, improve air quality and public health, reduce GHG emissions, improve energy security by decreasing the need for energy imports, in particular of fossil fuels, cut energy costs for households and companies, help alleviate energy poverty, and lead to increased competitiveness, more jobs and increased economic activity throughout the economy. Improving energy efficiency would thus improve citizens' quality of life, while contributing to the transformation of the Union's energy relations with third-country partners towards achieving climate neutrality. That complies with the Union commitments made in the framework of the Energy Union and global climate agenda established by the Paris Agreement. Improving the energy performance of various sectors has the potential of fostering urban regeneration, including improvement of buildings, and changes in mobility and accessibility patterns, while promoting more efficient, sustainable and affordable options.

- (15) This Directive takes a step forward towards climate neutrality by 2050, under which energy efficiency is to be treated as an energy source in its own right. The energy efficiency first principle is an overarching principle that should be taken into account across all sectors, going beyond the energy system, at all levels, including in the financial sector. Energy efficiency solutions should be considered as the first option in policy, planning and investment decisions when setting new rules for the supply side and other policy areas. While the energy efficiency first principle should be applied without prejudice to other legal obligations, objectives and principles, such obligations, objectives and principles should not hamper its application or lead to exemptions from applying the principle. The Commission should ensure that energy efficiency and demand response can compete on equal terms with generation capacity. Energy efficiency improvements need to be made whenever they are more cost-effective than equivalent supply-side solutions. That should help exploit the multiple benefits of energy efficiency for the Union, in particular for citizens and businesses. Implementing energy efficiency improvement measures should also be a priority in alleviating energy poverty.

- (16) Energy efficiency should be recognised as a crucial element and a priority consideration in future investment decisions on the Union’s energy infrastructure. The energy efficiency first principle should be applied taking into consideration primarily the system efficiency approach and societal and health perspective, and paying attention to security of supply, energy system integration and the transition to climate neutrality. Consequently, the energy efficiency first principle should help increase the efficiency of individual end-use sectors and of the whole energy system. The application of the principle should also support investments in energy-efficient solutions contributing to the environmental objectives of Regulation (EU) 2020/852 of the European Parliament and of the Council¹.

¹ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (OJ L 198, 22.6.2020, p. 13).

- (17) The energy efficiency first principle is provided for in Regulation (EU) 2018/1999 of the European Parliament and of the Council¹ and is at the core of the EU Strategy for Energy System Integration established in the Commission's communication of 8 July 2022. While the principle is based on cost-effectiveness, its application has wider implications from the societal perspective. Those implications can vary depending on the circumstances and should be carefully evaluated through robust cost-benefit analysis methodologies that take into account the multiple benefits of energy efficiency. The Commission has prepared dedicated guidelines for the operation and application of the principle, by proposing specific tools and examples of application in various sectors. The Commission has also issued a recommendation to Member States that builds on the requirements laid down in this Directive and calls for specific actions in relation to the application of the principle. Member States should take the utmost account of that recommendation and be guided by it in implementing the energy efficiency principle in practice.

¹ 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).

- (18) The energy efficiency first principle implies adopting a holistic approach, which takes into account the overall efficiency of the integrated energy system, security of supply and cost effectiveness and promotes the most efficient solutions for climate neutrality across the whole value chain, from energy production, network transport to final energy consumption, so that efficiencies are achieved in both primary energy consumption and final energy consumption. That approach should look at the system performance and dynamic use of energy, where demand-side resources and system flexibility are considered to be energy efficiency solutions.

- (19) In order to have an impact, the energy efficiency first principle needs to be consistently applied by national, regional, local and sectoral decision makers in all relevant scenarios and policy, planning and major investment decisions – that is to say large-scale investments with a value of more than EUR 100 000 000 each or EUR 175 000 000 for transport infrastructure projects – affecting energy consumption or supply. The proper application of the principle requires using the right cost-benefit analysis methodology, setting enabling conditions for energy efficient solutions and proper monitoring. Cost-benefit analyses should be systematically developed and carried out, should be based on the most up-to-date information on energy prices and should include scenarios for rising prices, such as due to decreasing Union’s emission trading system (EU ETS) allowances pursuant to Directive 2003/87/EC of the European Parliament and of the Council¹, in order to provide an incentive to apply energy efficiency measures. Priority should be given to demand-side solutions where they are more cost-effective than investments in energy supply infrastructure in meeting policy objectives. Demand-side flexibility can bring wider economic, environmental and societal benefits to consumers and to society at large, including local communities, and can increase the efficiency of the energy system and decrease the energy costs, for example by reducing system operation costs resulting in lower tariffs for all consumers. Member States should take into account potential benefits from demand-side flexibility in applying the energy efficiency first principle and where relevant consider demand response at both centralised and decentralised level, energy storage, and smart solutions as part of their efforts to increase efficiency of the integrated energy system.

¹ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (OJ L 275, 25.10.2003, p. 32).

- (20) When assessing the values of projects for the purpose of the application of the energy efficiency first principle, the Commission, in its report to the European Parliament and to the Council, should assess, in particular, whether and in what manner the thresholds are effectively applied in each Member State.
- (21) The energy efficiency first principle should always be applied in a proportional way and the requirements laid down in this Directive should not entail overlapping or conflicting obligations on Member States, where the application of the principle is ensured directly by other legislation. This might be the case for the projects of common interest included in the Union list pursuant to Article 3 of Regulation (EU) 2022/869 of the European Parliament and of the Council¹, which introduces the requirements to consider the energy efficiency first principle in the development and assessment for those projects.

¹ Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on guidelines for trans-European energy infrastructure, amending Regulations (EC) No 715/2009, (EU) 2019/942 and (EU) 2019/943 and Directives 2009/73/EC and (EU) 2019/944, and repealing Regulation (EU) No 347/2013 (OJ L 152, 3.6.2022, p. 45).

(22) A fair transition towards a climate-neutral Union by 2050 is central to the European Green Deal. Energy poverty is a key concept in the Clean Energy for All Europeans package and designed to facilitate a just energy transition. Pursuant to Regulation (EU) 2018/1999 and Directive (EU) 2019/944 of the European Parliament and of the Council¹, the Commission, in its Recommendation (EU) 2020/1563 on energy poverty², provided indicative guidance on appropriate indicators for measuring energy poverty and defining a ‘significant number of households in energy poverty’. Directive 2009/73/EC of the European Parliament and of the Council³ and Directive (EU) 2019/944 require Member States to take appropriate measures to address energy poverty wherever it is identified, including measures addressing the broader context of poverty. This is particularly relevant in a context of rising energy prices and inflationary pressure, where both short and long-term measures should be implemented to address systemic challenges to the Union’s energy system.

¹ Directive (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).

² Commission Recommendation (EU) 2020/1563 of 14 October 2020 on energy poverty (OJ L 357, 27.10.2020, p. 35).

³ Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC (OJ L 211, 14.8.2009, p. 94).

- (23) People facing or risking energy poverty, vulnerable customers, including final users, low- and medium-income households, and people living in social housing should benefit from the application of the energy efficiency first principle. Energy efficiency measures should be implemented as a priority to improve the situations of those individuals and households and to alleviate energy poverty, and should not encourage any disproportionate increase in housing, mobility or energy costs. A holistic approach in policy making and in implementing policies and measures requires Member States to ensure that other policies and measures have no adverse effect on those individuals and households.
- (24) This Directive is part of a broader policy framework of energy efficiency policies addressing energy efficiency potentials in specific policy areas, including buildings (Directive 2010/31/EU of the European Parliament and of the Council¹), products (Directive 2009/125/EC of the European Parliament and of the Council² and Regulations (EU) 2017/1369³ and (EU) 2020/740⁴ of the European Parliament and of the Council), and governance (Regulation (EU) 2018/1999). Those policies play a very important role in delivering energy savings when products are replaced or buildings constructed or renovated.

¹ Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13).

² Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (OJ L 285, 31.10.2009, p. 10).

³ 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).

⁴ Regulation (EU) 2020/740 of the European Parliament and of the Council of 25 May 2020 on the labelling of tyres with respect to fuel efficiency and other parameters, amending Regulation (EU) 2017/1369 and repealing Regulation (EC) No 1222/2009 (OJ L 177, 5.6.2020, p. 1).

- (25) Reaching an ambitious energy efficiency target requires barriers to be removed in order to facilitate investment in energy efficiency measures. The Clean Energy Transition sub-programme of the Union's LIFE Programme, established by Regulation (EU) 2021/783 of the European Parliament and of the Council¹, will dedicate funding to support development of Union best practices in energy efficiency policy implementation, addressing behavioural, market, and regulatory barriers to energy efficiency.
- (26) The European Council, in its conclusion of 23 and 24 October 2014, supported a 27 % energy efficiency target for 2030 at Union level, to be reviewed by 2020 having in mind a Union-level target of 30 %. In its resolution of 15 December 2015 entitled 'Towards a European Energy Union', the European Parliament called on the Commission to assess, in addition, the viability of a 40 % energy efficiency target for the same timeframe.
- (27) In its communication of 28 November 2018 on 'A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy', the Commission projects that the 32,5 % Union's energy efficiency target for 2030 and the other policy instruments of the existing framework would lead to a reduction in GHG emissions of about 45 % by 2030. For an increased climate ambition of a 55 % decrease of GHG emissions by 2030, the impact assessment of the Climate Target Plan assessed what level of efforts would be needed in the different policy areas. It concluded that, in relation to the baseline, achieving the GHG emissions target in a cost-optimal way meant that primary energy consumption and final energy consumption are to decrease by at least 39 to 41 % and 36 to 37 % respectively.

¹ Regulation (EU) 2021/783 of the European Parliament and of the Council of 29 April 2021 establishing a Programme for the Environment and Climate Action (LIFE), and repealing Regulation (EU) No 1293/2013 (OJ L 172, 17.5.2021, p. 53).

- (28) The Union's energy efficiency target was initially set and calculated using the 2007 EU Reference Scenario projections for 2030 as a baseline. The change in the Eurostat energy balance calculation methodology and improvements in subsequent modelling projections call for a change of the baseline. Thus, using the same approach to define the target, namely by comparing it to the future baseline projections, the ambition of the Union's 2030 energy efficiency target is set compared to the 2020 EU Reference Scenario projections for 2030 reflecting national contributions from the national energy and climate plans. With that updated baseline, the Union will need to further increase its energy efficiency ambition by at least 11,7 % in 2030 compared to the level of efforts under the 2020 EU Reference Scenario. The new way of expressing the level of ambition for the Union's targets does not affect the actual level of efforts needed and corresponds to a reduction of 40,5 % for primary energy consumption and 38 % for final energy consumption when compared to the 2007 EU Reference Scenario projections for 2030.
- (29) The methodology for calculation of primary energy consumption and final energy consumption is aligned with the new Eurostat methodology, but the indicators used for the purpose of this Directive have a different scope, in that they exclude ambient energy and include energy consumption in international aviation for the targets in primary energy consumption and final energy consumption. The use of new indicators also implies that any changes in energy consumption of blast furnaces are now only reflected in primary energy consumption.

- (30) The need for the Union to improve its energy efficiency should be expressed in primary energy consumption and final energy consumption, to be achieved in 2030, indicating an additional level of efforts required when compared to the measures in place or planned measures in the national energy and climate plans. The 2020 EU Reference Scenario projects 864 Mtoe of final energy consumption and 1124 Mtoe of primary energy consumption to be reached in 2030 (excluding ambient energy and including international aviation). An additional reduction of 11,7 % results in 763 Mtoe and 992,5 Mtoe in 2030. Compared to 2005 levels, it means that final energy consumption in the Union should be reduced by approximately 25 % and primary energy consumption should be reduced by approximately 34 %. There are no binding targets at Member State level in the 2020 and 2030 perspectives, and Member States should establish their contributions to the achievement of the Union's energy efficiency target taking into account the formula provided for in this Directive. Member States should be free to set their national objectives based either on primary energy consumption or final energy consumption or primary energy savings or final energy savings, or on energy intensity. This Directive amends the way in which Member States should express their national contributions to the Union's target. Member States' contributions to the Union's target should be expressed in primary energy consumption and final energy consumption to ensure consistency and monitoring of progress. A regular evaluation of progress towards the achievement of the Union's 2030 targets is necessary and is provided for in Regulation (EU) 2018/1999.

- (31) By 30 November 2023, the Commission should update the 2020 EU Reference Scenario based on the latest Eurostat data. Member States wishing to use the updated reference scenario should notify their updated national contributions by 1 February 2024, as part of the iterative process provided for in Regulation (EU) 2018/1999.
- (32) It would be preferable for the energy efficiency targets to be achieved as a result of the cumulative implementation of specific Union and national measures promoting energy efficiency in different fields. Member States should be required to set national energy efficiency policies and measures. Those policies and measures and the individual efforts of each Member State should be evaluated by the Commission, alongside data on the progress made, to assess the likelihood of achieving the overall Union target and the extent to which the individual efforts are sufficient to meet the common goal.
- (33) The public sector is responsible for approximately 5 % to 10 % of the Union's total final energy consumption. Public authorities spend approximately EUR 1 800 000 000 000 every year. This represents around 14 % of the Union's gross domestic product. For that reason the public sector constitutes an important driver to stimulate market transformation towards more efficient products, buildings and services, as well as to trigger behavioural changes in energy consumption by citizens and enterprises. Furthermore, decreasing energy consumption through energy efficiency improvement measures can free up public resources for other purposes. Public bodies at national, regional and local level should fulfil an exemplary role as regards energy efficiency.

- (34) To lead by example, the public sector should set its own decarbonisation and energy efficiency goals. Energy efficiency improvements in the public sector should reflect the efforts required at Union level. To comply with the final energy consumption target, the Union should decrease its final energy consumption by 19 % by 2030 as compared to the average energy consumption in years 2017, 2018 and 2019. An obligation to achieve an annual reduction of the energy consumption in the public sector by at least 1,9 % should ensure that the public sector fulfils its exemplary role. Member States retain full flexibility regarding the choice of energy efficiency improvement measures to achieve a reduction of the final energy consumption. Requiring an annual reduction of final energy consumption has a lower administrative burden than establishing measurement methods for energy savings.

- (35) To fulfil their obligation, Member States should target the final energy consumption of all public services and installations of public bodies. To determine the scope of addressees, Member States should apply the definition of ‘public bodies’ provided for in this Directive, where ‘directly financed by those authorities’ means that those entities are mostly funded by public funds and ‘administered by those authorities’ means that a national, regional or local authority has a majority with regard to the choice of the entity’s management. The obligation can be fulfilled by the reduction of final energy consumption in any area of the public sector, including transport, public buildings, healthcare, spatial planning, water management and wastewater treatment, sewage and water purification, waste management, district heating and cooling, energy distribution, supply and storage, public lighting, infrastructure planning, education and social services. Member States may also include other types of services when transposing this Directive. To lower the administrative burden for public bodies, Member States should establish digital platforms or tools to collect the aggregated consumption data from public bodies, make them publicly available, and report the data to the Commission. Member States should provide planning and annual reporting on the consumption of public bodies in an aggregated form per sector.
- (36) Member States should promote energy efficient means of mobility, including in their public procurement practices, such as rail, cycling, walking or shared mobility, by renewing and decarbonising fleets, encouraging a modal shift and including those modes in urban mobility planning.

- (37) Member States should exercise an exemplary role by ensuring that all energy performance contracts, energy audits and energy management systems are carried out in the public sector in line with European or international standards, or that energy audits are used to a large extent in energy-intensive parts of the public sector. Member States should provide guidance and should provide for procedures for the use of those instruments.
- (38) Public authorities are encouraged to obtain support from entities such as sustainable energy agencies established at regional or local level, where applicable. The organisation of those agencies usually reflects the individual needs of public authorities in a certain region or operating in a certain area of the public sector. Centralised agencies can serve the needs better and work more effectively in other respects, for example, in smaller or centralised Member States or regarding complex or cross-regional aspects such as district heating and cooling. Sustainable energy agencies can serve as one-stop shops. Those agencies are often responsible for developing local or regional decarbonisation plans, which may also include other decarbonisation measures, such as the exchange of fossil fuel boilers, and for supporting public authorities in the implementation of energy-related policies. Sustainable energy agencies or other entities to assist regional and local authorities may have clear competences, objectives and resources in the field of sustainable energy. Sustainable energy agencies could be encouraged to consider initiatives taken in the framework of the Covenant of Mayors, which brings together local governments voluntarily committed to implementing the Union's climate and energy objectives, and other existing initiatives for that purpose. The decarbonisation plans should be linked to territorial development plans and take into account the comprehensive assessment which the Member States should carry out.

- (39) Member States should support public bodies in planning and the uptake of energy efficiency improvement measures, including at regional and local level, by providing guidelines promoting competence-building and training opportunities and encouraging cooperation amongst public bodies including amongst agencies. For that purpose, Member States could set up national competence centres on complex issues, such as advising local or regional energy agencies on district heating or cooling. The requirement to transform buildings into nearly zero-energy buildings does not exclude or prohibit a differentiation between nearly zero-energy building levels for new or renovated buildings. Nearly zero-energy buildings, including the cost-optimal level, are defined in Directive 2010/31/EU.
- (40) Until the end of 2026, Member States that renovate more than 3 % of the total floor area of their buildings in any given year should be given the possibility to count the surplus towards the annual renovation rate of any of the three following years. A Member State that renovates more than 3 % of the total floor area of its buildings from 1 January 2027 should be able to count the surplus towards the annual renovation rate of the following two years. That possibility should not be used for purposes that are not in line with the general objectives and the level of ambition of this Directive.
- (41) Member States should encourage public bodies to take into account the wider benefits beyond energy savings, such as the quality of the indoor environment as well as an improvement of people's quality of life and the comfort of renovated public buildings, in particular schools, day care centres, nursing homes, sheltered housing, hospitals, and social housing.

(42) Buildings and transport, alongside industry, are the main energy users and main source of emissions. Buildings are responsible for about 40 % of the Union's total energy consumption and for 36% of its GHG from energy. The Commission communication of 14 October 2020, entitled 'Renovation Wave' addresses the twin challenge of energy and resource efficiency and affordability in the building sector and aims to double the renovation rate. It focuses on the worst performing buildings, energy poverty and on public buildings. Moreover, buildings are crucial to achieving the Union objective of reaching climate neutrality by 2050. Buildings that are owned by public bodies account for a considerable share of the building stock and have high visibility in public life. It is therefore appropriate to set an annual rate of renovation of buildings that are owned by public bodies on the territory of a Member State to upgrade their energy performance and be transformed into at least nearly zero-energy buildings or zero-emission buildings. Member States are invited to set a higher renovation rate, where that is cost-effective in the framework of the renovation of their buildings stock in accordance with their long-term renovation strategies or national renovation programmes, or both. That renovation rate should be without prejudice to the obligations with regard to nearly zero-energy buildings set out in Directive 2010/31/EU. Member States should be able to apply less stringent requirements to some buildings, such as buildings with special architectural or historical merit. During the next review of Directive 2010/31/EU, the Commission should assess the progress Member States achieved regarding the renovation of public bodies' buildings. The Commission should consider submitting a legislative proposal to revise the renovation rate, while taking into account the progress achieved by the Member States, substantial economic or technical developments, or where needed, the Union's commitments for decarbonisation and zero pollution. The obligation to renovate public bodies' buildings in this Directive complements that in Directive 2010/31/EU, which requires Member States to ensure that when existing buildings undergo major renovation their energy performance is upgraded so that they meet the requirements on nearly zero-energy buildings.

- (43) Building automation and control systems and other solutions to provide active energy management are important tools for public bodies to improve and maintain the energy performance of buildings, as well as ensuring the necessary indoor conditions in the buildings they own or occupy, in accordance with Directive 2010/31/EU.
- (44) Promoting green mobility is a key part of the European Green Deal. The provision of charging infrastructure is one of the necessary elements in the transition. Charging infrastructure in buildings is particularly important since electric vehicles park in buildings regularly and for long periods of time, thus making charging easier and more efficient. Public bodies should make best efforts to install charging infrastructure in buildings they own or occupy in accordance with Directive 2010/31/EU.
- (45) To set the rate of renovations, Member States need to have an overview of the buildings that do not reach the nearly zero-energy buildings level. Therefore, Member States should publish and keep updated an inventory of public buildings, including, where appropriate, social housing, as part of an overall database of energy performance certificates. That inventory should also enable private actors, including energy service companies (ESCOs), to propose renovation solutions, which can be aggregated by the EU Building Stock Observatory.

- (46) The inventory could integrate data from existing building stock inventories. Member States should take appropriate measures to facilitate data collection and make the inventory accessible to private actors, including ESCOs to enable their active role in renovation solutions. Available and publicly shared data about building stock characteristics, buildings renovation and energy performance may be aggregated by the EU Building Stock Observatory to ensure a better understanding of the energy performance of the building sector through comparable data.
- (47) In 2020, more than half of the world's population lived in urban areas. That figure is expected to reach 68 % by 2050. In addition, half of the urban infrastructures by 2050 are still to be built. Cities and metropolitan areas are centres of economic activity, knowledge generation, innovation and new technologies. Cities influence the quality of life of the citizens who live or work in them. Member States should support municipalities technically and financially. A number of municipalities and other public bodies in the Member States have already put into place integrated approaches to energy saving and energy supply and sustainable mobility, for example via sustainable energy action plans or sustainable urban mobility plans, such as those developed under the Covenant of Mayors initiative, and integrated urban approaches which go beyond individual interventions in buildings or transport modes. Further efforts are needed in the area of improving the energy efficiency of urban mobility, for both passenger and freight transport, as it uses around 40 % of all road transport energy.

- (48) All the principles of Directives 2014/23/EU¹, 2014/24/EU² and 2014/25/EU³ of the European Parliament and of the Council remain fully applicable within the framework of this Directive.
- (49) With regard to the purchase of certain products and services and the purchase and rent of buildings, contracting authorities and contracting entities which conclude public works, supply or service contracts should lead by example and make energy-efficient purchasing decisions and apply the energy efficiency first principle, including for those public contracts and concessions for which no specific requirements are provided for in this Directive. This should apply to contracting authorities and contracting entities falling within the scope of Directives 2014/23/EU, 2014/24/EU or 2014/25/EU. Member States should remove barriers to joint procurement within a Member State or across borders if this can reduce the costs and enhance the benefits of the internal market by creating business opportunities for suppliers and energy service providers.

¹ Directive 2014/23/EU of the European Parliament and of the Council of 26 February 2014 on the award of concession contracts (OJ L 94, 28.3.2014, p. 1).

² Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (OJ L 94, 28.3.2014, p. 65).

³ Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC (OJ L 94, 28.3.2014, p. 243).

- (50) All public entities investing public resources through procurement should lead by example when awarding contracts and concessions by choosing products, buildings, works and services with the highest energy efficiency performance, also in relation to those procurements that are not subject to specific requirements under Directive 2009/30/EC. In that context, all award procedures for public contracts and concessions with a value above the thresholds set out in Article 8 of Directive 2014/23/EU, Article 4 of Directive 2014/24/EU, and Article 15 of Directive 2014/25/EU need to take into account the energy efficiency performance of the products, buildings and services set by Union or national law, by considering as priority the energy efficiency first principle in their procurement procedures.
- (51) It is also important that Member States monitor how the energy efficiency requirements are taken into account by contracting authorities and contracting entities in the procurement of products, buildings, works and services by ensuring that information about the impact on the energy efficiency of those winning tenders above the thresholds referred to in the procurement directives are made publicly available. That would allow stakeholders and citizens to assess the role of the public sector in ensuring energy efficiency first in public procurement in a transparent manner.
- (52) The obligation for Member States to ensure that contracting authorities and entities purchase only products, buildings, works and services with high energy efficiency performance should not, however, prevent Member States from purchasing goods necessary to protect, and respond to, public security or public health emergencies.

- (53) The European Green Deal recognises the role of the circular economy in contributing to overall Union decarbonisation objectives. The public sector and, in particular, the transport sector, should contribute to those objectives by using their purchasing power to, where appropriate, choose environmentally friendly products, buildings, works and services via available tools for green public procurement, and thus making an important contribution to reduce energy consumption and environmental impacts.
- (54) It is important that Member States provide the necessary support to public bodies in the uptake of energy efficiency requirements in public procurement and, where appropriate, in the use of green public procurement by providing necessary guidelines and methodologies on carrying out the assessment of life-cycle costs and environment impacts and costs. Well-designed tools, in particular digital tools, are expected to facilitate the procurement procedures and reduce the administrative costs especially in smaller Member States that may not have sufficient capacity to prepare tenders. In this regard, Member States should actively promote the use of digital tools and cooperation amongst contracting authorities including across borders for the purpose of exchanging best practices.
- (55) Given that buildings are responsible for GHG emissions before and after their operational lifetime, Member States should also consider the whole life cycle of carbon emissions of buildings. That should take place in the context of efforts to increase the attention given to whole life-cycle performance, circular economy aspects and environmental impacts, as part of the exemplary role of the public sector. Public procurement can thus serve as an opportunity to address the embodied carbon in buildings over their life cycle. In this regard, contracting authorities are important actors that can take action as part of procurement procedures by purchasing new buildings that address global warming potential over the full life cycle.

- (56) The global warming potential over the full life cycle measures the GHG emissions associated with the building at different stages along its life cycle. It therefore measures the building's overall contribution to emissions that lead to climate change. That is sometimes referred to as a carbon footprint assessment or the whole life carbon measurement. It brings together carbon emissions embodied in building materials with direct and indirect carbon emissions from use stage. Buildings are a significant material bank, being repositories for carbon intensive resources over many decades, and so it is important to explore designs that facilitate future reuse and recycling at the end of the operational life in line with the new circular economy action plan. Member States should promote circularity, durability, and adaptability of building materials, in order to address the sustainability performance of construction products.
- (57) The global warming potential is expressed as a numeric indicator in $\text{kgCO}_2\text{eq/m}^2$ (of useful internal floor area) for each life-cycle stage averaged for one year of a reference study period of 50 years. The data selection, scenario definition and calculations are carried out in accordance with standard EN 15978. The scope of building elements and technical equipment are set out in indicator 1,2 of the Level(s) common Union framework. Where a national calculation tool exists, or is required for making disclosures or for obtaining building permits, it should be possible to use that national tool to provide the required information. It should be possible to use other calculation tools, if they fulfil the minimum criteria laid down by the Level(s) common Union framework.

- (58) Directive 2010/75/EU of the European Parliament and of the Council¹ lays down rules on installations that contribute to energy production or use energy for production purposes, and provides that information on the energy used in or generated by the installation is to be included in applications for integrated permits in accordance with Article 12(1), point (b) of that Directive. Moreover, Article 11 of that Directive provides that efficient use of energy is one of the general principles governing the basic obligations of the operator and one of the criteria for determining best available techniques pursuant to Annex III to that Directive. The operational efficiency of energy systems at any given moment is influenced by the ability to feed power generated from different sources with different degrees of inertia and start-up times into the grid smoothly and flexibly. Improving efficiency will enable better use to be made of renewable energy.
- (59) Improvement in energy efficiency can contribute to higher economic output. Member States and the Union should aim to decrease energy consumption regardless of levels of economic growth.

¹ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (OJ L 334, 17.12.2010, p. 17).

- (60) The energy savings obligation established by this Directive should be increased and should also apply after 2030. That ensures stability for investors and thus encourages long-term investments and long-term energy efficiency measures, such as the deep renovation of buildings with the long-term objective of facilitating the cost effective transformation of existing buildings into nearly zero-energy buildings. The energy savings obligation plays an important role in the creation of local growth, jobs, competitiveness and alleviating energy poverty. It should ensure that the Union can achieve its energy and climate objectives by creating further opportunities and by breaking the link between energy consumption and growth. Cooperation with the private sector is important to assess the conditions on which private investment for energy efficiency projects can be unlocked and to develop new revenue models for innovation in the field of energy efficiency.
- (61) Energy efficiency improvement measures also have a positive impact on air quality, as more energy efficient buildings contribute to reducing the demand for heating fuels, including solid heating fuels. Energy efficiency measures therefore contribute to improving indoor and outdoor air quality and help achieve, in a cost-effective manner, the objectives of the Union's air quality policy, as laid down in particular by Directive (EU) 2016/2284 of the European Parliament and of the Council¹.

¹ Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (OJ L 344, 17.12.2016, p. 1).

- (62) With a view to ensuring a stable and predictable contribution towards achieving the Union's energy and climate targets for 2030 and the climate neutrality objective for 2050, Member States are required to achieve cumulative end-use energy savings for the entire obligation period up to 2030, equivalent to new annual savings of at least 0,8% of final energy consumption up to 31 December 2023 and of at least 1,3% from 1 January 2024, 1,5 % from 1 January 2026 and 1,9 % from 1 January 2028. That requirement could be met by new policy measures that are adopted during the obligation period from 1 January 2021 to 31 December 2030 or by new individual actions as a result of policy measures adopted during or before the previous period, provided that the individual actions that trigger energy savings are introduced during the following period. To that end, Member States should be able to make use of an energy efficiency obligation scheme, alternative policy measures, or both.
- (63) For the period from 1 January 2021 to 31 December 2023, Cyprus and Malta should be required to achieve cumulative end-use energy savings equivalent to new savings of 0,24 % of annual final energy consumption averaged over the most recent three-year period preceding 1 January 2019. For the period from 1 January 2024 to 31 December 2030, Cyprus and Malta should be required to achieve cumulative end-use energy savings of 0,45 % of annual final energy consumption, averaged over the most recent three-year period preceding 1 January 2019.

(64) Where using an obligation scheme, Member States should designate obligated parties among transmission system operators, distribution system operators, energy distributors, retail energy sales companies and transport fuel distributors or transport fuel retailers on the basis of objective and non-discriminatory criteria. The designation or exemption from designation of certain categories of such entities should not be understood to be incompatible with the principle of non-discrimination. Member States are therefore able to choose whether such entities or only certain categories thereof are designated as obligated parties. To empower and protect people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing, and to implement policy measures as a priority among those people, Member States can require obligated parties to achieve energy savings among those people. For that purpose, Member States can also establish energy cost reduction targets. Obligated parties could achieve those targets by promoting the installation of measures that lead to energy savings and financial savings on energy bills, such as the installation of insulation and heating measures, and by supporting energy savings initiatives by renewable energy communities and citizen energy communities.

(65) When designing policy measures to fulfil the energy savings obligation, Member States should respect the climate and environmental standards and priorities of the Union and comply with the principle of ‘do no significant harm’ within the meaning of Regulation (EU) 2020/852. Member States should not promote activities that are not environmentally sustainable such as the use of fossil fuels. The energy savings obligation aims at strengthening the response to climate change by promoting incentives to Member States to implement a sustainable and clean policy mix, which is resilient, and mitigates climate change. Therefore, energy savings from policy measures regarding the use of direct fossil fuel combustion may be eligible energy savings under the energy savings obligation under certain conditions and for a transitional period following the transposition of this Directive in accordance with an annex to this Directive. It will allow aligning the energy savings obligation with the objectives of the European Green Deal, the Climate Target Plan, the Renovation Wave, and mirror the need for action identified by the International Energy Agency in its net zero report. The restriction aims at encouraging Member States to spend public money into future-proof, sustainable technologies only. It is important that Member States provide a clear policy framework and investment certainty to market actors. The implementation of the calculation methodology under the energy savings obligation should allow all market actors to adapt their technologies in a reasonable timeframe. Where Member States support the uptake of efficient fossil fuel technologies or early replacement of such technology, for example through subsidy schemes or energy efficiency obligation schemes, any resulting energy savings may no longer be eligible under the energy savings obligation. While energy savings resulting, for example, from the promotion of natural gas-based cogeneration would not be eligible under the energy savings obligation, the restriction would not apply for indirect fossil fuel usage, for example where the electricity production includes fossil fuel generation. Policy measures targeting behavioural changes to reduce the consumption of fossil fuels, for example through information campaigns and eco-driving, should remain eligible. Policy measures which target building renovations may include measures such as the replacement of fossil fuel heating systems together with building fabric improvements. Those measures should be limited to technologies that allow the required energy savings to be achieved in accordance with the national building codes established in a Member State. Nevertheless, Member States should promote upgrading heating systems as part of deep renovations in line with the long-term objective of carbon neutrality, namely reducing the heating demand and covering the remaining heating demand with a carbon-free energy source. When accounting for the savings needed to achieve a share of the energy savings obligation among people affected by energy poverty, Member States may take into account their climatic conditions.

- (66) Member States' energy efficiency improvement measures in transport are eligible to be taken into account for achieving their end-use energy savings obligation. Such measures include policies that are, inter alia, dedicated to promoting more efficient vehicles, a modal shift to cycling, walking and collective transport, or mobility and urban planning that reduces demand for transport. In addition, schemes which accelerate the uptake of new, more efficient vehicles or policy measures which foster a shift to fuels with reduced levels of emissions, except schemes or policy measures regarding the use of direct fossil fuel combustion that reduce energy use per kilometre, are also capable of being eligible, subject to compliance with the rules on materiality and additionality set out in this Directive. Policy measures promoting the uptake of new fossil fuel vehicles should not qualify as eligible measures under the energy savings obligation.
- (67) Measures taken by Member States pursuant to Regulation (EU) 2018/842 of the European Parliament and of the Council¹ and which result in verifiable and measurable or estimable energy efficiency improvements can be considered to be a cost-effective way for Member States to fulfil their energy savings obligation under this Directive.

¹ Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013 (OJ L 156, 19.6.2018, p. 26).

- (68) As an alternative to requiring obligated parties to achieve the amount of cumulative end-use energy savings required under the energy savings obligation laid down in this Directive, it should be possible for Member States, in their obligation schemes, to permit or require obligated parties to contribute to a national energy efficiency fund, which could be used to implement policy measures as a priority among people affected by energy poverty, vulnerable customers, people in low income households and, where applicable, people living in social housing.
- (69) Member States and obligated parties should make use of all available means and technologies, except with regard to the use of direct fossil fuel combustion technologies, to achieve the cumulative end-use energy savings required, including by promoting smart and sustainable technologies in efficient district heating and cooling systems, efficient heating and cooling infrastructure, efficient and smart buildings, electrical vehicles and industries and energy audits or equivalent management systems, provided that the energy savings claimed comply with this Directive. Member States should aim for a high degree of flexibility in the design and implementation of alternative policy measures. Member States should encourage actions resulting in energy savings over a long lifetime.
- (70) Long-term energy efficiency measures continue to deliver energy savings after 2020 but, in order to contribute to the Union's 2030 energy efficiency target, those measures should deliver new savings after 2020. On the other hand, energy savings achieved after 31 December 2020 should not count towards the cumulative end-use energy savings required for the period from 1 January 2014 to 31 December 2020.

(71) Additionality is a fundamental underlying principle of the energy savings obligation provided for in this Directive, in so far as it ensures that Member States put in place policies and measures specifically designed for the purpose of fulfilling the energy savings obligation. New savings should be additional to ‘business as usual’, so that savings that would have occurred in any event should not count towards fulfilling the energy savings obligation. In order to calculate the impact of the measures introduced, only net savings, measured as the change of energy consumption that is directly attributable to the energy efficiency measure in question implemented for the purpose of the energy savings obligation provided for in this Directive, should be counted. To calculate net savings, Member States should establish a baseline scenario of how the situation would evolve in the absence of the measure in question. The policy measure in question should be evaluated against that baseline. Member States should take into account minimum requirements provided by the relevant legislative framework at Union level and the fact that other policy measures may be carried out in the same time frame which may also have an impact on the amount of energy savings, so that not all changes observed since the introduction of a particular policy measure can be attributed to that policy measure alone. The actions of the obligated, participating or entrusted party should in fact contribute to the achievement of the energy savings claimed in order to ensure the fulfilment of the materiality requirement.

- (72) It is important to consider, where relevant, all steps in the energy chain in the calculation of energy savings in order to increase the energy savings potential in the transmission and distribution of electricity. Studies and the consultation of stakeholders have revealed a significant potential. However, the physical and economic conditions are quite different among Member States, and often within several Member States, and there is a large number of system operators. Those circumstances point to a decentralised approach, pursuant to the subsidiarity principle. National Regulatory Authorities have the required knowledge, legal competences and the administrative capacity to promote the development of an energy efficient electricity grid. Entities such as the European Network of Transmission System Operators for Electricity (ENTSO-E) and the European Entity for Distribution System Operators can also provide useful contributions to, and should support their members in, the uptake of energy efficiency measures.
- (73) Similar considerations apply for the very large number of natural gas system operators. The role of natural gas and the rate of supply and coverage of the territory is highly variable among Member States. In those cases, National Regulatory Authorities are best placed to monitor and steer the system evolution towards an increased efficiency, and entities such as the European Network of Transmission System Operators for Gas can provide useful contributions to, and should support their members in, the uptake of energy efficiency measures.

- (74) The role of ESCOs is important in developing, designing, building, and arranging financing for projects that save energy, reduce energy costs, and decrease operations and maintenance costs in sectors such as buildings, industry and transport.
- (75) Consideration of the water-energy nexus is particularly important to address the interdependent use of energy and water and the increasing pressure on both resources. The effective management of water can make a significant contribution to energy savings yielding not only climate benefits, but also economic and social benefits. The water and wastewater sectors account for 3,5 % of electricity use in the Union and that share is expected to rise. At the same time, water leaks account for 24 % of total water consumed in the Union and the energy sector is the largest consumer of water, accounting for 44 % of consumption. The potential for energy savings through the use of smart technologies and processes across all industrial, residential and commercial water cycles and applications should be fully explored and realised whenever cost-effective, and the energy efficiency first principle should be considered. In addition, advanced irrigation technologies, rainwater harvesting and water reuse technologies could substantially reduce water consumption in agriculture, buildings and industry and the energy used for treating and transporting it.

(76) In accordance with Article 9 of the Treaty on the Functioning of the European Union (TFEU), the Union's energy efficiency policies should be inclusive and should therefore ensure equal access to energy efficiency measures for all consumers affected by energy poverty. Improvements in energy efficiency should be implemented as a priority among people affected by energy poverty, vulnerable customers and final users, people in low-income or medium-income households, people living in social housing, older people as well as people living in rural and remote areas and in the outermost regions. In that context, specific attention should be paid to particular groups which are more at risk of being affected by energy poverty or are more susceptible to the adverse impacts of energy poverty, such as women, persons with disabilities, older people, children, and people with a minority racial or ethnic background. Member States can require obligated parties to include social aims in energy-saving measures in relation to energy poverty, and this possibility has already been extended to alternative policy measures and national energy efficiency funds. That should be transformed into an obligation to protect and empower vulnerable customers and final users and to alleviate energy poverty, while allowing Member States to retain full flexibility with regard to the type of policy measure, its size, scope and content. If an energy efficiency obligation scheme does not permit measures relating to individual energy consumers, the Member State may take measures to alleviate energy poverty by means of alternative policy measures alone. Within their policy mix, Member States should ensure that other policy measures do not have an adverse effect on people affected by energy poverty vulnerable customers, final users and, where applicable, people living in social housing. Member States should make best possible use of public funding investments into energy efficiency improvement measures, including funding and financial facilities established at Union level.

- (77) Each Member State should define the concept of vulnerable customers, which may refer to energy poverty and, inter alia, to the prohibition of disconnection of electricity to such customers in critical times. The concept of vulnerable customers may include income levels, the share of energy expenditure of disposable income, the energy efficiency of homes, critical dependence on electrical equipment for health reasons, age or other criteria. This allows Member States to include people in low-income households.

- (78) According to Recommendation (EU) 2020/1563, around 34 million households in the Union were unable to keep their home adequately warm in 2019. The European Green Deal prioritises the social dimension of the transition by committing to the principle that ‘no one is left behind’. The green transition, including the clean transition, affects women and men differently and may have a particular impact on some disadvantaged groups including people with disabilities. Energy efficiency measures must therefore be central to any cost-effective strategy to address energy poverty and consumer vulnerability and are complementary to social security policies at Member State level. To ensure that energy efficiency measures reduce energy poverty for tenants sustainably, the cost-effectiveness of such measures, as well as their affordability to property owners and tenants, should be taken into account, and adequate financial and technical support for such measures should be guaranteed at Member State level. Member States should support the local and regional level in identifying and alleviating energy poverty. The Union’s building stock needs, in the long term, to be converted to nearly zero-energy buildings in accordance with the objectives of the Paris Agreement. Current building renovation rates are insufficient and buildings occupied by citizens on low incomes who are affected by energy poverty are the hardest to reach. The measures laid down in this Directive with regard to energy savings obligations, energy efficiency obligation schemes and alternative policy measures are therefore of particular importance.
- (79) Member States should strive to ensure that measures to promote or facilitate energy efficiency, in particular those concerning buildings and mobility, do not lead to a disproportionate increase in the cost of services relating to such measures or to greater social exclusion.

(80) To tap the energy savings potential in certain market segments where energy audits are generally not offered commercially, such as small and medium-sized enterprises (SMEs), Member States should develop programmes to encourage and support SMEs to undergo energy audits and to implement the recommendations arising from those energy audits. Energy audits should be mandatory and regular for enterprises with an average annual energy consumption above a certain threshold, as energy savings can be significant. Energy audits should take into account relevant European or international standards, such as EN ISO 50001 (Energy Management Systems), or EN 16247-1 (Energy Audits), or, if including an energy audit, EN ISO 14000 (Environmental Management Systems) and thus be also in accordance with this Directive, which does not go beyond the requirements of those relevant standards. A specific European standard on energy audits is currently under development. Energy audits may be carried out on a stand-alone basis or be part of a broader environmental management system or an energy performance contract. In all such cases those systems should comply with the minimum requirements laid down in this Directive. In addition, specific mechanisms and schemes established to monitor emissions and fuel consumption by certain transport operators, for example under Union law the EU ETS, may be considered compatible with energy audits, including in energy management systems, if they comply with the minimum requirements laid down in this Directive. For those enterprises already implementing the energy audit obligation, energy audits should continue to be carried out at least every four years from the date of the previous energy audit, in accordance with this Directive.

- (81) Member States could establish guidelines for enterprises to follow in implementing measures to achieve new annual savings identified in the energy audit.
- (82) The enterprise's average consumption should be the criterion to define the application of energy management systems and of energy audits in order to increase the sensitivity of those mechanisms in identifying relevant opportunities for cost-effective energy savings. An enterprise that is below the consumption thresholds defined for energy management systems and energy audits should be encouraged to undergo energy audits and to implement the recommendations resulting from those audits.
- (83) Where energy audits are carried out by in-house experts, they should not be directly engaged in the activity audited in order to guarantee their independence.
- (84) Member States should promote the implementation of energy management systems and energy audits within the public administration at national, regional and local level.

(85) The ICT sector is another important sector which receives increasing attention. In 2018 the energy consumption of data centres in the Union was 76,8 TWh. This is expected to rise to 98,5 TWh by 2030, a 28 % increase. This increase in absolute terms can also be seen in relative terms: within the Union, data centres accounted for 2,7 % of electricity demand in 2018 and will reach 3,21 % by 2030 if development continues on the current trajectory. The Union's Digital Strategy already highlighted the need for highly energy-efficient and sustainable data centres and calls for transparency measures for telecommunication operators on their environmental footprint. To promote sustainable development in the ICT sector, particularly of data centres, Member States should require the collection and publication of data which are relevant for the energy performance, water footprint and demand-side flexibility of data centres, on the basis of a common Union template. Member States should require the collection and publication of data only about data centres with a significant footprint, for which appropriate design or efficiency interventions, for new or existing installations respectively, can result in a considerable reduction of energy and water consumption, an increase in systems' efficiency promoting decarbonisation of the grid or in the reuse of waste heat in nearby facilities and heat networks. Data centre sustainability indicators could be established on the basis of that data collected, taking also into account already existing initiatives in the sector.

- (86) The reporting obligation applies to those data centres, which meet the threshold set out in this Directive. In all cases and specifically for onsite enterprise data centres, the reporting obligation should be understood as referring to the spaces and equipment that serve primarily or exclusively for data-related functions (server rooms), including the necessary associated equipment, for example, associated cooling, lighting, battery arrays, or uninterruptible power supplies. Any IT equipment placed or installed in primarily public access, common use or office space or supporting other corporate functions, such as workstations, laptops, photocopiers, sensors, security equipment, or white goods and audiovisual appliances should be excluded from the reporting obligation. The same exclusion should also apply to server, networking, storage, and associated equipment that would be scattered across a site such as single servers, single racks, or Wi-Fi and networking points.

- (87) The collected data should be used to measure at least some basic dimensions of a sustainable data centre, namely how efficiently it uses energy, how much of that energy comes from renewable energy sources, the reuse of any waste heat that it produces, the effectiveness of cooling, the effectiveness of carbon usage and the usage of freshwater. The collected data and the sustainability indicators should raise awareness among data centre owners and operators, manufacturers of equipment, developers of software and services, users of data centre services at all levels as well as entities and organisations that deploy, use or procure cloud and data centre services. The collected data and the sustainability indicators should also give confidence about the actual improvements following efforts and measures to increase the sustainability in new or existing data centres. Finally, those data and indicators should be used as a basis for transparent and evidence-based planning and decision making. The Commission should assess the efficiency of data centres on the basis of the information communicated by the obligated data centres.
- (88) Following an assessment, when establishing the possible sector-specific energy efficiency partnerships, the Commission should bring together key stakeholders, including non-governmental organisations and the social partners, in sectors such as ICT, transport, finance and buildings in an inclusive and representative manner.

- (89) Lower consumer spending on energy should be achieved by assisting consumers in reducing their energy use by reducing the energy needs of buildings and improvements in the efficiency of appliances, which should be combined with the availability of low-energy transport modes integrated with public transport, shared mobility and cycling. Member States should also consider improving connectivity in rural and remote areas.
- (90) It is crucial to raise the awareness of all Union citizens about the benefits of increased energy efficiency and to provide them with accurate information on the ways in which it can be achieved. Citizens of all ages should also be involved in the energy transition via the European Climate Pact and the Conference on the Future of Europe. Increased energy efficiency is also highly important for the security of energy supply of the Union through lowering its dependence on import of fuels from third countries.
- (91) The costs and benefits of all energy efficiency measures taken, including pay-back periods, should be made fully transparent to consumers.
- (92) When implementing this Directive and taking other measures in the field of energy efficiency, Member States should pay particular attention to synergies between energy efficiency measures and the efficient use of natural resources in line with the principles of the circular economy.

- (93) Taking advantage of new business models and technologies, Member States should endeavour to promote and facilitate the uptake of energy efficiency measures, including through innovative energy services for large and small customers.
- (94) It is necessary to provide for frequent and enhanced feedback on energy consumption where technically feasible and cost-efficient in view of the measurement devices in place. This Directive clarifies that the cost-efficiency of sub-metering depends on whether the related costs are proportionate to the potential energy savings. The assessment of whether sub-metering is cost-efficient may take into account the effect of other concrete, planned measures in a given building, such as any forthcoming renovation.
- (95) This Directive also clarifies that rights relating to billing, and information about billing or consumption should apply to consumers of heating, cooling or domestic hot water supplied from a central source even where they have no direct, individual contractual relationship with an energy supplier.
- (96) In order to achieve the transparency of accounting for individual consumption of thermal energy, and thereby facilitate the implementation of sub-metering, Member States should ensure they have in place transparent, publicly available national rules on the allocation of the cost of heating, cooling and domestic hot water consumption in multi-apartment and multi-purpose buildings. In addition to transparency, Member States could consider taking measures to strengthen competition in the provision of sub-metering services and thereby help ensure that any costs borne by the final users are reasonable.

- (97) Newly installed heat meters and heat cost allocators should be remotely readable to ensure cost-effective, and frequent provision of, consumption information. The provisions of this Directive relating to metering for heating, cooling and domestic hot water; sub-metering and cost allocation for heating, cooling and domestic hot water; remote reading requirement; billing and consumption information for heating and cooling and domestic hot water; the cost of access to metering and billing and consumption information for heating, cooling and domestic hot water; and the minimum requirements for billing and consumption information for heating, cooling and domestic hot water, are intended to apply only to heating, cooling and domestic hot water supplied from a central source. Member States are free to decide whether walk-by or drive-by technologies are to be considered remotely readable or not. Remotely readable devices do not require access to individual apartments or units to be read.
- (98) Member States should take into account the fact that the successful implementation of new technologies for measuring energy consumption requires enhanced investment in education and skills for both users and energy suppliers.

- (99) Billing information and annual statements are an important means by which customers are informed of their energy consumption. Data on consumption and costs can also convey other information that helps consumers to compare their current deal with other offers and to make use of complaint-management and alternative dispute-resolution mechanisms. However, considering that bill-related disputes are a common source of consumer complaints and a factor which contributes to persistently low levels of consumer satisfaction and engagement with their energy providers, it is necessary to make bills simpler, clearer and easier to understand, while ensuring that separate instruments, such as billing information, information tools and annual statements, provide all the necessary information to enable consumers to regulate their energy consumption, compare offers and switch suppliers.
- (100) When designing energy efficiency improvement measures, Member States should take due account of the need to ensure the correct functioning of the internal market and the consistent implementation of the *acquis*, in accordance with the TFEU.

(101) High-efficiency cogeneration and efficient district heating and cooling have significant potential for saving primary energy in the Union. Member States should carry out a comprehensive assessment of the potential for high-efficiency cogeneration and efficient district heating and cooling. Those assessments should be consistent with Member States' integrated national energy and climate plans and their long-term renovation strategies, and could include trajectories leading to a renewable energy and waste heat based national heating and cooling sector within a timeframe compatible with the achievement of the climate neutrality objective. New electricity generation installations and existing installations which are substantially refurbished or whose permit or licence is updated should, subject to a cost-benefit analysis showing a cost-benefit surplus, be equipped with high-efficiency cogeneration units to recover waste heat stemming from the production of electricity. Similarly, other facilities with substantial annual average energy input should be equipped with technical solutions to deploy waste heat from the facility where the cost-benefit analysis shows a cost-benefit surplus. This waste heat could be transported where it is needed through district heating networks. The events that trigger a requirement for authorisation criteria to be applied will generally be such as to also trigger requirements for permits under Directive 2010/75/EU and for authorisation under Directive (EU) 2019/944.

- (102) It may be appropriate for electricity generation installations that are intended to make use of geological storage permitted under Directive 2009/31/EC of the European Parliament and of the Council¹ to be located in places where the recovery of waste heat, through high-efficiency cogeneration or by supplying a district heating or cooling network, is not cost-effective. Member States should therefore be able to exempt those installations from the obligation to carry out a cost-benefit analysis for providing the installation with equipment allowing the recovery of waste heat by means of a high-efficiency cogeneration unit. It should also be possible to exempt peak-load and back-up electricity generation installations which are planned to operate under 1 500 operating hours per year as a rolling average over a period of five years from the requirement to also provide heat.
- (103) It is appropriate for Member States to encourage the introduction of measures and procedures to promote cogeneration installations with a total rated thermal input of less than 5 MW in order to encourage distributed energy generation.
- (104) To implement national comprehensive assessments, Member States should encourage the assessments of the potential for high-efficiency cogeneration and efficient district heating and cooling at regional and local level. Member States should take steps to promote and facilitate the realisation of the identified cost-efficient potential of high-efficiency cogeneration and efficient district heating and cooling.

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

- (105) Requirements for efficient district heating and cooling should be consistent with long-term climate policy goals, the climate and environmental standards and the priorities of the Union, and should comply with the principle of ‘do no significant harm’ within the meaning of Regulation (EU) 2020/852. All the district heating and cooling systems should aim for improved ability to interact with other parts of the energy system in order to optimise the use of energy and prevent energy waste by using the full potential of buildings to store heat or cold, including the excess heat from service facilities and nearby data centres. For that reason, efficient district heating and cooling systems should ensure the increase of primary energy efficiency and a progressive integration of renewable energy and waste heat and cold as defined in Directive (EU) 2018/2001 of the European Parliament and of the Council¹. Therefore, this Directive introduces progressively stricter requirements for heating and cooling supply which should be applicable during specific established time periods and should be permanently applicable from 1 January 2050 onwards.
- (106) The principles to calculate the share of the heat or cold from renewable energy sources in efficient district heating and cooling should be consistent with Directive (EU) 2018/2001 and Eurostat methodologies for statistical reporting. Pursuant to Article 7(1) of Directive (EU) 2018/2001, the gross final consumption of energy from renewable sources includes gross final consumption of energy from renewable sources in the heating and cooling sector. A gross final energy consumption of heat or cold in district heating or cooling equals heat or cold energy supply going into the network serving the final customers or energy distributors.

¹ 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).

- (107) Heat pumps are important for the decarbonisation of the heating and cooling supply, also in district heating. The methodology established in Annex VII to Directive (EU) 2018/2001 provides rules to count energy captured by heat pumps as energy from renewable sources and prevents double counting of the electricity from renewable sources. For the purposes of calculating the share of renewable energy in a district heating network, all the heat originating from the heat pump and going into the network should be accounted as renewable energy, provided that the heat pump meets the minimum efficiency criteria set out in Annex VII to Directive (EU) 2018/2001 at the time of its installation.
- (108) High-efficiency cogeneration has been defined by the energy savings obtained by combined production instead of separate production of heat and electricity. Requirements for high-efficiency cogeneration should be consistent with long-term climate policy goals. The definitions of cogeneration and high-efficiency cogeneration used in Union legislation should be without prejudice to the use of different definitions in national legislation for purposes other than those of the Union legislation in question. To maximise energy savings and avoid energy saving opportunities being missed, the greatest attention should be paid to the operating conditions of cogeneration units.

- (109) To ensure transparency and allow the final customer to choose between electricity from cogeneration and electricity produced by other techniques, the origin of high-efficiency cogeneration should be guaranteed on the basis of harmonised efficiency reference values. Guarantee of origin schemes do not of themselves imply a right to benefit from national support mechanisms. It is important that all forms of electricity produced from high-efficiency cogeneration can be covered by guarantees of origin. Guarantees of origin should be distinguished from exchangeable certificates.
- (110) The specific structure of the cogeneration and district heating and cooling sectors, which include many producers that are SMEs, should be taken into account, especially when reviewing the administrative procedures for obtaining permission to construct cogeneration capacity or associated networks, in application of the ‘think small first’ principle.
- (111) Most Union businesses are SMEs. They represent an enormous energy saving potential for the Union. To help them adopt energy efficiency measures, Member States should establish a favourable framework aimed at providing SMEs with technical assistance and targeted information.

- (112) Member States should establish, on the basis of objective, transparent and non-discriminatory criteria, rules governing the bearing and sharing of costs of grid connections and grid reinforcements and rules for technical adaptations needed to integrate new producers of electricity produced from high-efficiency cogeneration, taking into account network codes and guidelines developed in accordance with Regulations (EU) 2019/943¹ and (EC) No 715/2009 of the European Parliament and of the Council². Producers of electricity generated from high-efficiency cogeneration should be allowed to issue a call for tender for the connection work. Access to the grid system for electricity produced from high-efficiency cogeneration, especially for small scale and micro-cogeneration units, should be facilitated. In accordance with Article 3(2) of Directive 2009/73/EC and Article 9(2) of Directive (EU) 2019/944, it is possible for Member States to impose public service obligations, including in relation to energy efficiency, on enterprises operating in the electricity and gas sectors.
- (113) It is necessary to set out provisions relating to billing, single point of contact, out-of-court dispute settlement, energy poverty and basic contractual rights, with the aim of aligning them, where appropriate, with the relevant provisions regarding electricity pursuant to Directive (EU) 2019/944, in order to strengthen consumer protection and enable final customers to receive more frequent, clear and up-to-date information about their heating, cooling or domestic hot water consumption and to regulate their energy use.

¹ 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).

² Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005 (OJ L 211, 14.8.2009, p. 36).

- (114) This Directive strengthens the protection of consumers by introducing basic contractual rights for district heating, cooling and domestic hot water, coherent with the level of rights, protection and empowerment that Directive (EU) 2019/944 has introduced for final customers in the electricity sector. Plain and unambiguous information concerning their rights should be made available to consumers. Several factors impede consumers from accessing, understanding and acting upon the various sources of market information available to them. The introduction of basic contractual rights can help, among others, with a proper understanding of the baseline of the quality of services offered in the contract by the supplier, including the quality and characteristics of the supplied energy. In addition, it can contribute to the minimisation of hidden or extra costs that could result from the introduction of either upgraded or new services after the signing of the contract without a clear understanding and agreement by the customer. Those services could concern, among others, the energy supplied, metering and billing services, purchase and installation or ancillary and maintenance services and costs relating to the network, metering devices, local heating or cooling equipment. The requirements will contribute to the improvement of comparability of offers and ensure the same level of basic contractual rights for all Union citizens regarding heating, cooling and domestic hot water, without restricting national competences.
- (115) In the case of planned disconnection from heating, cooling and domestic hot water, suppliers should provide the customers concerned with adequate information on alternative measures, such as sources of support to avoid disconnection, prepayment systems, energy audits, energy consultancy services, alternative payment plans, debt management advice or disconnection moratoria.

- (116) Greater consumer protection should be guaranteed through the availability of effective, independent out-of-court dispute settlement mechanisms for all consumers, such as an energy ombudsperson, a consumer body or a regulatory authority. Member States should, therefore, introduce speedy and effective complaint-handling procedures.
- (117) The contribution of renewable energy communities, pursuant to Directive (EU) 2018/2001, and citizen energy communities, pursuant to Directive (EU) 2019/944, towards the objectives of the European Green Deal and the Climate Target Plan, should be recognised and actively supported. Member States should, therefore, consider and promote the role of renewable energy communities and citizen energy communities. Those communities can help Member States to achieve the objectives of this Directive by advancing energy efficiency at local or household level, as well as in public buildings, in cooperation with local authorities. They can empower and engage consumers and enable certain groups of household customers, including in rural and remote areas, to participate in energy efficiency projects and interventions that can combine actions with investment in renewable energy. Energy communities can have a strong role to play in educating and increasing citizens' awareness of measures designed to achieve energy savings. If properly supported by Member States, energy communities can help fighting energy poverty through the facilitation of energy efficiency projects, reduced energy consumption and lower supply tariffs.

- (118) Long-term behavioural changes in energy consumption can be achieved through the empowerment of citizens. Energy communities can help deliver long-term energy savings, particularly among households, and an increase in sustainable investments from citizens and small businesses. Member States should empower such actions by citizens through support for community energy projects and organisations. In addition, engagement strategies, involving all relevant stakeholders at national and local level in the policy-making process, can be part of the local or regional decarbonisation plans or national buildings renovation plans, with the objective of increasing awareness, obtaining feedback on policies and improving their acceptance by the public.
- (119) The contribution of one-stop shops or similar structures as mechanisms that can enable multiple target groups, including citizens, SMEs and public authorities, to design and implement projects and measures relating to the clean energy transition should be recognised. The contribution of one-stop shops can be very important for vulnerable customers, as they could receive reliable and accessible information about energy efficiency improvements. That contribution can include the provision of technical, administrative and financial advice and assistance, the facilitation of the necessary administrative procedures or of access to financial markets, guidance with regard to the Union and national legal frameworks, including public procurement rules and criteria, and the EU taxonomy.

- (120) The Commission should review the impact of its measures to support the development of platforms or fora, involving, inter alia, the European social dialogue bodies, on fostering training programmes for energy efficiency, and should propose further measures where appropriate. The Commission should also encourage the European social partners in their discussions on energy efficiency, especially for vulnerable customers and final users, including those in energy poverty.
- (121) A fair transition towards a climate-neutral Union by 2050 is central to the European Green Deal. The European Pillar of Social Rights, jointly proclaimed by the European Parliament, the Council and the Commission on 17 November 2017, includes energy among the essential services that everyone is entitled to access. Support for access to such services must be available for those in need, particularly in a context of inflationary pressure and significant increases in energy prices.
- (122) It is necessary to ensure that people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing are protected and, to that end, empowered to actively participate in the energy efficiency improvement interventions, measures and related consumer protection or information measures that Member States implement. Targeted awareness-raising campaigns should be developed to illustrate the benefits of energy efficiency as well to provide information on the financial support available.

- (123) Public funding available at Union and national level should be strategically invested into energy efficiency improvement measures, in particular for the benefit of people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing. Member States should take advantage of any financial contribution they might receive from the Social Climate Fund established by Regulation (EU) 2023/955 of the European Parliament and of the Council¹, and of revenues from allowances from the EU ETS. Those revenues will support Member States in fulfilling their obligation to implement energy efficiency measures and policy measures under the energy savings obligation as a priority among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing including those living in rural and remote regions.
- (124) National funding schemes should be complemented by suitable schemes of better information, technical and administrative assistance, and easier access to finance that will enable the best use of the available funds especially by people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing.
- (125) Member States should empower and protect all people equally, irrespective of sex, gender, age, disability, race or ethnic origin, sexual orientation, religion or belief, and ensure that those most affected, those put at greater risk of being affected by energy poverty, or those most exposed to the adverse impacts of energy poverty are adequately protected. In addition, Member States should ensure that energy efficiency measures do not exacerbate any existing inequalities, in particular with respect to energy poverty.

¹ Regulation (EU) 2023/955 of the European Parliament and of the Council of 10 May 2023 establishing a Social Climate Fund and amending Regulation (EU) 2021/1060 (OJ L 130, 16.5.2023, p. 1).

- (126) Pursuant to Article 15(2) of Directive 2012/27/EU, all Member States have undertaken an assessment of the energy efficiency potential of their gas and electricity infrastructure, and have identified concrete measures and investments for the introduction of cost-effective energy efficiency improvements in the network infrastructure, with a timetable for their introduction. The results of those actions represent a solid basis for the application of the energy efficiency first principle in their network planning, network development and investment decisions.
- (127) National energy regulatory authorities should take an integrated approach encompassing potential savings in the energy supply and the end-use sectors. Without prejudice to security of supply, market integration and anticipatory investments in offshore grids necessary for the deployment of offshore renewable energy, national energy regulatory authorities should ensure that the energy efficiency first principle is applied in the planning and decision-making processes and that network tariffs and regulations incentivise improvements in energy efficiency. Member States should also ensure that transmission and distribution system operators consider the energy efficiency first principle. That would help transmission and distribution system operators to consider better energy efficiency solutions for and incremental costs incurred from the procurement of demand-side resources, as well as the environmental and socio-economic impacts of different network investments and operation plans. Such an approach requires a shift from the narrow economic efficiency perspective to maximised social welfare. The energy efficiency first principle should in particular be applied in the context of scenario building for energy infrastructure expansion where demand-side solutions could be considered as viable alternatives and need to be properly assessed, and should become an intrinsic part of the assessment of network planning projects. Its application should be scrutinised by national regulatory authorities.

(128) A sufficient number of reliable professionals competent in the field of energy efficiency should be available to ensure the effective and timely implementation of this Directive, for instance as regards compliance with the requirements on energy audits and implementation of energy efficiency obligation schemes. Member States should therefore put in place certification or equivalent qualification, or both, and suitable training schemes for the providers of energy services, energy audits and other energy efficiency improvement measures in close cooperation with the social partners, training providers and other relevant stakeholders. The schemes should be assessed every four years starting as of December 2024 and, if needed, be updated to ensure the necessary level of competences for energy services providers, energy auditors, energy managers and installers of building elements.

(129) It is necessary to continue developing the market for energy services to ensure the availability of both the demand for and the supply of energy services. Transparency, for example by means of lists of certified energy services providers and available model contracts, exchange of best practices and guidelines greatly contribute to the uptake of energy services and energy performance contracting and can also help stimulate demand and increase the trust in energy services providers. In an energy performance contract the beneficiary of the energy service avoids investment costs by using part of the financial value of energy savings to fully or partially repay the investment carried out by a third party. That can help attract private capital which is key for increasing building renovation rates in the Union, bring expertise into the market and create innovative business models. Therefore, non-residential buildings with the useful floor area above 750 m² should be required to assess the feasibility of using energy performance contracting for renovation. That is a step ahead to increase the trust in energy services companies and pave the way for increasing such projects in the future.

- (130) Given the ambitious renovation objectives over the next decade in the context of the Renovation Wave, it is necessary to increase the role of independent market intermediaries including one-stop shops or similar support mechanisms in order to stimulate market development on the demand and supply sides and to promote energy performance contracting for renovation of both private and public buildings. Local energy agencies could play a key role in that regard, and identify and support setting up potential facilitators or one-stop shops. This Directive should help improve the availability of products, services and advice, including by promoting the potential for entrepreneurs to fill the gaps in the market and to provide for innovative ways to enhance energy efficiency, while ensuring respect for the principle of non-discrimination.
- (131) Energy performance contracting still faces important barriers in several Member States due to remaining regulatory and non-regulatory barriers. It is therefore necessary to address the ambiguities of the national legislative frameworks, lack of expertise, especially as regards tendering procedures, and competing loans and grants.
- (132) Member States should continue supporting the public sector in the uptake of energy performance contracting by providing model contracts that take into account the available European or international standards, tendering guidelines and the Guide to the Statistical Treatment of Energy Performance Contracts published in May 2018 by Eurostat and the European Investment Bank (EIB) on the treatment of energy performance contracting in government accounts, which have provided opportunities for addressing remaining regulatory barriers to those contracts in Member States.

- (133) Member States have taken measures to identify and address regulatory and non-regulatory barriers. However, there is a need to increase the effort to remove regulatory and non-regulatory barriers to the use of energy performance contracting and third-party financing arrangements which help achieve energy savings. Those barriers include accounting rules and practices that prevent capital investments and annual financial savings resulting from energy efficiency improvement measures from being adequately reflected in the accounts for the whole life of the investment.
- (134) Member States used the 2014 and 2017 national energy efficiency action plans to report progress in removing regulatory and non-regulatory barriers to energy efficiency, as regards split incentives between owners and tenants or among owners of a building or building units. Member States should continue working in that direction and tap the potential for energy efficiency in the context of the 2016 Eurostat statistics, in particular the fact that more than four out of ten Europeans live in flats and more than three out of ten Europeans are tenants.

(135) Member States, including regional and local authorities, should be encouraged to make full use of the European funds available under the multiannual financial framework for the years 2021 to 2027 laid down in Council Regulation (EU, Euratom) 2020/2093¹ the Recovery and Resilience Facility, established by Regulation (EU) 2021/241 of the European Parliament and of the Council², as well as the financial instruments and technical assistance available under the InvestEU programme, established by Regulation (EU) 2021/523 of the European Parliament and of the Council³, to trigger private and public investments in energy efficiency improvement measures. Investment in energy efficiency has the potential to contribute to economic growth, employment, innovation and a reduction in energy poverty in households, and therefore makes a positive contribution to economic, social and territorial cohesion and green recovery. Potential areas for funding include energy efficiency measures in public buildings and housing, and providing new skills through the development of training, reskilling and upskilling of professionals, in particular in jobs related to building renovation, to promote employment in the energy efficiency sector. The Commission will ensure synergies between the different funding instruments, in particular the funds in shared management and in direct management, such as the centrally-managed programmes Horizon Europe and LIFE, as well as between grants, loans and technical assistance to maximise their leverage effect on private financing and their impact on the achievement of energy efficiency policy objectives.

¹ Council Regulation (EU, Euratom) 2020/2093 of 17 December 2020 laying down the multiannual financial framework for the years 2021 to 2027 (OJ L 433I, 22.12.2020, p. 11).

² Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility (OJ L 57, 18.2.2021, p. 17).

³ Regulation (EU) 2021/523 of the European Parliament and of the Council of 24 March 2021 establishing the InvestEU Programme and amending Regulation (EU) 2015/1017 (OJ L 107, 26.3.2021, p. 30).

- (136) Member States should encourage the use of financing facilities to further the objectives of this Directive. Such financing facilities could include financial contributions and fines for infringements of certain provisions of this Directive, resources allocated to energy efficiency under Article 10(3) of Directive 2003/87/EC, and resources allocated to energy efficiency in the European funds and programmes, and dedicated European financial instruments, such as the European Energy Efficiency Fund.
- (137) Financing facilities could be based, where applicable, on resources allocated to energy efficiency from Union project bonds, resources allocated to energy efficiency from the EIB and other European financial institutions, in particular the European Bank for Reconstruction and Development (EBRD) and the Council of Europe Development Bank, resources leveraged in financial institutions, national resources, including through the creation of regulatory and fiscal frameworks encouraging the implementation of energy efficiency initiatives and programmes, and revenues from annual emission allocations under Decision No 406/2009/EC of the European Parliament and of the Council¹.

¹ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 (OJ L 140, 5.6.2009, p. 136).

- (138) The financing facilities could in particular use contributions, resources and revenues from those resources to enable and encourage private capital investment, in particular drawing on institutional investors, while using criteria ensuring the achievement of both environmental and social objectives for the granting of funds; make use of innovative financing mechanisms, including loan guarantees for private capital, loan guarantees to foster energy performance contracting, grants, subsidised loans and dedicated credit lines, third-party financing systems, that reduce the risks of energy efficiency projects and allow for cost-effective renovations even among low- and medium-revenue households; be linked to programmes or agencies which will aggregate and assess the quality of energy saving projects, provide technical assistance, promote the energy services market and help to generate consumer demand for energy services.
- (139) The financing facilities could also provide appropriate resources to support training and certification programmes which improve and accredit skills for energy efficiency, provide resources for research on and demonstration and acceleration of uptake of small-scale and micro technologies in the generation of energy and the optimisation of the connections of those generators to the grid, be linked to programmes undertaking action to promote energy efficiency in all dwellings to prevent energy poverty and stimulate landlords letting dwellings to render their property as energy-efficient as possible, and provide appropriate resources to support social dialogue and standard-setting with the aim of improving energy efficiency and ensuring good working conditions and health and safety at work.

- (140) Available Union funding programmes, financial instruments and innovative financing mechanisms should be used to give practical effect to the objective of improving the energy performance of public bodies' buildings. In that respect, Member States may use their revenues from annual emission allocations under Decision No 406/2009/EC in the development of such mechanisms on a voluntary basis and taking into account national budgetary rules. The Commission and the Member States should provide regional and local administrations with adequate information on such Union funding programmes, financial instruments and innovative financing mechanisms.
- (141) In the implementation of the energy efficiency target, the Commission should monitor the impact of the relevant measures on Directive 2003/87/EC in order to maintain the incentives in the EU ETS rewarding low carbon investments and to prepare the EU ETS sectors for the innovations needed in the future. It will need to monitor the impact on those industry sectors which are exposed to a significant risk of carbon leakage as listed in the Annex to Commission Decision 2014/746/EU¹, in order to ensure that this Directive promotes and does not impede the development of those sectors.

¹ Commission Decision 2014/746/EU of 27 October 2014 determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage, for the period 2015 to 2019 (OJ L 308, 29.10.2014, p. 114).

- (142) Member State measures should be supported by well-designed and effective Union financial instruments under the InvestEU programme, and by financing from the EIB and the EBRD, which should support investments in energy efficiency at all stages of the energy chain and use a comprehensive cost-benefit analysis with a model of differentiated discount rates. Financial support should focus on cost-effective methods for increasing energy efficiency, which would lead to a reduction in energy consumption. The EIB and the EBRD should, together with national promotional banks, design, generate and finance programmes and projects tailored for the efficiency sector, including for energy-poor households.
- (143) Cross-sectoral law provides a strong basis for consumer protection for a wide range of current energy services, and is likely to evolve. Nevertheless, certain basic contractual rights of customers should be clearly established. Plain and unambiguous information should be made available to consumers concerning their rights in relation to the energy sector.
- (144) In order to be able to evaluate the effectiveness of this Directive, a requirement to conduct a general review of this Directive and to submit a report to the European Parliament and to the Council by 28 February 2027 should be laid down. That review should allow necessary alignments, also taking into account economic and innovation developments.
- (145) Local and regional authorities should be given a leading role in the development and design, execution and assessment of the measures laid down in this Directive, so that they are able properly to address the specific features of their own climate, culture and society.

(146) Reflecting technological progress and the growing share of renewable energy sources in the electricity generation sector, the default coefficient for savings in kWh electricity should be reviewed in order to reflect changes in the primary energy factor for electricity and other energy carriers. The calculation methodology is in accordance with the Eurostat energy balances and definitions, except for the allocation method of fuel input for heat and electricity in combined heat and power plants, for which the efficiency of the reference system, required for the allocation of fuel consumption, was aligned with Eurostat data for 2015 and 2020. Calculations reflecting the energy mix of the primary energy factor for electricity are based on annual average values. The ‘physical energy content’ accounting method is used for nuclear electricity and heat generation and the ‘technical conversion efficiency’ method is used for electricity and heat generation from fossil fuels and biomass. For non-combustible renewable energy, the method is the direct equivalent based on the ‘total primary energy’ approach. To calculate the primary energy share for electricity in cogeneration, the method set out in this Directive is applied. An average rather than a marginal market position is used. Conversion efficiencies are assumed to be 100 % for non-combustible renewables, 10 % for geothermal power stations and 33 % for nuclear power stations. The calculation of total efficiency for cogeneration is based on the most recent data from Eurostat. The conversion, transmission and distribution losses are taken into account. Distribution losses for energy carriers other than electricity are not considered in the calculations, due to the lack of reliable data and the complexity of the calculation. As for system boundaries, the primary energy factor is 1 for all energy sources. The selected coefficient for the primary energy factor for electricity is the average of 2024 and 2025 values, since a forward-looking primary energy factor will provide a more appropriate indicator than a historical one. The analysis covers the Member States and Norway. The dataset for Norway is based on the ENTSO-E data.

- (147) Energy savings which result from the implementation of Union law should not be claimed unless they result from a measure that goes beyond the minimum required by the Union legal act in question, whether by setting more ambitious energy efficiency requirements at Member State level or by increasing the take-up of the measure. Buildings present a substantial potential for further increasing energy efficiency, and the renovation of buildings is an essential and long-term element with economies of scale in increasing energy savings. It is therefore necessary to clarify that it is possible to claim all energy savings stemming from measures promoting the renovation of existing buildings, provided that they exceed the savings that would have occurred in the absence of the policy measure and provided that the Member State demonstrates that the obligated, participating or entrusted party has in fact contributed to the achievement of the energy savings claimed.
- (148) In accordance with the communication of the Commission of 25 February 2015 on ‘A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy’ and the principles of better regulation, monitoring and verification rules for the implementation of energy efficiency obligation schemes and alternative policy measures, including the requirement to check a statistically representative sample of measures, should be given greater prominence.

- (149) Energy generated on or in buildings from renewable energy technologies reduces the amount of energy supplied from fossil fuels. The reduction of energy consumption and the use of energy from renewable sources in the buildings sector are important measures to reduce the Union's energy dependence and GHG emissions, especially in view of the ambitious climate and energy objectives set for 2030 as well as the global commitment made in the context of the Paris Agreement. For the purposes of their cumulative energy savings obligation, it is possible for Member States to take into account energy savings from policy measures promoting renewable technologies to meet their energy savings requirements in accordance with the calculation methodology provided for in this Directive. Energy savings from policy measures regarding the use of direct fossil fuel combustion should not be counted.
- (150) Some of the changes introduced by this Directive might require a subsequent amendment to Regulation (EU) 2018/1999 in order to ensure coherence between the two legal acts. New provisions, mainly relating to setting national contributions, gap filling mechanisms and reporting obligations, should be streamlined with and transferred to that Regulation, once it is amended. Some provisions of Regulation (EU) 2018/1999 might also need to be reassessed in view of the changes proposed in this Directive. The additional reporting and monitoring requirements should not create any new parallel reporting systems but would be subject to the existing monitoring and reporting framework under Regulation (EU) 2018/1999.

- (151) To foster the practical implementation of this Directive at national, regional and local level, the Commission should continue to support the exchange of experiences on practices, benchmarking, networking activities, as well as innovative practices by means of an online platform.
- (152) Since the objectives of this Directive, namely to achieve the Union's energy efficiency target and to pave the way towards further energy efficiency improvements and towards climate neutrality, cannot be sufficiently achieved by the Member States but can rather, by reason of the scale and effects of the action, be better achieved at Union level, the Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.

- (153) In order to permit adaptation to technical progress and changes in the distribution of energy sources, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of the review of the harmonised efficiency reference values laid down on the basis of this Directive, in respect of the values, calculation methods, default primary energy coefficient and requirements in the Annexes to this Directive and in respect of supplementing this Directive by establishing a common Union scheme for rating the sustainability of data centres located in its territory. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level, and that those consultations be conducted in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making¹. In particular, to ensure equal participation in the preparation of delegated acts, the European Parliament and the Council receive all documents at the same time as Member States' experts, and their experts systematically have access to meetings of Commission expert groups dealing with the preparation of delegated acts.
- (154) Regulation (EU) 2023/955 should be amended in order to take account of the definition of energy poverty established in this Directive. That would ensure consistency, coherence, complementarity and synergy among different instruments and funding in particular addressing households in energy poverty.

¹ OJ L 123, 12.5.2016, p. 1.

- (155) The obligation to transpose this Directive into national law should be confined to those provisions which represent a substantive amendment as compared to the earlier Directive. The obligation to transpose the provisions which are unchanged arises under the earlier Directive.
- (156) This Directive should be without prejudice to the obligations of the Member States relating to the time-limits for the transposition into national law of the Directives set out in Part B of Annex XVI,

HAVE ADOPTED THIS DIRECTIVE:

Chapter I

Subject matter, scope, definitions and energy efficiency targets

Article 1

Subject matter and scope

1. This Directive establishes a common framework of measures to promote energy efficiency within the Union in order to ensure that the Union's targets on energy efficiency are met and enables further energy efficiency improvements. The aim of that common framework is to contribute to the implementation of Regulation (EU) 2021/1119 of the European Parliament and of the Council¹ and to the Union's security of energy supply by reducing its dependence on energy imports, including fossil fuels.

This Directive lays down rules designed to implement energy efficiency as a priority across all sectors, remove barriers in the energy market and overcome market failures that impede efficiency in the supply, transmission, storage and use of energy. It also provides for the establishment of indicative national energy efficiency contributions for 2030.

This Directive contributes to the implementation of the energy efficiency first principle, thus also contributing to the Union being an inclusive, fair and prosperous society with a modern, resource-efficient and competitive economy.

¹ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') (OJ L 243, 9.7.2021, p. 1).

2. The requirements laid down in this Directive are minimum requirements and shall not prevent any Member State from maintaining or introducing more stringent measures. Such measures shall comply with Union law. Where national legislation provides for more stringent measures, the Member State shall notify such legislation to the Commission.

Article 2

Definitions

For the purposes of this Directive, the following definitions apply:

- (1) ‘energy’ means energy products as defined in Article 2, point (d), of Regulation (EC) No 1099/2008 of the European Parliament and of the Council¹;
- (2) ‘energy efficiency first’ means energy efficiency first as defined in Article 2, point (18), of Regulation (EU) 2018/1999;
- (3) ‘energy system’ means a system primarily designed to supply energy-services to satisfy the demand of end-use sectors for energy in the forms of heat, fuels, and electricity;
- (4) ‘system efficiency’ means the selection of energy-efficient solutions where they also enable a cost-effective decarbonisation pathway, additional flexibility and the efficient use of resources;
- (5) ‘primary energy consumption’ or ‘PEC’ means gross available energy, excluding international maritime bunkers, final non-energy consumption and ambient energy;

¹ Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics (OJ L 304, 14.11.2008, p. 1).

- (6) ‘final energy consumption’ or ‘FEC’ means all energy supplied to industry, to transport, including energy consumption in international aviation, to households, to public and private services, to agriculture, to forestry, to fishing and to other end-use sectors, excluding energy consumption in international maritime bunkers, ambient energy and deliveries to the transformation sector and to the energy sector, and losses due to transmission and distribution as defined in Annex A to Regulation (EC) No 1099/2008;
- (7) ‘ambient energy’ means ambient energy as defined in Article 2, point (2), of Directive (EU) 2018/2001;
- (8) ‘energy efficiency’ means the ratio of output of performance, service, goods or energy to input of energy;
- (9) ‘energy savings’ means an amount of saved energy determined by measuring or estimating consumption, or both,, before and after the implementation of an energy efficiency improvement measure, whilst ensuring normalisation for external conditions that affect energy consumption;
- (10) ‘energy efficiency improvement’ means an increase in energy efficiency as a result of any technological, behavioural or economic changes;

- (11) ‘energy service’ means the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings;
- (12) ‘public bodies’ means national, regional or local authorities and entities directly financed and administered by those authorities but not having an industrial or commercial character;
- (13) ‘total useful floor area’ means the floor area of a building, or part of a building, where energy is used to condition the indoor climate;
- (14) ‘contracting authorities’ means contracting authorities as defined in Article 6(1) of Directive 2014/23/EU, Article 2(1), point (1), of Directive 2014/24/EU and Article 3(1) of Directive 2014/25/EU;
- (15) ‘contracting entities’ means contracting entities as defined in Article 7(1) of Directive 2014/23/EU and Article 4(1) of Directive 2014/25/EU;
- (16) ‘energy management system’ means a set of interrelated or interacting elements of a strategy which sets an energy efficiency objective and a plan to achieve that objective, including the monitoring of actual energy consumption, actions taken to increase energy efficiency and the measurement of progress;

- (17) ‘European standard’ means a standard adopted by the European Committee for Standardization, the European Committee for Electrotechnical Standardization or the European Telecommunications Standards Institute, which is made available for public use;
- (18) ‘international standard’ means a standard adopted by the International Organization for Standardization, which is made available for public use;
- (19) ‘obligated party’ means an energy distributor, retail energy sales company or transmission system operator, which is bound by the national energy efficiency obligation schemes referred to in Article 9;
- (20) ‘entrusted party’ means a legal entity with delegated power from a government or other public body to develop, manage or operate a financing scheme on behalf of that government or other public body;
- (21) ‘participating party’ means an enterprise or public body that has committed itself to reaching certain objectives under a voluntary agreement, or that is covered by a national regulatory policy instrument;
- (22) ‘implementing public authority’ means a body governed by public law which is responsible for the carrying out or monitoring of energy or carbon taxation, financial schemes and instruments, fiscal incentives, standards and norms, energy labelling schemes, training or education;

- (23) ‘policy measure’ means a regulatory, financial, fiscal, voluntary or information provision instrument formally established and implemented in a Member State to create a supportive framework, requirement or incentive for market actors to provide and purchase energy services and to undertake other energy efficiency improvement measures;
- (24) ‘individual action’ means an action that leads to verifiable and measurable or estimable energy efficiency improvements and that is undertaken as a result of a policy measure;
- (25) ‘energy distributor’ means a natural or legal person, including a distribution system operator, who is responsible for transporting energy with a view to its delivery to final customers or to distribution stations that sell energy to final customers;
- (26) ‘distribution system operator’ means distribution system operator as defined in Article 2, point (29), of Directive (EU) 2019/944 as regards electricity or Article 2, point (6), of Directive 2009/73/EC as regards gas;
- (27) ‘retail energy sales company’ means a natural or legal person who sells energy to final customers;
- (28) ‘final customer’ means a natural or legal person who purchases energy for own end use;
- (29) ‘energy service provider’ means a natural or legal person who delivers energy services or energy efficiency improvement measures in a final customer’s facility or premises;

- (30) ‘small and medium-sized enterprises’ or ‘SMEs’ means enterprises as defined in Article 2(1) of the Annex to Commission Recommendation 2003/361/EC¹;
- (31) ‘microenterprise’ means an enterprise as defined in Article 2(3) of the Annex to Recommendation 2003/361/EC;
- (32) ‘energy audit’ means a systematic procedure with the purpose of obtaining adequate knowledge of the energy consumption profile of a building or group of buildings, an industrial or commercial operation or installation or a private or public service, identifying and quantifying opportunities for cost-effective energy savings, identifying the potential for cost-effective use or production of renewable energy and reporting the findings;
- (33) ‘energy performance contracting’ means a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where the works, supply or service in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or another agreed energy performance criterion, such as financial savings;
- (34) ‘smart metering system’ means smart metering system as defined in Article 2, point (23), of Directive (EU) 2019/944 or intelligent metering system as referred to in Directive 2009/73/EC;

¹ Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (OJ L 124, 20.5.2003, p. 36).

- (35) ‘transmission system operator’ means transmission system operator as defined in Article 2, point (35), of Directive (EU) 2019/944 as regards electricity or Article 2, point (4), of Directive 2009/73/EC as regards gas;
- (36) ‘cogeneration’ means the simultaneous generation in one process of thermal energy and electrical or mechanical energy;
- (37) ‘economically justifiable demand’ means a demand that does not exceed the needs for heating or cooling and which would otherwise be satisfied at market conditions by energy generation processes other than cogeneration;
- (38) ‘useful heat’ means heat produced in a cogeneration process to satisfy an economically justifiable demand for heating or cooling;
- (39) ‘electricity from cogeneration’ means electricity generated in a process linked to the production of useful heat and calculated in accordance with the general principles set out in Annex II;
- (40) ‘high-efficiency cogeneration’ means cogeneration meeting the criteria laid down in Annex III;
- (41) ‘overall efficiency’ means the annual sum of electricity and mechanical energy production and useful heat output divided by the fuel input used for heat produced in a cogeneration process and gross electricity and mechanical energy production;

- (42) ‘power-to-heat ratio’ means the ratio of electricity from cogeneration to useful heat when operating in full cogeneration mode using operational data of the specific unit;
- (43) ‘cogeneration unit’ means a unit that is able to operate in cogeneration mode;
- (44) ‘small-scale cogeneration unit’ means a cogeneration unit with installed capacity below 1 MW_e;
- (45) ‘micro-cogeneration unit’ means a cogeneration unit with a maximum capacity below 50 kW_e;
- (46) ‘efficient district heating and cooling’ means a district heating or cooling system meeting the criteria laid down in Article 26;
- (47) ‘efficient heating and cooling’ means a heating and cooling option that, compared to a baseline scenario reflecting a business-as-usual situation, measurably reduces the input of primary energy needed to supply one unit of delivered energy within a relevant system boundary in a cost-effective way, as assessed in the cost-benefit analysis referred to in this Directive, taking into account the energy required for extraction, conversion, transport and distribution;
- (48) ‘efficient individual heating and cooling’ means an individual heating and cooling supply option that, compared to efficient district heating and cooling, measurably reduces the input of non-renewable primary energy needed to supply one unit of delivered energy within a relevant system boundary or requires the same input of non-renewable primary energy but at a lower cost, taking into account the energy required for extraction, conversion, transport and distribution;

- (49) ‘data centre’ means data centre as defined in Annex A, point 2.6.3.1.16, of Regulation (EC) No 1099/2008;
- (50) ‘substantial refurbishment’ means a refurbishment the cost of which exceeds 50 % of the investment cost for a new comparable unit;
- (51) ‘aggregator’ means independent aggregator as defined in Article 2, point (19), of Directive (EU) 2019/944;
- (52) ‘energy poverty’ means a household’s lack of access to essential energy services, where such services provide basic levels and decent standards of living and health, including adequate heating, hot water, cooling, lighting, and energy to power appliances, in the relevant national context, existing national social policy and other relevant national policies, caused by a combination of factors, including at least non-affordability, insufficient disposable income, high energy expenditure and poor energy efficiency of homes;
- (53) ‘final user’ means a natural or legal person purchasing heating, cooling or domestic hot water for their own end use, or a natural or legal person occupying an individual building or a unit in a multi-apartment or multi-purpose building supplied with heating, cooling or domestic hot water from a central source, where such a person has no direct or individual contract with the energy supplier;

- (54) ‘split incentives’ means the lack of fair and reasonable distribution of financial obligations and rewards relating to energy efficiency investments among the actors concerned, for example the owners and tenants or the different owners of building units, or owners and tenants or different owners of multi-apartment or multi-purpose buildings.
- (55) ‘engagement strategy’ means a strategy that sets objectives, develops techniques and establishes the process by which to involve all relevant stakeholders at national or local level, including civil society representatives such as consumer organisations, in the policy-making process, with the goal of increasing awareness, obtaining feedback on such policies and improving their public acceptance.
- (56) ‘statistically significant proportion and representative sample of the energy efficiency improvement measures’ means such a proportion and sample which require the establishment of a subset of a statistical population of the energy savings measures in question in such a way as to reflect the entire population of all energy savings measures, and thus allow for reasonably reliable conclusions regarding confidence in the totality of the measures.

Article 3
Energy efficiency first principle

1. In accordance with the energy efficiency first principle, Member States shall ensure that energy efficiency solutions, including demand-side resources and system flexibilities, are assessed in planning, policy and major investment decisions of a value of more than EUR 100 000 000 each or EUR 175 000 000 for transport infrastructure projects, relating to the following sectors:
 - (a) energy systems; and
 - (b) non-energy sectors, where those sectors have an impact on energy consumption and energy efficiency such as buildings, transport, water, information and communications technology (ICT), agriculture and financial sectors.
2. By ... [four years after the date of entry into force of this Directive], the Commission shall carry out an assessment of the thresholds set out in paragraph 1, with the aim of downward revision, taking into account possible developments in the economy and in the energy market. The Commission shall, by ... [five years after the date of entry into force of this Directive], submit a report to the European Parliament and to the Council, followed, where appropriate, by legislative proposals.
3. In applying this Article, Member States are encouraged to take into account Commission Recommendation (EU) 2021/1749¹.

¹ Commission Recommendation (EU) 2021/1749 of 28 September 2021 on Energy Efficiency First: from principles to practice — Guidelines and examples for its implementation in decision-making in the energy sector and beyond (OJ L 350, 4.10.2021, p. 9).

4. Member States shall ensure that the competent authorities monitor the application of the energy efficiency first principle, including, where appropriate, sector integration and cross-sectoral impacts, where policy, planning and investment decisions are subject to approval and monitoring requirements.
5. In applying the energy efficiency first principle, Member States shall:
 - (a) promote and, where cost-benefit analyses are required, ensure the application of, and make publicly available, cost-benefit methodologies that allow proper assessment of the wider benefits of energy efficiency solutions where appropriate, taking into account the entire life cycle and long-term perspective, system and cost efficiency, security of supply and quantification from the societal, health, economic and climate neutrality perspectives, sustainability and circular economy principles in transition to climate neutrality;
 - (b) address the impact on energy poverty;
 - (c) identify an entity or entities responsible for monitoring the application of the energy efficiency first principle and the impacts of regulatory frameworks, including financial regulations, planning, policy and the major investment decisions referred to in paragraph 1 on energy consumption, energy efficiency and energy systems;

- (d) report to the Commission, as part of their integrated national energy and climate progress reports submitted pursuant to Article 17 of Regulation (EU) 2018/1999, on how the energy efficiency first principle was taken into account in the national and, where applicable, regional and local planning, policy and major investment decisions related to the national and regional energy systems including at least the following:
 - (i) an assessment of the application and benefits of the energy efficiency first principle in energy systems, in particular in relation to energy consumption;
 - (ii) a list of actions taken to remove any unnecessary regulatory or non-regulatory barriers to the implementation of the energy efficiency first principle and of demand-side solutions, including through the identification of national legislation and measures that are contrary to the energy efficiency first principle.

6. By ... [6 months after the date of entry in force of this Directive], the Commission shall adopt guidelines providing a common general framework including supervision, the monitoring and reporting procedure, which Member States may use to design the cost-benefit methodologies referred to in paragraph 5, point (a), for the purpose of comparability, while leaving the possibility for Member States to adapt to national and local circumstances.

Article 4
Energy efficiency targets

1. Member States shall collectively ensure a reduction of energy consumption of at least 11,7 % in 2030 compared to the projections of the 2020 EU Reference Scenario so that the Union's final energy consumption amounts to no more than 763 Mtoe. Member States shall make efforts to collectively contribute to the indicative Union primary energy consumption target amounting to no more than 992,5 Mtoe in 2030.

2. Each Member State shall set an indicative national energy efficiency contribution based on final energy consumption to meet, collectively, the Union's binding final energy consumption target referred to in paragraph 1 of this Article and shall make efforts to contribute collectively to the Union's indicative primary energy consumption target referred to in that paragraph. Member States shall notify those contributions to the Commission, together with an indicative trajectory for those contributions, as part of the updates of their integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, and of their integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of that Regulation. When doing so, Member States shall also express their contributions in terms of an absolute level of primary energy consumption in 2030. When setting their indicative national energy efficiency contributions, Member States shall take into account the requirements set out in paragraph 3 of this Article and explain how, and on the basis of which data, the contributions have been calculated. To that end, they may use the formula set out in Annex I to this Directive.

Member States shall provide the shares of primary energy consumption and final energy consumption of energy end-use sectors, as defined in Regulation (EC) No 1099/2008, including industry, residential, services and transport, in their national energy efficiency contributions. Member States shall also indicate projections for energy consumption in ICT.

3. In setting their indicative national energy efficiency contributions referred to in paragraph 2, Member States shall take into account:
 - (a) the Union's 2030 final energy consumption target of no more than 763 Mtoe and the primary energy consumption target of no more than 992,5 Mtoe, as provided for in paragraph 1;
 - (b) the measures provided for in this Directive;
 - (c) other measures to promote energy efficiency within Member States and at Union level;
 - (d) any relevant factors affecting efficiency efforts:
 - (i) early efforts and actions in energy efficiency;
 - (ii) the equitable distribution of efforts across the Union;

- (iii) the energy intensity of the economy;
- (iv) the remaining cost-effective energy-saving potential;
- (e) other national circumstances affecting energy consumption, in particular:
 - (i) GDP and demographic evolution and forecast;
 - (ii) changes of energy imports and exports, developments in the energy mix and the deployment of new sustainable fuels;
 - (iii) the development of all sources of renewable energies, nuclear energy, carbon capture and storage;
 - (iv) the decarbonisation of energy intensive industries;
 - (v) the level of ambition in the national decarbonisation or climate neutrality plans;
 - (vi) economic energy savings potential;
 - (vii) current climate conditions and climate change forecast.
- 4. When applying the requirements set out in paragraph 3, a Member State shall ensure that its contribution in Mtoe is not more than 2,5 % above what it would have been had it resulted from the formula set out in Annex I.

5. The Commission shall assess that the collective contribution of Member States is at least equal to the Union's binding target for final energy consumption set out in paragraph 1 of this Article. Where the Commission concludes that it is insufficient, as part of its assessment of the draft updated national energy and climate plans pursuant to Article 9(2) of Regulation (EU) 2018/1999, or at the latest by 1 March 2024, taking into consideration the updated 2020 EU Reference Scenario pursuant to this paragraph, the Commission shall submit to each Member State a corrected indicative national energy efficiency contribution for final energy consumption on the basis of:
- (a) the remaining collective reduction of final energy consumption needed to achieve the Union's binding target set out in paragraph 1;
 - (b) the relative GHG intensity per GDP unit in 2019 among the Member States concerned;
 - (c) the GDP of those Member States in 2019.

Before applying the formula in Annex I for the mechanism established in this paragraph and at the latest by 30 November 2023, the Commission shall update the 2020 EU Reference Scenario on the basis of the latest Eurostat data reported by the Member States, in accordance with Article 4(2), point (b), and Article 14 of Regulation (EU) 2018/1999.

Notwithstanding Article 37 of this Directive, Member States that wish to update their indicative national energy efficiency contributions pursuant to paragraph 2 of this Article, using the updated 2020 EU Reference Scenario, shall notify their updated indicative national energy efficiency contribution at the latest by 1 February 2024. Where a Member State wishes to update its indicative national energy efficiency contribution, it shall ensure that its contribution in Mtoe is not more than 2,5 % above what it would have been had it resulted from the formula set out in Annex I with the use of the updated 2020 EU Reference Scenario.

Member States to which a corrected indicative national energy efficiency contribution was submitted by the Commission shall update their indicative national energy efficiency contributions pursuant to paragraph 2 of this Article, with the corrected indicative national energy efficiency contribution for final energy consumption together with an update of their indicative trajectory for those contribution and, where applicable, their additional measures, as part of the updates of their integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999. The Commission shall, in accordance with that Regulation, require Member States to submit, without delay, their corrected indicative energy efficiency contribution and, where applicable, their additional measures to ensure the application of the mechanism set out in this paragraph.

Where a Member State has notified an indicative national energy efficiency contribution for final energy consumption in Mtoe equal to or below what it would have been had it resulted from the formula set out in Annex I, the Commission shall not amend that contribution.

When applying the mechanism set out in this paragraph, the Commission shall ensure that there is no difference left between the sum of the national contributions of all Member States and the Union's binding target set out in paragraph 1.

6. Where the Commission concludes, on the basis of its assessment pursuant to Article 29(1) and (3) of Regulation (EU) 2018/1999, that insufficient progress has been made towards meeting the energy efficiency contributions, Member States that are above their indicative trajectories for final energy consumption referred to in paragraph 2 of this Article shall ensure that additional measures are implemented within one year of the date of receipt of the Commission's assessment in order to get back on track to reach their energy efficiency contributions. Those additional measures shall include, but shall not be limited to, at least one of the following measures:
 - (a) national measures delivering additional energy savings, including stronger project development assistance for the implementation of energy efficiency investment measures;
 - (b) increasing the energy savings obligation set out in Article 8 of this Directive;
 - (c) adjusting the obligation for public sector;

- (d) making a voluntary financial contribution to the national energy efficiency fund referred to in Article 30 of this Directive or another financing instrument dedicated to energy efficiency, where the annual financial contributions shall be equal to the investments required to reach the indicative trajectory.

Where a Member State's final energy consumption is above its indicative trajectory for final energy consumption referred to in paragraph 2 of this Article, it shall include in its integrated national energy and climate progress report submitted pursuant to Article 17 of Regulation (EU) 2018/1999 an explanation of the measures it will take to cover the gap in order to ensure that it reaches its national energy efficiency contributions and the amount of energy savings expected to be delivered.

The Commission shall assess whether the national measures referred to in this paragraph are sufficient to achieve the Union's energy efficiency targets. Where national measures are deemed to be insufficient, the Commission shall, as appropriate, propose measures and exercise its power at Union level in order to ensure, in particular, the achievement of the Union's 2030 targets for energy efficiency.

7. The Commission shall assess by 31 December 2026 any methodological changes in the data reported pursuant to Regulation (EC) No 1099/2008, in the methodology for calculating energy balance, and in energy models for European energy use, and, if necessary, propose technical calculation adjustments to the Union's 2030 targets with a view to maintaining the level of ambition set out in paragraph 1 of this Article.

Chapter II

Exemplary role of public sector

Article 5

Public sector leading on energy efficiency

1. Member States shall ensure that the total final energy consumption of all public bodies combined is reduced by at least 1,9 % each year, when compared to 2021.

Member States may choose to exclude public transport or the armed forces from the obligation laid down in the first subparagraph.

For the purposes of the first and second subparagraphs, Member States shall establish a baseline, which includes the final energy consumption of all public bodies, except in public transport or the armed forces, for 2021. Energy consumption reduction of public transport and armed forces is indicative and may still count for fulfilling the obligation under the first subparagraph even if excluded from the baseline under this Article.

2. During a transitional period ending on ... [four years after the date of entry into force of this Directive] the target set out in paragraph 1 shall be indicative. During that transitional period, Member States may use estimated consumption data, and, by the same date, Member States shall adjust the baseline and align the estimated final energy consumption of all public bodies to the actual final energy consumption of all public bodies.

3. The obligation laid down in paragraph 1 shall not include, until 31 December 2026, the energy consumption of public bodies in local administrative units with a population of less than 50 000 and, until 31 December 2029, the energy consumption of public bodies in local administrative units with a population of less than 5 000 inhabitants.
4. A Member State may take into account climatic variations within it when calculating its public bodies' final energy consumption.
5. Member States shall include in the updates, submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, of their national energy and climate plans, notified pursuant to Article 3 and Articles 7 to 12 of that Regulation, the amount of energy consumption reduction to be achieved by all public bodies, disaggregated by sector, and the measures that they plan to adopt for the purpose of achieving those reductions. As part of their integrated national energy and climate progress reports submitted pursuant to Article 17 of Regulation (EU) 2018/1999, Member States shall report to the Commission the final energy consumption reduction achieved every year.
6. Member States shall ensure that regional and local authorities establish specific energy efficiency measures in their long-term planning tools, such as decarbonisation or sustainable energy plans, after consulting relevant stakeholders, including energy agencies where appropriate, and the public, including, in particular, vulnerable groups which are at risk of being affected by energy poverty or are more susceptible to its effects.

Member States shall also ensure that the competent authorities take actions to mitigate significant negative direct or indirect impacts of energy efficiency measures on energy poor, low-income households or vulnerable groups when designing and implementing energy efficiency measures.

7. Member States shall support public bodies. Such support may, without prejudice to the State aid rules, include financial and technical support, for the purpose of taking up energy efficiency improvement measures and encouraging public bodies to take into account the wider benefits beyond energy savings, for example the quality of the indoor environment, including at regional and local level, by providing guidelines, promoting competence building, the acquisition of skills and training opportunities, and by encouraging cooperation among public bodies.
8. Member States shall encourage public bodies to consider life cycle carbon emissions as well as the economic and social benefits of their public bodies' investment and policy activities.
9. Member States shall encourage public bodies to improve the energy performance of buildings owned or occupied by public bodies, including by means of the replacement of old and inefficient heaters.

Article 6

Exemplary role of public bodies' buildings

1. Without prejudice to Article 7 of Directive 2010/31/EU, each Member State shall ensure that at least 3 % of the total floor area of heated and/or cooled buildings that are owned by public bodies is renovated each year to be transformed into at least nearly zero-energy buildings or zero-emission buildings in accordance with Article 9 of Directive 2010/31/EU.

Member States may choose which buildings to include in the 3 % renovation requirement, giving due consideration to cost-effectiveness and technical feasibility in the choice of buildings to renovate.

Member States may exempt social housing from the obligation to renovate referred to in the first subparagraph where such renovations would not be cost neutral or would lead to rent increases for people living in social housing unless such rent increases are no higher than the economic savings on the energy bill.

Where public bodies occupy a building that they do not own, they shall negotiate with the owner, in particular when reaching a trigger point such as the renewal of rental, change of use, significant repair or maintenance work, with the aim of establishing contractual clauses for the building to become at least a nearly zero-energy building or zero-emission building.

The rate of at least 3 % shall be calculated on the total floor area of buildings which have a total useful floor area of over 250 m², that are owned by public bodies and that, on 1 January 2024, are not nearly zero-energy buildings.

2. Member States may apply requirements that are less stringent than those laid down in paragraph 1 for the following categories of buildings:
 - (a) buildings officially protected as part of a designated environment, or because of their special architectural or historical merit, in so far as compliance with certain minimum energy performance requirements would alter their character or appearance unacceptably;
 - (b) buildings owned by the armed forces or central government and serving national defence purposes, apart from single living quarters or office buildings for the armed forces and other staff employed by national defence authorities;
 - (c) buildings used as places of worship and for religious activities.

Member States may decide not to renovate any building that is not referred to in the first subparagraph of this paragraph up to the level provided for in paragraph 1 if they assess that it is not technically, economically or functionally feasible for that building to be transformed into a nearly zero-energy building. Where they so decide, Member States shall not count the renovation of that building towards the fulfilment of the requirement set out in paragraph 1.

3. In order to front load energy savings and to provide an incentive for early action, a Member State that renovates more than 3 % of the total floor area of its buildings in accordance with paragraph 1 in any year until 31 December 2026 may count the surplus towards the annual renovation rate of any of the following three years. A Member State that renovates more than 3 % of the total floor area of its buildings as of 1 January 2027 may count the surplus towards the annual renovation rate of the following two years.
4. Member States may count towards the annual renovation rate of buildings new buildings owned as replacements for specific public bodies' buildings demolished in any of the two previous years. This shall apply only where they would be more cost effective and sustainable in terms of the energy and lifecycle CO₂ emissions achieved compared to the renovations of such buildings. The general criteria, methodologies and procedures to identify such exceptional cases shall be clearly set out and published by each Member State.
5. By ...[two years after the date of entry into force of this Directive], Member States shall, for the purposes of this Article, establish and make publicly available and accessible an inventory of heated and/or cooled buildings that are owned or occupied by public bodies and that have a total useful floor area of more than 250 m². Member States shall update that inventory at least every two years. The inventory shall be linked to the building stock overview carried out in the framework of the national building renovation plans in accordance with Directive 2010/31/EU and the relevant databases.

Publicly available and accessible data about building stock characteristics, buildings renovation and energy performance may be aggregated by the EU Building Stock Observatory to ensure a better understanding of the energy performance of the building sector through comparable data.

The inventory shall contain at least the following data:

- (a) the floor area in m²;
- (b) the measured annual energy consumption of heat, cooling, electricity and hot water when those data are available;
- (c) the energy performance certificate of each building issued in accordance with Directive 2010/31/EU.

6. Member States may decide to apply an alternative approach to that set out in paragraphs 1 to 4 for the purpose of achieving, every year, an amount of energy savings in the buildings of public bodies which is at least equivalent to the amount required in paragraph 1.

For the purpose of applying that alternative approach, Member States shall:

- (a) ensure that, each year, a renovation passport is introduced, where applicable, for buildings representing at least 3 % of the total floor area of heated and/or cooled buildings that are owned by public bodies. For those buildings, the renovation to nearly zero-energy building shall be achieved at the latest by 2040;

- (b) estimate the energy savings that paragraphs 1 to 4 would generate by using appropriate standard values for the energy consumption of reference public bodies' buildings before and after renovation to be transformed into nearly zero-energy buildings as referred to in Directive 2010/31/EU.

Member States that decide to apply the alternative approach shall notify to the Commission, by 31 December 2023, their projected energy savings to achieve at least the equivalent of energy savings in the buildings covered by paragraph 1 by 31 December 2030.

Article 7

Public procurement

1. Member States shall ensure that contracting authorities and contracting entities, when concluding public contracts and concessions with a value equal to or greater than the thresholds laid down in Article 8 of Directive 2014/23/EU, Article 4 of Directive 2014/24/EU and Article 15 of Directive 2014/25/EU, purchase only products, services buildings and works with high energy-efficiency performance in accordance with the requirements referred to in Annex IV to this Directive, unless it is not technically feasible.

Member States shall also ensure that in concluding the public contracts and concessions with a value equal to or greater than the thresholds referred to in the first subparagraph, contracting authorities and contracting entities apply the energy efficiency first principle in accordance with Article 3, including for those public contracts and concessions for which no specific requirements are provided for in Annex IV.

2. The obligations referred to in paragraph 1 of this Article shall not apply if they undermine public security or impede the response to public health emergencies. The obligations referred to in paragraph 1 of this Article shall apply to the contracts of the armed forces only to the extent that their application does not cause any conflict with the nature and primary aim of the activities of the armed forces. The obligations shall not apply to contracts for the supply of military equipment as defined in Directive 2009/81/EC of the European Parliament and of the Council¹.
3. Notwithstanding Article 29(4), Member States shall ensure that contracting authorities and contracting entities assess the feasibility of concluding long-term energy performance contracts that provide long-term energy savings when procuring service contracts with significant energy content.

¹ Directive 2009/81/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of procedures for the award of certain works contracts, supply contracts and service contracts by contracting authorities or entities in the fields of defence and security and amending Directives 2004/17/EC and 2004/18/EC (OJ L 216, 20.8.2009, p. 76).

4. Without prejudice to paragraph 1 of this Article, when purchasing a product package fully covered by a delegated act adopted under Regulation (EU) 2017/1369, Member States may require that the aggregate energy efficiency take priority over the energy efficiency of individual products within that package, by purchasing the product package that complies with the criterion of belonging to the highest available energy efficiency class.
5. Member States may require that contracting authorities and contracting entities, when concluding contracts as referred to in paragraph 1 of this Article, take into account, where appropriate, wider sustainability, social, environmental and circular economy aspects in procurement practices with a view to achieving the Union's decarbonisation and zero pollution objectives. Where appropriate, and in accordance with Annex IV, Member States shall require contracting authorities and contracting entities to take into account Union green public procurement criteria or available equivalent national criteria.

To ensure transparency in the application of energy efficiency requirements in the procurement process, Member States shall ensure that contracting authorities and contracting entities make publicly available information on the energy efficiency impact of contracts with a value equal to or greater than the thresholds referred to in paragraph 1 by publishing that information in the respective notices on Tenders Electronic Daily (TED), in accordance with Directives 2014/23/EU, 2014/24/EU and 2014/25/EU, and Commission Implementing Regulation (EU) 2019/1780¹. Contracting authorities may decide to require that tenderers disclose information on the life cycle global warming potential, the use of low carbon materials and the circularity of materials used for a new building and for a building to be renovated. Contracting authorities may make that information publicly available for the contracts, in particular for new buildings having a floor area larger than 2 000 m².

Member States shall support contracting authorities and contracting entities in the uptake of energy efficiency requirements, including at regional and local level, by providing clear rules and guidelines including methodologies on the assessment of life cycle costs and environment impacts and costs, setting up competence support centres, encouraging cooperation amongst contracting authorities, including across borders, and using aggregated procurement and digital procurement where possible.

¹ Commission Implementing Regulation (EU) 2019/1780 of 23 September 2019 establishing standard forms for the publication of notices in the field of public procurement and repealing Implementing Regulation (EU) 2015/1986 ('eForms') (OJ L 272, 25.10.2019, p. 7)

6. Where appropriate, the Commission may provide further guidance to national authorities and procurement officials in the application of energy efficiency requirements in the procurement process. Such support may strengthen existing fora for the purpose of supporting Member States, such as by means of concerted action, and may assist them in taking the green public procurement criteria into account.
7. Member States shall establish the legal and regulatory provisions, and administrative practices, regarding public purchasing and annual budgeting and accounting, necessary to ensure that individual contracting authorities are not deterred from making investments in improving energy efficiency and from using energy performance contracting and third-party financing mechanisms on a long-term contractual basis.
8. Member States shall remove any regulatory or non-regulatory barriers to energy efficiency, in particular as regards legal and regulatory provisions, and administrative practices, regarding public purchasing and annual budgeting and accounting, with a view to ensuring that individual public bodies are not deterred from making investments in improving energy efficiency and from using energy performance contracting and third-party financing mechanisms on a long-term contractual basis.

Member States shall report to the Commission on the measures taken to address the barriers to uptake of energy efficiency improvements as part of their integrated national energy and climate progress reports submitted pursuant to Article 17 of Regulation (EU) 2018/1999.

Chapter III

Efficiency in energy use

Article 8

Energy savings obligation

1. Member States shall achieve cumulative end-use energy savings at least equivalent to:
 - (a) new savings each year from 1 January 2014 to 31 December 2020 of 1,5 % of annual energy sales to final customers by volume, averaged over the most recent three-year period preceding 1 January 2013. Sales of energy, by volume, used in transport may be excluded, in whole or in part, from that calculation;
 - (b) new savings each year from 1 January 2021 to 31 December 2030 of:
 - (i) 0,8 % of annual final energy consumption from 1 January 2021 to 31 December 2023, averaged over the most recent three-year period preceding 1 January 2019;
 - (ii) 1,3 % of annual final energy consumption from 1 January 2024 to 31 December 2025, averaged over the most recent three-year period preceding 1 January 2019;

- (iii) 1,5 % of annual final energy consumption from 1 January 2026 to 31 December 2027, averaged over the most recent three-year period preceding 1 January 2019;
- (iv) 1,9 % of annual final energy consumption from 1 January 2028 to 31 December 2030, averaged over the most recent three-year period preceding 1 January 2019.

By way of derogation from point (b)(i) of the first subparagraph, Cyprus and Malta shall achieve new savings each year from 1 January 2021 to 31 December 2023, equivalent to 0,24 % of annual final energy consumption, averaged over the most recent three-year period prior to 1 January 2019.

By way of derogation from points (b)(ii), (iii) and (iv) of the first subparagraph, Cyprus and Malta shall achieve new savings each year from 1 January 2024 to 31 December 2030 equivalent to 0,45 % of annual FEC, averaged over the most recent three-year period preceding 1 January 2019.

Member States shall decide how to phase the calculated quantity of new savings over each period referred to in points (a) and (b) of the first subparagraph, provided that the required total cumulative end-use energy savings have been achieved by the end of each obligation period.

Member States shall continue to achieve new annual savings in accordance with the savings rate provided for in point (b)(iv) of the first subparagraph for ten-year periods after 2030.

2. Member States shall achieve the amount of energy savings required under paragraph 1 of this Article either by establishing an energy efficiency obligation scheme as referred to in Article 9 or by adopting alternative policy measures as referred to in Article 10. Member States may combine an energy efficiency obligation scheme with alternative policy measures. Member States shall ensure that energy savings resulting from the policy measures referred to in Articles 9 and 10 and Article 30(14) are calculated in accordance with Annex V.
3. Member States shall implement energy efficiency obligation schemes, alternative policy measures, or a combination of both, or programmes or measures financed under a national energy efficiency fund, as a priority among, but not limited to, people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing. Member States shall ensure that policy measures implemented pursuant to this Article have no adverse effect on those persons. Where applicable, Member States shall make the best possible use of funding, including public funding, funding facilities established at Union level, and revenues from allowances pursuant to Article 24(3), point (b), with the aim of removing adverse effects and ensuring a just and inclusive energy transition.

For the purpose of achieving the energy savings required under paragraph 1 and without prejudice to Regulation (EU) 2019/943 and Directive (EU) 2019/944, Member States shall, for the purpose of designing such policy measures, consider and promote the role of renewable energy communities and citizen energy communities in the contribution to the implementation towards those policy measures.

Member States shall establish and achieve a share of the required amount of cumulative end-use energy savings among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing. This share shall at least be equal to the proportion of households in energy poverty as assessed in their national energy and climate plans established in accordance with Article 3(3), point (d), of Regulation (EU) 2018/1999. Member States shall, in their assessment of the share of energy poverty in their national energy and climate plans, consider the following indicators:

- (a) the inability to keep the home adequately warm (Eurostat, SILC [ilc_mdcs01]);
- (b) the arrears on utility bills (Eurostat, SILC [ilc_mdcs07]);
- (c) the total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor (Eurostat, SILC [ilc_mdho01]);

- (d) at-risk-of-poverty rate (Eurostat, SILC and ECHP surveys [ilc_li02])
(cutoff point: 60 % of median equivalised income after social transfers).

If a Member State has not notified the share of households in energy poverty as assessed in their national energy and climate plan, the share of the required amount of cumulative end-use energy savings among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing, shall be at least equal to the arithmetic average share of the indicators referred to in the third subparagraph for the year 2019 or, if not available for 2019, for the linear extrapolation of their values for the last three years that are available.

4. Member States shall include information about the indicators applied, the arithmetic average share and the outcome of policy measures established in accordance with paragraph 3 of this Article in the updates of their integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, in their subsequent integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of that Regulation, and in the related national energy and climate progress reports submitted pursuant to Article 17 of that Regulation.
5. Member States may count energy savings that stem from policy measures, whether introduced by 31 December 2020 or after that date, provided that those measures result in new individual actions that are carried out after 31 December 2020. Energy savings achieved in any obligation period shall not count towards the amount of required energy savings for the previous obligation periods set out in paragraph 1.

6. Provided that Member States achieve at least their cumulative end-use energy savings obligation referred to in paragraph 1, first subparagraph, point (b)(i), they may calculate the required amount of energy savings referred to in that point by one or more of the following means:
 - (a) applying an annual savings rate on energy sales to final customers or on final energy consumption, averaged over the most recent three-year period preceding 1 January 2019;
 - (b) excluding, in whole or in part, energy used in transport from the calculation baseline;
 - (c) making use of any of the options set out in paragraph 8.

7. Where Member States make use of any of the possibilities provided for in paragraph 6 regarding the required energy savings referred to in paragraph 1, first subparagraph, point (b)(i), they shall establish:
 - (a) their own annual savings rate that will be applied in the calculation of their cumulative end-use energy savings, which shall ensure that the final amount of their net energy savings is no lower than those required under that point;
 - (b) their own calculation baseline, which may exclude, in whole or in part, energy used in transport.

8. Subject to paragraph 9, each Member State may:
- (a) carry out the calculation required under paragraph 1, first subparagraph, point (a), using values of 1 % in 2014 and 2015, 1,25 % in 2016 and 2017, and 1,5 % in 2018, 2019 and 2020;
 - (b) exclude from the calculation all or part of the sales of energy used, by volume, with respect to the obligation period referred to in paragraph 1, first subparagraph, point (a), or final energy consumed, with respect to the obligation period referred to in point (b)(i), of that subparagraph, by industrial activities listed in Annex I to Directive 2003/87/EC;
 - (c) count towards the amount of required energy savings in paragraph 1, first subparagraph, points (a) and (b)(i), energy savings achieved in the energy transformation, distribution and transmission sectors, including efficient district heating and cooling infrastructure, as a result of implementing the requirements set out in Article 25(4), point (a), of Article 26(7), and Article 27(1), (5) to (9) and (11). Member States shall inform the Commission about their intended policy measures under this point for the period from 1 January 2021 to 31 December 2030 as part of their integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12. The impact of those measures shall be calculated in accordance with Annex V and included in those plans;

- (d) count towards the amount of required energy savings, energy savings resulting from individual actions newly implemented since 31 December 2008 that continue to have an impact in 2020 with respect to the obligation period referred to in paragraph 1, first subparagraph, point (a), and beyond 2020 with respect to the period referred to in point (b)(i), of that subparagraph, and which can be measured and verified;
- (e) count towards the amount of required energy savings, energy savings that stem from policy measures, provided that it can be demonstrated that those measures result in individual actions carried out from 1 January 2018 to 31 December 2020 which deliver savings after 31 December 2020;
- (f) exclude from the calculation of the amount of required energy savings pursuant to paragraph 1, first subparagraph, points (a) and (b)(i), 30 % of the verifiable amount of energy generated on or in buildings for own use as a result of policy measures promoting new installation of renewable energy technologies;
- (g) count towards the amount of required energy savings pursuant to paragraph 1, first subparagraph, points (a) and (b)(i), energy savings that exceed the energy savings required for the obligation period from 1 January 2014 to 31 December 2020, provided that those savings result from individual actions carried out under policy measures referred to in Articles 9 and 10, notified by Member States in their national energy efficiency action plans and reported in their progress reports in accordance with Article 26.

9. Member States shall apply and calculate the effect of the options chosen under paragraph 8 for the period referred to in paragraph 1, first subparagraph, points (a) and (b)(i), separately:
- (a) for the calculation of the amount of energy savings required for the obligation period referred to in paragraph 1, first subparagraph, point (a), Member States may make use of the options listed in paragraph 8, points (a) to (d). All the options chosen under paragraph 8 taken together shall amount to no more than 25 % of the amount of energy savings referred to in paragraph 1, first subparagraph, point (a);
 - (b) for the calculation of the amount of energy savings required for the obligation period referred to in paragraph 1, first subparagraph, point (b)(i), Member States may make use of the options listed in paragraph 8, points (b) to (g), provided that the individual actions referred to in paragraph 8, point (d), continue to have a verifiable and measurable impact after 31 December 2020. All the options chosen under paragraph 8 taken together shall not lead to a reduction of more than 35 % of the amount of energy savings calculated in accordance with paragraphs 6 and 7.

Regardless of whether Member States exclude, in whole or in part, energy used in transport from their calculation baseline or make use of any of the options listed in paragraph 8, they shall ensure that the calculated net amount of new savings to be achieved in final energy consumption during the obligation period referred to in paragraph 1, first subparagraph, point (b)(i), from 1 January 2021 to 31 December 2023 is not lower than the amount resulting from applying the annual savings rate referred to in that point.

10. Member States shall describe in the updates of their integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, in their subsequent integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of Regulation (EU) 2018/1999 and in accordance with Annex III to Regulation (EU) 2018/1999, and respective progress reports the calculation of the amount of energy savings to be achieved over the period from 1 January 2021 to 31 December 2030 and shall, if relevant, explain how the annual savings rate and the calculation baseline were established, and how and to what extent the options referred to in paragraph 8 of this Article were applied.
11. Member States shall notify the Commission of the amount of the required energy savings referred to in paragraph 1, first subparagraph, point (b), and paragraph 3 of this Article, a description of the policy measures to be implemented to achieve the required total amount of the cumulative end-use energy savings and their calculation methodologies pursuant to Annex V to this Directive, as part of the updates of their integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, and as part of their integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of Regulation (EU) 2018/1999. Member States shall use the reporting template provided to the Member States by the Commission.

12. Where on the basis of the assessment of the integrated national energy and climate progress reports pursuant to Article 29 of Regulation (EU) 2018/1999, or of the draft or final update of the latest notified integrated national energy and climate plan submitted pursuant to Article 14 of Regulation (EU) 2018/1999, or of the assessment of the subsequent draft and final integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of Regulation (EU) 2018/1999, the Commission concludes that policy measures do not ensure the achievement of the required amount of cumulative end-use energy savings by the end of the obligation period, the Commission may issue recommendations in accordance with Article 34 of Regulation (EU) 2018/1999 to the Member States whose policy measures it deems to be insufficient to ensure the fulfilment of their energy savings obligations.
13. Where a Member State has not achieved the required cumulative end-use energy savings by the end of each obligation period set out in paragraph 1, it shall achieve the outstanding energy savings in addition to the cumulative end-use energy savings required by the end of the following obligation period.

Alternatively, where a Member State has achieved cumulative end-use energy savings above the required level by the end of each obligation period set out in paragraph 1, it shall be entitled to carry the eligible amount of no more than 10 % of such surplus into the following obligation period without the target commitment being increased.

14. As part of their updates of national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, their relevant national energy and climate progress reports submitted pursuant to Article 17 of that Regulation, and their subsequent integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of that Regulation, Member States shall demonstrate including, where appropriate, with evidence and calculations:
- (a) that where there is an overlap in the impact of policy measures or individual actions, there is no double counting of energy savings;
 - (b) how energy savings achieved pursuant to paragraph 1, first subparagraph, point (b), of this Article, contribute to the achievement of their national contribution pursuant to Article 4;
 - (c) that policy measures are established for fulfilling their energy savings obligation, designed in compliance with this Article and that those policy measures are eligible and appropriate to ensure the achievement of the required amount of cumulative end-use energy savings by the end of each obligation period.

Article 9

Energy efficiency obligation schemes

1. Where Member States decide to fulfil their obligations to achieve the amount of savings required under Article 8(1) by way of an energy efficiency obligation scheme, they shall ensure that the obligated parties referred to in paragraph 3 of this Article operating in each Member State's territory achieve, without prejudice to Article 8(8) and (9), their cumulative end-use energy savings requirement as set out in Article 8(1).

Where applicable, Member States may decide that obligated parties fulfil those savings, in whole or in part, as a contribution to the national energy efficiency fund in accordance with Article 30(14).

2. Where Member States decide to fulfil their obligations to achieve the amount of savings required under Article 8(1) by way of an energy efficiency obligation scheme, they may appoint an implementing public authority to administer the scheme.
3. Member States shall designate, on the basis of objective and non-discriminatory criteria, obligated parties among transmission system operators, distribution system operators, energy distributors, retail energy sales companies and transport fuel distributors or transport fuel retailers operating in their territory. The amount of energy savings needed to fulfil the obligation shall be achieved by the obligated parties among final customers, designated by the Member State, independently of the calculation made pursuant to Article 8(1) or, if Member States so decide, through certified savings stemming from other parties as set out in paragraph 11, point (a), of this Article.

4. Where retail energy sales companies are designated as obligated parties under paragraph 3, Member States shall ensure that, in fulfilling their obligation, retail energy sales companies do not create any barriers that impede consumers from switching from one supplier to another.
5. Member States may require obligated parties to achieve a share of their energy savings obligation among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing. Member States may also require obligated parties to achieve energy cost reduction targets, provided that they result in end use energy savings and are calculated in accordance with Annex V, and to achieve energy savings by promoting energy efficiency improvement measures, including financial support measures mitigating carbon price effects on SMEs and microenterprises.
6. Member States may require obligated parties to work with social services, regional authorities, local authorities or municipalities to promote energy efficiency improvement measures among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing. This includes identifying and addressing the specific needs of particular groups at risk of energy poverty or more susceptible to its effects. To protect people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing, Member States shall encourage obligated parties to carry out actions such as renovation of buildings, including social housing, replacement of appliances, financial support and incentives for energy efficiency improvement measures in accordance with national financing and support schemes, or energy audits. Member States shall ensure the eligibility of measures for individual units located in multi-apartment buildings.

7. When applying paragraphs 5 and 6, Member States shall require obligated parties to report on an annual basis on the energy savings achieved by the obligated parties from actions promoted among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing, and shall require aggregated statistical information on their final customers, identifying changes in energy savings when compared to previously submitted information, and regarding technical and financial support provided.
8. Member States shall express the amount of energy savings required of each obligated party in terms of either primary energy consumption or final energy consumption. The method chosen to express the amount of energy savings required shall also be used to calculate the savings claimed by obligated parties. When converting the amount of energy savings, the net calorific values set out in Annex VI of Commission Implementing Regulation (EU) 2018/2066¹ and the primary energy factor pursuant to Article 31 shall apply unless the use of other conversion factors can be justified.

¹ Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012 (OJ L 334, 31.12.2018, p. 1).

9. Member States shall establish measurement, control and verification systems for carrying out documented verification on at least a statistically significant proportion and representative sample of the energy efficiency improvement measures put in place by the obligated parties. The measurement, control and verification shall be carried out independently of the obligated parties. Where an entity is an obligated party under a national energy efficiency obligation scheme under Article 9 and under the EU ETS for buildings and road transport in accordance with Directive 2003/87/EC, the monitoring and verification system shall ensure that the carbon price passed through when releasing fuel for consumption in accordance with Directive 2003/87/EC shall be taken into account in the calculation and reporting of energy savings of the entity's energy saving measures.
10. Member States shall inform the Commission, as part of the integrated national energy and climate progress reports submitted pursuant to Article 17 of Regulation (EU) 2018/1999, on the measurement, control and verification systems put in place, including the methods used, the issues identified and how those issues were addressed.
11. Within the energy efficiency obligation scheme, Member States may authorise obligated parties to carry out the following:
 - (a) count towards their obligation certified energy savings achieved by energy service providers or other third parties, including when obligated parties promote measures through other State-approved bodies or through public authorities that may involve formal partnerships and may be in combination with other sources of finance;

- (b) count savings obtained in a given year as if they had instead been obtained in any of the four previous or three following years as long as this is not beyond the end of the obligation periods set out in Article 8(1).

Where Member States so authorise, they shall ensure that the certification of energy savings referred to in point (a) of the first subparagraph follows an approval process that is put in place in the Member States, that is clear, transparent, and open to all market participants, and that aims to minimise the costs of certification.

Member States shall assess and, if appropriate, take measures to minimise the impact of the direct and indirect costs of energy efficiency obligation schemes on the competitiveness of energy-intensive industries exposed to international competition.

- 12. Member States shall, on an annual basis, publish the energy savings achieved by each obligated party, or each sub-category of obligated party, and in total under the scheme.

Article 10

Alternative policy measures

- 1. Where Member States decide to fulfil their obligations to achieve the savings required under Article 8(1) by way of alternative policy measures, they shall ensure, without prejudice to Article 8(8) and (9), that the energy savings required under Article 8(1) are achieved among final customers.

2. For all measures other than those relating to taxation, Member States shall put in place measurement, control and verification systems under which documented verification is carried out on at least a statistically significant proportion and representative sample of the energy efficiency improvement measures put in place by the participating or entrusted parties. The measurement, control and verification shall be carried out independently of the participating or entrusted parties.
3. Member States shall inform the Commission, as part of the integrated national energy and climate progress reports submitted pursuant to Article 17 of Regulation (EU) 2018/1999, on the measurement, control and verification systems put in place, including methods used, issues identified and how they were addressed.
4. When reporting a taxation measure, Member States shall demonstrate how the effectiveness of the price signal, such as tax rate and visibility over time, has been ensured in the design of the taxation measure. Where there is a decrease in the tax rate, Member States shall justify how the taxation measures still result in new energy savings.

Article 11

Energy management systems and energy audits

1. Member States shall ensure that enterprises with an average annual consumption higher than 85TJ of energy over the previous three years, taking all energy carriers together, implement an energy management system. The energy management system shall be certified by an independent body, in accordance with the relevant European or international standards.

Member States shall ensure that the enterprises referred to in the first subparagraph have an energy management system in place at the latest by ... [four years after the date of entry into force of this Directive].

2. Member States shall ensure that enterprises with an average annual consumption higher than 10TJ of energy over the previous three years, taking all energy carriers together, which do not implement an energy management system are subject to an energy audit.

Such energy audits shall be either:

- (a) carried out in an independent and cost-effective manner by qualified or accredited experts, in accordance with Article 28; or
- (b) implemented and supervised by independent authorities under national legislation.

Member States shall ensure that the enterprises referred to in the first subparagraph carry out a first energy audit by ... [three years after the date of entry into force of this Directive] and that subsequent energy audits are carried out at least every four years. Where such enterprises already carry out energy audits in accordance with the first subparagraph, they shall continue to do so at least every four years in accordance with this Directive.

The enterprises concerned shall draw up a concrete and feasible Action Plan on the basis of the recommendations arising from those energy audits. The Action Plan shall identify measures to implement each audit recommendation, where it is technically or economically feasible. The Action Plan shall be submitted to the management of the enterprise.

Member States shall ensure that the Action Plans and the recommendation implementation rate are published in the enterprise's annual report, and that they are made publicly available, subject to Union and national law protecting trade and business secrets and confidentiality.

3. Where, in any given year, an enterprise as referred to in paragraph 1 has an annual consumption of more than 85 TJ and where an enterprise as referred to in paragraph 2 has an annual consumption of more than 10TJ, Member States shall ensure that that information is made available to the national authorities responsible for implementation of this Article. For that purpose, Member States may promote the use of a new or an existing platform to facilitate the collection of the required data at national level.
4. Member States may encourage the enterprises referred to in paragraphs 1 and 2 to provide information in their annual report about their annual energy consumption in kWh, their annual volume of water consumption in cubic metres and a comparison of their energy and water consumption with previous years.
5. Member States shall promote the availability to all final customers of high quality energy audits which are cost-effective and are:
 - (a) carried out in an independent manner by qualified or accredited experts in accordance with qualification criteria; or
 - (b) implemented and supervised by independent authorities under national legislation.

The energy audits referred to in the first subparagraph may be carried out by in-house experts or energy auditors, provided that the Member State concerned has put in place a scheme to ensure their quality, including, if appropriate, an annual random selection of at least a statistically significant percentage of all the energy audits carried out by such in-house experts or energy auditors.

For the purpose of ensuring the high quality of the energy audits and energy management systems, Member States shall establish transparent and non-discriminatory minimum criteria for energy audits in accordance with Annex VI and taking into consideration relevant European or international standards. Member States shall designate a competent authority or body to ensure that the timelines for conducting energy audits set out in paragraph 2 of this Article are complied with and the minimum criteria set out in Annex VI are correctly applied.

Energy audits shall not include clauses preventing the findings of the audit from being transferred to any qualified or accredited energy service provider, provided that the customer does not object.

6. Member States shall develop programmes with the aim of encouraging and providing technical support to SMEs that are not subject to paragraph 1 or 2 to undergo energy audits and to subsequently implement the recommendations arising from those audits.

On the basis of transparent and non-discriminatory criteria and without prejudice to Union State aid law, Member States may set up mechanisms, such as energy audit centres for SMEs and microenterprises, provided that such mechanisms do not compete with private auditors, to provide energy audits. They may also provide other support schemes for SMEs, including where such SMEs have concluded voluntary agreements, to cover the costs of energy audits and of the implementation of highly cost-effective recommendations arising from the energy audits, if the measures proposed in those recommendations are implemented.

7. Member States shall ensure that the programmes referred to in paragraph 6 include support to SMEs in quantifying the multiple benefits of energy efficiency measures within their operation, in the development of energy efficiency roadmaps and in the development of energy efficiency networks for SMEs, facilitated by independent experts.

Member States shall bring to the attention of SMEs, including through their respective representative intermediary organisations, concrete examples of how energy management systems could help their businesses. The Commission shall assist Member States by supporting the exchange of best practices in this domain.

8. Member States shall develop programmes to encourage enterprises that are not SMEs and that are not subject to paragraph 1 or 2 to undergo energy audits and to subsequently implement the recommendations arising from those audits.

9. Energy audits shall be considered to comply with paragraph 2 where they are:
- (a) carried out in an independent manner, on the basis of the minimum criteria set out in Annex VI;
 - (b) implemented under voluntary agreements concluded between organisations of stakeholders and a body appointed and supervised by the Member State concerned, by another body to which the competent authorities have delegated the responsibility concerned or by the Commission.

Access of market participants offering energy services shall be based on transparent and non-discriminatory criteria.

10. Enterprises that implement an energy performance contract shall be exempt from the requirements laid down in paragraphs 1 and 2 of this Article, provided that the energy performance contract covers the necessary elements of the energy management system and that the contract complies with the requirements set out in Annex XV.
11. Enterprises that implement an environmental management system, certified by an independent body in accordance with the relevant European or international standards, shall be exempt from the requirements laid down in paragraphs 1 and 2 of this Article, provided that the environmental management system concerned includes an energy audit on the basis of the minimum criteria set out in Annex VI.

12. Energy audits may stand alone or be part of a broader environmental audit. Member States may require an assessment of the technical and economic feasibility of connection to an existing or planned district heating or cooling network to be part of the energy audit.

Without prejudice to Union State aid law, Member States may implement incentives and support schemes for the implementation of recommendations arising from energy audits and similar measures.

Article 12

Data centres

1. By 15 May 2024 and every year thereafter, Member States shall require owners and operators of data centres in their territory with a power demand of the installed information technology (IT) of at least 500kW, to make the information set out in Annex VII publicly available, except for information subject to Union and national law protecting trade and business secrets and confidentiality.
2. Paragraph 1 shall not apply to data centres used for, or providing their services exclusively with the final aim of, defence and civil protection.
3. The Commission shall establish a European database on data centres that includes information communicated by the obligated data centres in accordance with paragraph 1. The European database shall be publicly available on an aggregated level.

4. Member States shall encourage owners and operators of data centres in their territory with a power demand of the installed IT equal to or greater than 1 MW to take into account the best practices referred to in the most recent version of the European Code of Conduct on Data Centre Energy Efficiency.
5. By 15 May 2025, the Commission shall assess the available data on the energy efficiency of data centres submitted to it pursuant to paragraphs 1 and 3 and shall submit a report to the European Parliament and to the Council, accompanied, where appropriate, by legislative proposals containing further measures to improve energy efficiency, including establishing minimum performance standards and an assessment on the feasibility of transition towards a net-zero emission data centres sector, in close consultation with the relevant stakeholders. Such proposals may establish a timeframe within which existing data centres are to be required to meet minimum performance.

Article 13

Metering for natural gas

1. Member States shall ensure that, in so far as technically possible, financially reasonable, and proportionate to the potential energy savings, natural gas final customers are provided with competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use.

Such a competitively priced individual meter shall always be provided when:

- (a) an existing meter is replaced, unless this is technically impossible or not cost-effective in relation to the estimated potential savings in the long term;
- (b) a new connection is made in a new building or a building undergoes major renovations within the meaning of Directive 2010/31/EU.

2. Where, and to the extent that, Member States implement smart metering systems and roll out smart meters for natural gas in accordance with Directive 2009/73/EC:

- (a) they shall ensure that the metering systems provide to final customers information on actual time of use and that the objectives of energy efficiency and benefits for final customers are fully taken into account when establishing the minimum functionalities of the meters and the obligations imposed on market participants;
- (b) they shall ensure the security of the smart meters and data communication, and the privacy of final customers, in compliance with relevant Union data protection and privacy law;
- (c) they shall require that appropriate advice and information be given to customers at the time of installation of smart meters, in particular about their full potential with regard to meter reading management and the monitoring of energy consumption.

Article 14

Metering for heating, cooling and domestic hot water

1. Member States shall ensure that, for district heating, district cooling and domestic hot water, final customers are provided with competitively priced meters that accurately reflect their actual energy consumption.
2. Where heating, cooling or domestic hot water is supplied to a building from a central source that services multiple buildings or from a district heating or district cooling system, a meter shall be installed at the heat exchanger or point of delivery.

Article 15

Sub-metering and cost allocation for heating, cooling and domestic hot water

1. In multi-apartment and multi-purpose buildings with a central heating or central cooling source or supplied from a district heating or district cooling system, individual meters shall be installed to measure the consumption of heating, cooling or domestic hot water for each building unit, where technically feasible and cost effective in terms of being proportionate in relation to the potential energy savings.

Where the use of individual meters is not technically feasible or where it is not cost-efficient to measure heat consumption in each building unit, individual heat cost allocators shall be used to measure heat consumption at each radiator unless it is shown by the Member State in question that the installation of such heat cost allocators would not be cost-efficient. In those cases, alternative cost-efficient methods of heat consumption measurement may be considered. The general criteria, methodologies and procedures to determine technical non-feasibility and non-cost effectiveness shall be clearly set out and published by each Member State.

2. In new multi-apartment buildings and in residential parts of new multi-purpose buildings that are equipped with a central heating source for domestic hot water or are supplied from district heating systems, individual meters shall, notwithstanding paragraph 1, first subparagraph, be provided for domestic hot water.
3. Where multi-apartment or multi-purpose buildings are supplied from district heating or district cooling, or where own common heating or cooling systems for such buildings are prevalent, Member States shall ensure that they have in place transparent, publicly available national rules on the allocation of the cost of heating, cooling and domestic hot water consumption in such buildings to ensure transparency and accuracy of accounting for individual consumption. Where appropriate, such rules shall include guidelines on the manner in which to allocate cost for energy that is used for:
 - (a) domestic hot water;

- (b) heat radiated from the building installation and for the purpose of heating the common areas, where staircases and corridors are equipped with radiators;
- (c) heating or cooling apartments.

Article 16

Remote reading requirement

1. For the purposes of Articles 14 and 15, newly installed meters and heat cost allocators shall be remotely readable devices. The conditions of technical feasibility and cost effectiveness set out in Article 15(1) shall apply.
2. Meters and heat cost allocators which are not remotely readable but which have already been installed shall be rendered remotely readable or replaced with remotely readable devices by 1 January 2027, save where the Member State in question shows that this is not cost-efficient.

Article 17

Billing information for natural gas

1. Where final customers do not have smart meters for natural gas as referred to in Directive 2009/73/EC, Member States shall ensure that billing information for natural gas is reliable, accurate and based on actual consumption, in accordance with Annex VIII, point 1.1, where that is technically possible and economically justified.

This obligation may be fulfilled by a system of regular self-reading by the final customers whereby they communicate readings from their meter to the energy supplier. Only when the final customer has not provided a meter reading for a given billing interval shall billing be based on estimated consumption or a flat rate.

2. Meters installed in accordance with Directive 2009/73/EC shall enable the provision of accurate billing information based on actual consumption. Member States shall ensure that final customers have the possibility of easy access to complementary information on historical consumption allowing detailed self-checks.

Complementary information on historical consumption shall include:

- (a) cumulative data for at least the three previous years or the period since the start of the supply contract if this is shorter;
- (b) detailed data according to the time of use for any day, week, month and year.

The data referred to in point (a) of the second subparagraph shall correspond to the intervals for which frequent billing information has been produced.

The data referred to in point (b) of the second subparagraph shall be made available to the final customer via the internet or the meter interface for the period of at least the previous 24 months or the period since the start of the supply contract if this is shorter.

3. Independently of whether smart meters have been installed, Member States:
- (a) shall require that, to the extent that information on the energy billing and historical consumption of final customers is available, it be made available, at the request of the final customer, to an energy service provider designated by the final customer;
 - (b) shall ensure that final customers are offered the option of electronic billing information and bills and that they receive, on request, a clear and understandable explanation of how their bill was derived, especially where bills are not based on actual consumption;
 - (c) shall ensure that appropriate information is made available with the bill to provide final customers with a comprehensive account of current energy costs, in accordance with Annex VIII;
 - (d) may lay down that, at the request of the final customer, the information contained in those bills shall not be considered to constitute a request for payment. In such cases, Member States shall ensure that suppliers of energy sources offer flexible arrangements for actual payments;
 - (e) shall require that information and estimates for energy costs are provided to consumers on demand in a timely manner and in an easily understandable format enabling consumers to compare deals on a like-for-like basis.

Article 18

Billing and consumption information for heating, cooling and domestic hot water

1. Where meters or heat cost allocators are installed, Member States shall ensure that billing and consumption information is reliable, accurate and based on actual consumption or heat cost allocator readings, in accordance with Annex IX, points 1 and 2 for all final users.

That obligation may, where a Member State so provides, save in the case of sub-metered consumption based on heat cost allocators under Article 15, be fulfilled by a system of regular self-reading by the final customer or final user whereby they communicate readings from their meter. Only where the final customer or final user has not provided a meter reading for a given billing interval shall billing be based on estimated consumption or a flat rate.

2. Member States shall:
 - (a) require that, if information on the energy billing and historical consumption or heat cost allocator readings of final users is available, it be made available upon request from the final user, to an energy service provider designated by the final user;
 - (b) ensure that final customers are offered the option of electronic billing information and bills;
 - (c) ensure that clear and comprehensible information is provided with the bill to all final users in accordance with Annex IX, point 3;

- (d) promote cybersecurity and ensure the privacy and data protection of final users in accordance with applicable Union law.

Member States may provide that, at the request of the final customer, the provision of billing information shall not be considered to constitute a request for payment. In such cases, Member States shall ensure that flexible arrangements for actual payment are offered.

- 3. Member States shall decide who is to be responsible for providing the information referred to in paragraphs 1 and 2 to final users without a direct or individual contract with an energy supplier.

Article 19

Cost of access to metering and billing information for natural gas

Member States shall ensure that final customers receive all their bills and billing information for energy consumption free of charge and that final customers have access to their consumption data in an appropriate manner and free of charge.

Article 20

*Cost of access to metering and billing and consumption information
for heating, cooling and domestic hot water*

1. Member States shall ensure that final users receive all their bills and billing information for energy consumption free of charge and that final users have access to their consumption data in an appropriate manner and free of charge.
2. Notwithstanding paragraph 1 of this Article, the distribution of costs of billing information for the individual consumption of heating, cooling and domestic hot water in multi-apartment and multi-purpose buildings pursuant to Article 15 shall be carried out on a non-profit basis. Costs resulting from the assignment of that task to a third party, such as a service provider or the local energy supplier, covering the measuring, allocation and accounting for actual individual consumption in such buildings, may be passed onto the final users to the extent that such costs are reasonable.
3. In order to ensure reasonable costs for sub-metering services as referred to in paragraph 2, Member States may stimulate competition in that service sector by taking appropriate measures such as recommending or otherwise promoting the use of tendering or the use of interoperable devices and systems facilitating switching between service providers.

Chapter IV

Consumer information and empowerment

Article 21

Basic contractual rights for heating, cooling and domestic hot water

1. Without prejudice to Union rules on consumer protection, in particular Directive 2011/83/EU of the European Parliament and of the Council¹ and Council Directive 93/13/EEC², Member States shall ensure that final customers and, where explicitly referred to, final users, are granted the rights provided for in paragraphs 2 to 9 of this Article.

2. Final customers shall have the right to a contract with their supplier that specifies:
 - (a) the identity, address and contact details of the supplier;
 - (b) the services provided and the service quality levels included;
 - (c) the types of maintenance service included in the contract without additional charges;
 - (d) the means by which up-to-date information on all applicable tariffs, maintenance charges and bundled products or services may be obtained;

¹ Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council (OJ L 304, 22.11.2011, p. 64).

² Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts (OJ L 95, 21.4.1993, p. 29).

- (e) the duration of the contract, the conditions for renewal and termination of the contract and services, including products or services that are bundled with those services, and whether terminating the contract without charge is permitted;
- (f) any compensation and the refund arrangements which apply if contracted service quality levels are not met, including inaccurate or delayed billing;
- (g) the method of initiating an out-of-court dispute-settlement procedure in accordance with Article 22;
- (h) information relating to consumer rights, including information on complaint handling and all of the information referred to in this paragraph, which is clearly communicated in the bill or on the enterprise's website and includes the contact details or link to the website of the single points of contact referred to in Article 22(3), point (e);
- (i) the contact details enabling the customer to identify relevant one-stop shops as referred to in Article 22(3), point (a).

Suppliers' conditions shall be fair and shall be provided to final customers in advance. The information referred to in this paragraph shall be provided before the conclusion or confirmation of the contract. Where contracts are concluded through intermediaries, that information shall also be provided before the conclusion of the contract.

Final customers and final users shall be provided with a summary of the key contractual conditions, including prices and tariffs, in a comprehensible manner and in concise and simple language.

Final customers shall be provided with a copy of the contract and clear information, in a transparent manner, on applicable prices and tariffs and on standard terms and conditions in respect of access to and use of heating, cooling and domestic hot water services.

Member States shall decide who is to be responsible for providing the information referred to in this paragraph to final users without a direct or individual contract with a supplier, upon request, in an appropriate manner and free of charge.

3. Final customers shall be given adequate notice of any intention to modify contractual conditions. Suppliers shall notify their final customers, in a transparent and comprehensible manner, directly of any adjustment in the supply price and of the reasons and preconditions for the adjustment and its scope, at an appropriate time no later than two weeks, or no later than one month in the case of household customers, before the adjustment comes into effect. Final customers shall inform final users of the new conditions without delay.

4. Suppliers shall offer final customers a wide choice of payment methods. Such payment methods shall not unduly discriminate between customers. Any difference in charges related to payment methods or prepayment systems shall be objective, non-discriminatory and proportionate and shall not exceed the direct costs borne by the payee for the use of a specific payment method or a prepayment system, in accordance with Article 62 of Directive (EU) 2015/2366 of the European Parliament and of the Council¹.
5. Pursuant to paragraph 4, household customers who have access to prepayment systems shall not be placed at a disadvantage by the prepayment systems.
6. Final customers and, where applicable, final users shall be offered fair and transparent general terms and conditions, which shall be provided in plain and unambiguous language and shall not include non-contractual barriers to the exercise of customers' rights, such as excessive contractual documentation. Final users shall be provided access to those general terms and conditions upon request. Final customers and final users shall be protected against unfair or misleading selling methods. Final customers with disabilities shall be provided all relevant information on their contract with their supplier in accessible formats.
7. Final customers and final users shall have the right to a good standard of service and complaint-handling by their suppliers. Suppliers shall handle complaints in a simple, fair and prompt manner.

¹ Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, p. 35).

8. Competent authorities shall ensure that the consumer protection measures laid down in this Directive are enforced. The competent authorities shall act independently from any market interests.
9. In the case of planned disconnection, the final customers concerned shall be provided with adequate information on alternative measures sufficiently in advance, no later than one month before the planned disconnection and at no extra cost.

Article 22

Information and awareness raising

1. Member States, in cooperation with regional and local authorities, where applicable, shall ensure that information on available energy efficiency improvement measures, individual actions and financial and legal frameworks is transparent, accessible and widely disseminated to all relevant market actors, such as final customers, final users, consumer organisations, civil society representatives, renewable energy communities, citizen energy communities, local and regional authorities, energy agencies, social service providers, builders, architects, engineers, environmental and energy auditors, and installers of building elements as defined in Article 2, point (9), of Directive 2010/31/EU.
2. Member States shall take appropriate measures to promote and facilitate an efficient use of energy by final customers and final users. Those measures shall be part of a national strategy, such as the integrated national energy and climate plans provided for in Regulation (EU) 2018/1999, or the long-term renovation strategy established pursuant to Article 2a of Directive 2010/31/EU.

For the purposes of this Article, those measures shall include a range of instruments and policies to promote behavioural change such as:

- (a) fiscal incentives;
- (b) access to finance, vouchers, grants or subsidies;
- (c) publicly supported energy consumption assessments and targeted advisory services and support for household consumers, in particular people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing;
- (d) targeted advisory services for SMEs and microenterprises;
- (e) information provision in accessible form to people with disabilities;
- (f) exemplary projects;
- (g) workplace activities;
- (h) training activities;
- (i) digital tools;
- (j) engagement strategies.

3. For the purposes of this Article, the measures referred to in paragraph 2 shall include the creation of a supportive framework for market actors such as those referred to in paragraph 1, in particular for:
- (a) the creation of one-stop shops or similar mechanisms for the provision of technical, administrative and financial advice and assistance on energy efficiency, such as energy checks for households, energy renovations of buildings, information on the replacement of old and inefficient heating systems with modern and more efficient appliances and the take-up of renewable energy and energy storage for buildings to final customers and final users, especially household and small non-household ones, including SMEs and microenterprises;
 - (b) cooperation with private actors that provide services such as energy audits and energy consumption assessments, financing solutions and execution of energy renovations;
 - (c) the communication of cost-effective and easy-to-achieve changes in energy use;
 - (d) the dissemination of information on energy efficiency measures and financing instruments;
 - (e) the provision of single points of contact, to provide final customers and final users with all necessary information concerning their rights, the applicable law and the dispute-settlement mechanisms available to them in the event of a dispute. Such single points of contact may be part of general consumer information points.

4. For the purpose of this Article, Member States shall in cooperation with competent authorities, and, where appropriate, private stakeholders establish dedicated one-stop shops or similar mechanisms for the provision of technical, administrative and financial advice for energy efficiency. Those facilities shall:
 - (a) advise with streamlined information on technical and financial possibilities and solutions to households, SMEs, microenterprises, public bodies;
 - (b) provide holistic support to all households, with a particular focus on households affected by energy poverty and on worst performing buildings, as well as to accredited companies and installers providing retrofit services, adapted to different housing typologies and geographical scope, and provide support covering the different stages of the retrofit project, including to facilitate the implementation of a minimum energy performance standard where such standard is provided for in a Union legislative act;
 - (c) advise on energy consumption behaviour.
5. Dedicated one-stop shop facilities as referred to in paragraph 4 shall, where appropriate:
 - (a) provide information about qualified energy efficiency professionals;
 - (b) collect typology-aggregated data from energy efficiency projects, share experiences and make them publicly available;

- (c) connect potential projects with market players, in particular smaller-scale, local projects.

For the purposes of the first subparagraph, point (b), the Commission shall assist Member States in order to facilitate the sharing of, and enhance cross-border cooperation with regard to, best practices.

- 6. The one-stop shops referred to in paragraph 4 shall offer dedicated services for people affected by energy poverty, vulnerable customers and people in low-income households.

The Commission shall provide Member States with guidelines to develop those one-stop shops with the aim of creating a harmonised approach throughout the Union. The guidelines shall encourage cooperation among public bodies, energy agencies and community-led initiatives.

- 7. Member States shall establish appropriate conditions for market actors to provide adequate and targeted information and advice on energy efficiency to final customers, including people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing, SMEs and microenterprises.

8. Member States shall ensure that final customers, final users, people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing have access to simple, fair, transparent, independent, effective and efficient out-of-court mechanisms for the settlement of disputes concerning rights and obligations provided for in this Directive, through an independent mechanism such as an energy ombudsperson or a consumer body, or through a regulatory authority. Where the final customer is a consumer as defined in Article 4(1), point (a), of Directive 2013/11/EU of the European Parliament and of the Council¹, such out-of-court dispute settlement mechanisms shall comply with the requirements set out therein. Out-of-court dispute settlement mechanisms already existing in Member States may be used for that purpose, provided they are equally effective.

Where necessary, Member States shall ensure that alternative dispute resolution entities cooperate to provide simple, fair, transparent, independent, effective and efficient out-of-court dispute settlement mechanisms for any dispute that arises from products or services that are tied to, or bundled with, any product or service falling under the scope of this Directive.

The participation of enterprises in out-of-court dispute settlement mechanisms for household customers shall be mandatory unless the Member State demonstrates to the Commission that other mechanisms are equally effective.

¹ Directive 2013/11/EU of the European Parliament and of the Council of 21 May 2013 on alternative dispute resolution for consumer disputes and amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Directive on consumer ADR) (OJ L 165, 18.6.2013, p. 63).

9. Without prejudice to the basic principles of their laws on property and tenancy, Member States shall take the necessary measures to remove regulatory and non-regulatory barriers to energy efficiency as regards split incentives between owners and tenants, or among owners of a building or building unit, with a view to ensuring that those parties are not deterred from making efficiency-improving investments that they would otherwise have made by the fact that they will not individually obtain the full benefits or by the absence of rules for dividing the costs and benefits between them.

Measures to remove such barriers may include providing incentives, repealing or amending legal or regulatory provisions, adopting guidelines and interpretative communications, simplifying administrative procedures, including national rules and measures regulating decision-making processes in multi-owner properties, and the possibility to turn to third-party financing solutions. The measures may be combined with the provision of education, training and specific information and technical assistance on energy efficiency to market actors such as those referred to in paragraph 1.

Member States shall take appropriate measures to support a multilateral dialogue among relevant partners, such as local and regional authorities, the social partners, owners' and tenants' organisations, consumer organisations, energy distributors or retail energy sales companies, ESCOs, renewable energy communities, citizen energy communities, public authorities and agencies, with the aim of setting out proposals on jointly accepted measures, incentives and guidelines pertinent to split incentives between owners and tenants or among owners of a building or building unit.

Each Member State shall report such barriers and the measures taken in its long-term renovation strategy established pursuant to Article 2a of Directive 2010/31/EU and to Regulation (EU) 2018/1999.

10. The Commission shall encourage the exchange and wide dissemination of information on good energy efficiency practices and methodologies and provide technical assistance to mitigate split incentives in Member States.

Article 23

Partnerships for energy efficiency

1. By ... [12 months after the date of entry into force of this Directive], the Commission shall assess whether energy efficiency is covered by existing partnerships. If the assessment shows that energy efficiency is not sufficiently covered by existing partnerships, the Commission shall establish sector-specific energy efficiency partnerships at Union level, with sub-partnerships per missing sector, by bringing together key stakeholders, including the social partners, in sectors such as ICT, transport, finance and building, in an inclusive and representative manner.

If a partnership is established, the Commission shall appoint, where appropriate, a chair for each Union sector-specific energy efficiency partnership.

2. The partnerships referred to in paragraph 1 shall aim to facilitate climate and energy transition dialogues between the relevant actors and encourage sectors to draw up energy efficiency roadmaps in order to map available measures and technological options to achieve energy savings, prepare for renewable energy and decarbonise the sectors.

Such roadmaps would make a valuable contribution in assisting sectors in planning the necessary investments needed to reach the objectives of this Directive and of Regulation (EU) 2021/1119 as well as facilitate cross-border cooperation between actors to strengthen the internal market.

Article 24

Empowering and protecting vulnerable customers and alleviating energy poverty

1. Without prejudice to their national economic and social policies, and to their obligations under Union law, Member States shall take appropriate measures to empower and protect people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing.

In defining the concept of vulnerable customers pursuant to Article 3(3) of Directive 2009/73/EC and Article 28(1) of Directive (EU) 2019/944, Member States shall take into account final users.

2. Without prejudice to their national economic and social policies, and to their obligations under Union law, Member States shall implement energy efficiency improvement measures and related consumer protection or information measures, in particular those set out in Article 8(3) and Article 22 of this Directive, as a priority among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing to alleviate energy poverty. Monitoring and reporting of those measures shall be undertaken in the framework of the existing reporting requirements set out in Article 24 of Regulation (EU) 2018/1999.
3. To support people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing, Member States shall, where applicable:
 - (a) implement energy efficiency improvement measures to mitigate distributional effects from other policies and measures, such as taxation measures implemented in accordance with Article 10 of this Directive, or the application of emissions trading in the buildings and transport sector in accordance with Directive 2003/87/EC;
 - (b) make the best possible use of public funding available at Union and national level, including, where applicable, the financial contribution that Member States receive from the Social Climate Fund pursuant to Articles 9 and 14 of Regulation (EU) 2023/955, and revenues from allowance auctions from emissions trading pursuant to the EU ETS in accordance with Directive 2003/87/EC, for investments into energy efficiency improvement measures as priority actions;

- (c) carry out early, forward-looking investments in energy efficiency improvement measures before distributional impacts from other policies and measures show their effect;
 - (d) foster technical assistance and the roll-out of enabling funding and financial tools, such as on-bill schemes, local loan-loss reserve, guarantee funds, funds targeting deep renovations and renovations with minimum energy gains;
 - (e) foster technical assistance for social actors to promote vulnerable customer's active engagement in the energy market, and positive changes in their energy consumption behaviour;
 - (f) ensure access to finance, grants or subsidies bound to minimum energy gains and thus facilitate access to affordable bank loans or dedicated credit lines.
4. Member States shall establish a network of experts from various sectors such as the health, building and social sectors, or entrust an existing network, to develop strategies to support local and national decision makers in implementing energy efficiency improvement measures, technical assistance and financial tools aiming to alleviate energy poverty. Member States shall strive to ensure that the composition of the network of experts ensures gender balance and reflects the perspectives of all people.

Member States may entrust the network of experts to offer advice on:

- (a) national definitions, indicators and criteria of energy poverty, energy poor and vulnerable customers, including final users;
- (b) the development or improvement of relevant indicators and data sets, pertinent to the issue of energy poverty, that should be used and reported upon;
- (c) methods and measures to ensure affordability of living costs, the promotion of housing cost neutrality, or ways to ensure that public funding invested in energy efficiency improvement measures benefit both owners and tenants of buildings and building units, in particular regarding people affected by energy poverty, vulnerable customers, people in low-income households, and, where applicable, people living in social housing;
- (d) measures to prevent or remedy situations in which particular groups are more affected or more at risk of being affected by energy poverty or are more susceptible to the adverse impacts of energy poverty such as on the basis of their income, gender, health condition or membership of a minority group, and demographics.

Chapter V

Efficiency in energy supply

Article 25

Heating and cooling assessment and planning

1. As part of its integrated national energy and climate plan and its updates pursuant to Regulation (EU) 2018/1999, each Member State shall submit to the Commission a comprehensive heating and cooling assessment. That comprehensive assessment shall contain the information set out in Annex X to this Directive and shall be accompanied by the assessment carried out pursuant to Article 15(7) of Directive (EU) 2018/2001.

2. Member States shall ensure that stakeholders affected by the comprehensive assessment referred to in paragraph 1 are given the opportunity to participate in the preparation of heating and cooling plans, the comprehensive assessment and the policies and measures, whilst ensuring that the competent authorities do not disclose or publish trade secrets or business secrets that have been identified as such.

3. For the purpose of the comprehensive assessment referred to in paragraph 1, Member States shall carry out a cost-benefit analysis covering their territory on the basis of climate conditions, economic feasibility and technical suitability. The cost-benefit analysis shall be capable of facilitating the identification of the most resource- and cost-efficient solutions to meeting heating and cooling needs, taking into account the energy efficiency first principle. That cost-benefit analysis may be part of an environmental assessment under Directive 2001/42/EC of the European Parliament and of the Council¹.

Member States shall designate the competent authorities responsible for carrying out the cost-benefit analyses, provide the detailed methodologies and assumptions in accordance with Annex XI and establish and make public the procedures for the economic analysis.

4. Where the comprehensive assessment referred to in paragraph 1 of this Article and the analysis referred to in paragraph 3 of this Article identify a potential for the application of high-efficiency cogeneration and/or efficient district heating and cooling from waste heat, whose benefits exceed the costs, Member States shall take adequate measures for efficient district heating and cooling infrastructure to be developed, to encourage the development of installations for the utilisation of waste heat, including in the industrial sector, and/or to accommodate the development of high-efficiency cogeneration and the use of heating and cooling from waste heat and renewable energy sources in accordance with paragraph 1 of this Article and with Article 26(7) and (9).

¹ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (OJ L 197, 21.7.2001, p. 30).

Where the comprehensive assessment referred to in paragraph 1 of this Article and the analysis referred to in paragraph 3 of this Article do not identify a potential whose benefits exceed the costs, including the administrative costs of carrying out the cost-benefit analysis referred to in Article 26(7), the Member State concerned, together with the local and regional authorities, where applicable, may exempt installations from the requirements laid down in paragraphs 1 and 3 of this Article.

5. Member States shall adopt policies and measures which ensure that the potential identified in the comprehensive assessments carried out pursuant to paragraph 1 of this Article is realised. Those policies and measures shall include at least the elements set out in Annex X. Each Member State shall notify those policies and measures as part of the update of its integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999, its subsequent integrated national energy and climate plan notified pursuant to Article 3 and Articles 7 to 12 of that Regulation, and the relevant national energy and climate progress reports submitted pursuant to that Regulation.
6. Member States shall ensure that regional and local authorities prepare local heating and cooling plans at least in municipalities having a total population higher than 45 000. Those plans should at least:
 - (a) be based on the information and data provided in the comprehensive assessments carried out pursuant to paragraph 1 and provide an estimate and mapping of the potential for increasing energy efficiency, including via low-temperature district heating readiness, high efficiency cogeneration, waste heat recovery, and renewable energy in heating and cooling in that particular area;

- (b) be compliant with the energy efficiency first principle;
- (c) include a strategy for the use of the identified potential pursuant to point (a);
- (d) be prepared with the involvement of all relevant regional or local stakeholders and ensure the participation of general public, including operators of local energy infrastructure;
- (e) take into account the relevant existing energy infrastructure;
- (f) consider the common needs of local communities and multiple local or regional administrative units or regions;
- (g) assess the role of energy communities and other consumer-led initiatives that can actively contribute to the implementation of local heating and cooling projects;
- (h) include an analysis of heating and cooling appliances and systems in local building stocks, taking into account the area-specific potentials for energy efficiency measures and addressing the worst performing buildings and the needs of vulnerable households;
- (i) assess how to finance the implementation of policies and measures and identify financial mechanisms allowing consumers to shift to renewable heating and cooling;

- (j) include a trajectory to achieve the goals of the plans in line with climate neutrality and the monitoring of the progress of the implementation of policies and measures identified;
- (k) aim to replace old and inefficient heating and cooling appliances in public bodies with highly efficient alternatives with the aim of phasing out fossil fuels;
- (l) assess potential synergies with the plans of neighbouring regional or local authorities to encourage joint investments and cost efficiency.

Member States shall ensure that all relevant parties, including public and relevant private stakeholders, are given the opportunity to participate in the preparation of heating and cooling plans, the comprehensive assessment referred to in paragraph 1 and the policies and measures referred to in paragraph 5.

For that purpose, Member States shall develop recommendations supporting the regional and local authorities to implement policies and measures in energy efficient and renewable energy based heating and cooling at regional and local level utilising the potential identified. Member States shall support regional and local authorities to the utmost extent possible by any means, including financial support and technical support schemes.

Member States shall ensure that heating and cooling plans are aligned with other local climate, energy and environment planning requirements in order to avoid administrative burden for local and regional authorities and to encourage the effective implementation of the plans.

Local heating and cooling plans may be carried out jointly by a group of several neighbouring local authorities provided that the geographical and administrative context, as well as the heating and cooling infrastructure, is appropriate.

Local heating and cooling plans shall be assessed by a competent authority and, if necessary, followed by appropriate implementation measures.

Article 26

Heating and cooling supply

1. In order to ensure more efficient consumption of primary energy and to increase the share of renewable energy in heating and cooling supply going into the network, an efficient district heating and cooling system shall meet the following criteria:
 - (a) until 31 December 2027, a system using at least 50 % renewable energy, 50 % waste heat, 75 % cogenerated heat or 50 % of a combination of such energy and heat;
 - (b) from 1 January 2028, a system using at least 50 % renewable energy, 50 % waste heat, 50 % renewable energy and waste heat, 80 % of high-efficiency cogenerated heat or at least a combination of such thermal energy going into the network where the share of renewable energy is at least 5 % and the total share of renewable energy, waste heat or high-efficiency cogenerated heat is at least 50 %;

- (c) from 1 January 2035, a system using at least 50 % renewable energy, 50 % waste heat or 50 % renewable energy and waste heat, or a system where the total share of renewable energy, waste heat or high-efficiency cogenerated heat is at least 80 % and in addition the total share of renewable energy or waste heat is at least 35 %;
- (d) from 1 January 2040, a system using at least 75 % renewable energy, 75 % waste heat or 75 % renewable energy and waste heat, or a system using at least 95 % renewable energy, waste heat and high-efficiency cogenerated heat and in addition the total share of renewable energy or waste heat is at least 35 %;
- (e) from 1 January 2045, a system using at least 75 % renewable energy, 75 % waste heat or 75 % renewable energy and waste heat;
- (f) from 1 January 2050, a system using only renewable energy, only waste heat, or only a combination of renewable energy and waste heat.

2. Member States may also choose, as an alternative to the criteria set out in paragraph 1 of this Article, sustainability performance criteria based on the amount of GHG emissions from the district heating and cooling system per unit of heat or cold delivered to the customers, taking into consideration measures implemented to fulfil the obligation pursuant to Article 24(4) of Directive (EU) 2018/2001. When choosing those criteria, an efficient district heating and cooling system shall have the following maximum amount of GHG emissions per unit of heat or cold delivered to the customers:

- (a) until 31 December 2025: 200 grams/kWh;
- (b) from 1 January 2026: 150 grams/kWh;
- (c) from 1 January 2035: 100 grams/kWh;
- (d) from 1 January 2045: 50 grams/kWh;
- (e) from 1 January 2050: 0 grams/kWh.

3. Member States may choose to apply the criteria of GHG emissions per unit of heat or cold for any given period referred to in paragraph 2, points (a) to (e), of this Article. If they choose to do so, they shall notify the Commission by ... [three months after the date of the entry into force of this Directive] for the period referred to in paragraph 2, point (a), of this Article and at least six months before the beginning of the relevant periods referred to in paragraph 2, points (b) to (e), of this Article. Such a notification shall include the measures implemented to fulfil the obligation pursuant to Article 24(4) of Directive (EU) 2018/2001 if they have not already been notified in the latest update of their national energy and climate plan.

4. In order for a district heating and cooling system to qualify as efficient, Member States shall ensure that where it is built or its supply units are substantially refurbished, the district heating or cooling system meet the criteria set out in paragraph 1 or 2 applicable at the time when it starts or continues its operation after the refurbishment. In addition, Member States shall ensure that when a district heating and cooling system is built or its supply units are substantially refurbished:
 - (a) there is no increase in the use of fossil fuels other than natural gas in existing heat sources compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment; and
 - (b) any new heat sources in that system do not use fossil fuels, except natural gas, if built or substantially refurbished until 2030.

5. Member States shall ensure that as from 1 January 2025, and every five years thereafter, operators of all existing district heating and cooling systems with a total heat and cold output exceeding 5 MW and which do not meet the criteria set out in paragraph 1, points (b) to (e), prepare a plan to ensure more efficient consumption of primary energy, to reduce distribution losses and to increase the share of renewable energy in heating and cooling supply. The plan shall include measures to meet the criteria set out in paragraph 1, points (b) to (e), and shall require approval by the competent authority.
6. Member States shall ensure that data centres with a total rated energy input exceeding 1 MW utilise the waste heat or other waste heat recovery applications unless they can show that it is not technically or economically feasible in accordance with the assessment referred to in paragraph 7.
7. In order to assess the economic feasibility of increasing energy efficiency of heat and cooling supply, Member States shall ensure that an installation level cost-benefit analysis in accordance with Annex XI is carried out where the following installations are newly planned or substantially refurbished:
 - (a) a thermal electricity generation installation with an average annual total energy input exceeding 10 MW, in order to assess the cost and benefits of providing for the operation of the installation as a high-efficiency cogeneration installation;
 - (b) an industrial installation with an average annual total energy input exceeding 8 MW in order to assess utilisation of the waste heat on-site and off-site;

- (c) a service facility with an annual average total energy input exceeding 7 MW, such as wastewater treatment facilities and LNG facilities, in order to assess utilisation of waste heat on-site and off-site;
- (d) a data centre with a total rated energy input exceeding 1 MW level in order to assess the cost and benefit analysis, including, but not limited to, technical feasibility, cost-efficiency and the impact on energy efficiency and local heat demand, including seasonal variation, of utilising the waste heat to satisfy economically justified demand, and of the connection of that installation to a district heating network or an efficient/RES-based district cooling system or other waste heat recovery applications.

The analysis referred to in the first subparagraph, point (d), shall consider cooling system solutions that allow removing or capturing the waste heat at useful temperature level with minimal ancillary energy inputs.

Member States shall aim to remove barriers for the utilisation of waste heat and provide support for the uptake of waste heat where the installations are newly planned or refurbished.

The fitting of equipment to capture carbon dioxide produced by a combustion installation with a view to it being geologically stored as provided for in Directive 2009/31/EC shall not be considered as refurbishment for the purpose of points (b) and (c) of this paragraph.

Member States shall require the cost-benefit analysis to be carried out in cooperation with the companies responsible for the operation of the facility.

8. Member States may exempt from paragraph 7:

- (a) peak load and back-up electricity generating installations which are planned to operate under 1 500 operating hours per year as a rolling average over a period of five years, based on a verification procedure established by the Member States ensuring that this exemption criterion is met;
- (b) installations that need to be located close to a geological storage site approved under Directive 2009/31/EC;
- (c) data centres whose waste heat is or will be used in a district heating network or directly for space heating, domestic hot water preparation or other uses in the building or group of buildings or facilities where it is located.

Member States may also lay down thresholds, expressed in terms of the amount of available useful waste heat, the demand for heat or the distances between industrial installations and district heating networks, for exempting individual installations from paragraph 7, points (c) and (d).

Member States shall notify exemptions adopted under this paragraph to the Commission.

9. Member States shall adopt authorisation criteria as referred to in Article 8 of Directive (EU) 2019/944, or equivalent permit criteria, in order to:

- (a) take into account the outcome of the comprehensive assessment referred to in Article 25(1);

- (b) ensure that the requirements laid down in paragraph 7 are fulfilled;
 - (c) take into account the outcome of the cost-benefit analysis referred to in paragraph 7.
10. Member States may exempt individual installations from being required, by the authorisation or equivalent permit criteria referred to in paragraph 9, to implement options whose benefits exceed their costs, if there are imperative reasons of law, ownership or finance for doing so. In those cases the Member State concerned shall submit a reasoned decision to the Commission within three months of the date of taking that decision. The Commission may issue an opinion on the decision within three months of its receipt.
11. Paragraphs 7, 8, 9 and 10 of this Article shall apply to installations covered by Directive 2010/75/EU without prejudice to the requirements laid down in that Directive.
12. Member States shall collect information on cost-benefit analyses carried out in accordance with paragraph 7, points (a) to (d). That information should contain at least the data on available heat supply amounts and heat parameters, number of planned operating hours every year and geographical location of the sites. Those data shall be published with due respect for their potential sensitivity.

13. On the basis of the harmonised efficiency reference values referred to in Annex III, point (d), Member States shall ensure that the origin of electricity produced from high-efficiency cogeneration can be guaranteed according to objective, transparent and non-discriminatory criteria laid down by each Member State. They shall ensure that that guarantee of origin complies with the requirements laid down in, and contains at least the information specified in, Annex XII. Member States shall mutually recognise their guarantees of origin, exclusively as proof of the information referred to in this paragraph. Any refusal to recognise a guarantee of origin as such proof, in particular for reasons relating to the prevention of fraud, shall be based on objective, transparent and non-discriminatory criteria. Member States shall notify the Commission of such refusal and set out the reasons for it. In the event of a refusal to recognise a guarantee of origin, the Commission may adopt a decision to compel the refusing party to recognise it, in particular with regard to objective, transparent and non-discriminatory criteria on which such recognition is based.
14. Member States shall ensure that any available support for cogeneration is subject to the electricity produced originating from high-efficiency cogeneration and the waste heat being effectively used to achieve primary energy savings. Public support to cogeneration and district heating generation and networks shall be subject to State aid rules, where applicable.

Article 27

Energy transformation, transmission and distribution

1. National energy regulatory authorities shall apply the energy efficiency first principle, in accordance with Article 3 of this Directive, in carrying out the regulatory tasks provided for in Directives 2009/73/EC and (EU) 2019/944 regarding their decisions on the operation of the gas and electricity infrastructure, including their decisions on network tariffs. In addition to the energy efficiency first principle, national energy regulatory authorities may take into account cost efficiency, system efficiency and security of supply, and market integration, while safeguarding the Union's climate targets and sustainability, as set out in Article 18 of Regulation (EU) 2019/943 and in Article 13 of Regulation (EC) No 715/2009.

2. Member States shall ensure that gas and electricity transmission and distribution system operators apply the energy efficiency first principle, in accordance with Article 3 of this Directive, in their network planning, network development and investment decisions. National regulatory authorities or other designated national authorities shall verify that methodologies used by transmission system operators and distribution system operators assess alternatives in the cost-benefit analysis and take into account the wider benefits of energy efficiency solutions, demand-side flexibility and investment into assets that contribute to climate change mitigation. National regulatory authorities and other designated authorities shall also verify the implementation of the energy efficiency first principle by the transmission system operators or distribution system operators when approving, verifying or monitoring their projects and network development plans pursuant to Article 22 of Directive 2009/73/EC and to Article 32(3) and Article 51 of Directive (EU) 2019/944. National regulatory authorities may provide methodologies and guidance on how to assess alternatives in the cost-benefit analysis in close cooperation with the transmission system operators and distribution system operators, which can share key technical expertise.

3. Member States shall ensure that transmission and distribution system operators monitor and quantify the overall volume of network losses and, where it is technically and financially feasible, optimise networks and improve network efficiency. Transmission and distribution system operators shall report those measures and expected energy savings through the reduction of network losses to the national energy regulatory authority. Member States shall ensure that transmission and distribution system operators assess energy efficiency improvement measures with regard to their existing gas or electricity transmission or distribution systems and improve energy efficiency in infrastructure design and operation, especially in terms of smart grid deployment. Member States shall encourage transmission and distribution system operators to develop innovative solutions to improve the energy efficiency of existing and future systems through incentive-based regulations in accordance with the tariff principles set out in Article 18 of Regulation (EU) 2019/943 and Article 13 of Regulation (EC) No 715/2009.
4. National energy regulatory authorities shall include a specific section on the progress achieved in energy efficiency improvements regarding the operation of the gas and electricity infrastructure in the annual report drawn up pursuant to Article 41 of Directive 2009/73/EC and pursuant to Article 59(1), point (i), of Directive (EU) 2019/944. In those reports, national energy regulatory authorities shall provide an assessment of the overall efficiency in the operation of the gas and electricity infrastructure, the measures carried out by transmission and distribution system operators and, where applicable, provide recommendations for energy efficiency improvements, including cost-efficient alternatives that reduce peak loads and overall electricity use.

5. For electricity, Member States shall ensure that network regulation and network tariffs fulfil the criteria set out in Annex XIII, taking into account network codes and guidelines developed pursuant to Regulation (EU) 2019/943 and the obligation set out in Article 59(7), point (a), of Directive (EU) 2019/944 to allow for necessary investments in the networks to be carried out in a manner ensuring the viability of the networks.
6. Member States may permit components of schemes and tariff structures with a social aim for net-bound energy transmission and distribution, provided that any disruptive effects on the transmission and distribution system are kept to the minimum necessary and are not disproportionate to the social aim.
7. National regulatory authorities shall ensure the removal of those incentives in transmission and distribution tariffs that are detrimental to the energy efficiency of the generation, transmission, distribution and supply of electricity and gas. Member States shall ensure efficiency in infrastructure design and the operation of the existing infrastructure, in accordance with Regulation (EU) 2019/943, and that tariffs allow for demand response.
8. Transmission system operators and distribution system operators shall comply with Annex XIV.

9. Where appropriate, national regulatory authorities may require transmission system operators and distribution system operators to encourage high-efficiency cogeneration to be located close to areas of heat demand by reducing the connection and use-of-system charges.
10. Member States may allow producers of electricity from high-efficiency cogeneration wishing to be connected to the grid to issue a call for tender for the connection work.
11. When reporting under Directive 2010/75/EU, and without prejudice to Article 9(2) of that Directive, Member States shall consider including information on energy efficiency levels of installations undertaking the combustion of fuels with total rated thermal input of 50 MW or more in the light of the relevant best available techniques developed in accordance with Directive 2010/75/EU.

Chapter VI

Horizontal provisions

Article 28

Availability of qualification, accreditation and certification schemes

1. Member States shall set up a network ensuring the appropriate level of competences for energy efficiency-related professions that corresponds to market needs. Member States, in close cooperation with the social partners, shall ensure that certification or equivalent qualification schemes, including, where necessary, suitable training programmes, are available for energy efficiency-related professions including providers of energy services, providers of energy audits, energy managers, independent experts, installers of building elements as referred to in Directive 2010/31/EU, and providers of integrated renovation works, and are reliable and contribute to national energy efficiency objectives and the overall Union decarbonisation objectives.

Member States shall ensure that providers of certification or equivalent qualification schemes, including, where necessary, suitable training programmes are accredited in accordance with Regulation (EC) No 765/2008 of the European Parliament and of the Council¹ or approved in line with converging national legislation or standards.

¹ Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and repealing Regulation (EEC) No 339/93 (OJ L 218, 13.8.2008, p. 30).

2. Member States shall promote participation in certification, training and education programmes to ensure the appropriate level of competences for energy efficiency professions that correspond to market needs.
3. By ... [12 months after the date of entry into force of this Directive], the Commission shall:
 - (a) in cooperation with a group of experts nominated by Member States, set up a framework for or design a campaign to attract more people to energy efficiency professions while ensuring respect for the principle of non-discrimination;
 - (b) assess the viability of setting up a single point of access platform, making use of existing initiatives where possible, to provide support to the Member States in setting up their measures to ensure the appropriate level of qualified professionals needed to keep up with the pace of progress in energy efficiency to reach the Union's climate and energy targets. The platform would gather experts from Member States, the social partners, education institutions, academia and other relevant stakeholders to foster and promote best practices of qualification schemes and training programmes to ensure more energy efficiency professionals and to re-skill or up-skill existing professionals in order to meet market needs.
4. Member States shall ensure that national certification, or equivalent qualification schemes, including, where necessary, training programmes, take into account existing European or international standards on energy efficiency.

5. Member States shall make publicly available the certification, equivalent qualification schemes or suitable training programmes referred to in paragraph 1, and shall cooperate among themselves and with the Commission on comparisons between, and recognition of, the schemes.

Member States shall take appropriate measures to make consumers aware of the availability of the schemes in accordance with Article 29(1).

6. By 31 December 2024 and at least every four years thereafter, Member States shall assess whether the schemes ensure the necessary level of competences and equal access to all individuals in accordance with the principle of non-discrimination for energy services providers, energy auditors, energy managers, independent experts, installers of building elements as referred to in Directive 2010/31/EU, and providers of integrated renovation works. Member States shall also assess the gap between available and in demand professionals. Member States shall make the assessment and recommendations thereof publicly available and submit them through the e-platform established in accordance with Article 28 of Regulation (EU) 2018/1999.

Article 29

Energy services

1. Member States shall promote the energy services market and access to it for SMEs by disseminating clear and easily accessible information on:
 - (a) available energy service contracts and clauses that should be included in such contracts to guarantee energy savings and final customers' rights;

- (b) financial instruments, incentives, grants, revolving funds, guarantees, insurance schemes, and loans to support energy efficiency service projects;
 - (c) available energy services providers, such as ESCOs, that are qualified or certified and their qualifications or certifications in accordance with Article 28;
 - (d) available monitoring and verification methodologies and quality control schemes.
2. Member States shall encourage the development of quality labels, inter alia, by trade associations, based on European or international standards where relevant.
 3. Member States shall make publicly available and regularly update a list of available energy service providers that are qualified or certified and their qualifications or certifications in accordance with Article 28, or provide an interface where energy service providers can provide that information.
 4. Member States shall promote and ensure, where technically and economically feasible, the use of energy performance contracting for renovations of large buildings that are owned by public bodies. For renovations of large non-residential buildings with a total useful floor area above 750 m², Member States shall ensure that public bodies assess the feasibility of using energy performance contracting and other performance-based energy services.

Member States may encourage public bodies to combine energy performance contracting with expanded energy services, including demand response and storage, in order to ensure energy savings and maintain the results obtained over time through continuous monitoring, effective operation and maintenance.

5. Member States shall support the public sector in taking up energy service offers, in particular for building refurbishment, by:
 - (a) providing model contracts for energy performance contracting which include at least the items listed in Annex XV and take into account the existing European or international standards, available tendering guidelines and the Eurostat guide to the statistical treatment of energy performance contracts in government accounts;
 - (b) providing information on best practices for energy performance contracting, including, if available, a cost-benefit analysis using a life-cycle approach;
 - (c) promoting and making publicly available a database of implemented and ongoing energy performance contracting projects that includes the projected and achieved energy savings.

6. Member States shall support the proper functioning of the energy services market, by taking the following measures:
 - (a) identifying and publicising one or more points of contact where final customers can obtain the information referred to in paragraph 1;

- (b) removing the regulatory and non-regulatory barriers that impede the uptake of energy performance contracting and other energy efficiency service models for the identification or implementation of energy saving measures, or both;
 - (c) setting up and promoting the role of advisory bodies and independent market intermediaries including one-stop shops or similar support mechanisms to stimulate market development on the demand and supply sides, and making information about those support mechanisms publicly available and accessible to market actors.
7. For the purpose of supporting the proper functioning of the energy services market, Member States may establish an individual mechanism or designate an ombudsperson to ensure the efficient handling of complaints and out-of-court settlement of disputes arising from energy service and energy performance contracts.
8. Member States shall ensure that energy distributors, distribution system operators and retail energy sales companies refrain from any activities that may impede the demand for and delivery of energy services or energy efficiency improvement measures, or hinder the development of markets for such services or measures, including foreclosing the market for competitors or abusing dominant positions.

Article 30

National energy efficiency fund, financing and technical support

1. Without prejudice to Articles 107 and 108 TFEU, Member States shall facilitate the establishment of financing facilities, or the use of existing ones, for energy efficiency improvement measures to maximise the benefits of multiple streams of financing and the combination of grants, financial instruments and technical assistance.
2. The Commission shall, where appropriate, directly or via financial institutions, assist Member States in setting up financing facilities and project development assistance facilities at national, regional or local level with the aim of increasing investments in energy efficiency in different sectors and of protecting and empowering people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing, including by integrating an equality perspective so that no one is left behind.

3. Member States shall adopt measures that promote energy efficiency lending products, such as green mortgages and green loans, secured and unsecured, and ensure that they are offered widely and in a non-discriminatory manner by financial institutions and, are visible and accessible to consumers. Member States shall adopt measures to facilitate the implementation of on-bill and on-tax financing schemes, taking into account the Commission guidance provided in accordance with paragraph 10. Member States shall ensure that banks and other financial institutions receive information on opportunities to participate in the financing of energy efficiency improvement measures, including through the creation of public-private partnerships. Member States shall encourage the setting up of loan guarantee facilities for energy efficiency investment.
4. Without prejudice to Articles 107 and 108 TFEU, Member States shall promote the establishment of financial support schemes to increase the uptake of energy efficiency improvement measures for the substantial refurbishment of individual and district heating and cooling systems.
5. Member States shall promote the establishment of local expertise and technical assistance, where appropriate through existing networks and facilities, to advise on best practices with regard to achieving the decarbonisation of local district heating and cooling, such as access to dedicated financial support.

6. The Commission shall facilitate the exchange of best practices between the competent national or regional authorities or bodies, including through annual meetings of the regulatory bodies, public databases with information on the implementation of measures by Member States, and cross-country comparisons.
7. In order to mobilise private financing for energy efficiency measures and energy renovation and to contribute to the achievement the Union's energy efficiency targets and of the national contributions pursuant to Article 4 of this Directive and of the objectives in Directive 2010/31/EU, the Commission shall conduct a dialogue with both public and private financial institutions, as well as relevant specific sectors in order to map out needs and possible actions it can take.
8. The actions referred to in paragraph 7 shall include the following elements:
 - (a) mobilising capital investment into energy efficiency by considering the wider impacts of energy savings;
 - (b) facilitating the implementation of dedicated energy efficiency financial instruments and financing schemes at scale to be set up by financial institutions;
 - (c) ensuring better energy and finance performance data by:
 - (i) examining further how energy efficiency investments improve underlying asset values;

- (ii) supporting studies to assess the monetisation of the non-energy benefits of energy efficiency investments.

9. For the purpose of mobilising private financing of energy efficiency measures and energy renovation, Member States shall, when implementing this Directive:

- (a) consider ways to make better use of energy management systems and energy audits under Article 11 to influence decision-making;
- (b) make optimal use of the possibilities and tools available in the Union budget and proposed in the smart finance for smart buildings initiative and in Commission communication of 14 October 2020 on ‘A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives’.

10. By 31 December 2024, the Commission shall provide guidance for Member States and market actors on how to unlock private investment.

The guidance shall have the purpose of helping Member States and market actors to develop and implement their energy efficiency investments, including in the various Union programmes, and shall propose adequate financial mechanisms and innovative financing solutions, with a combination of grants, financial instruments and project development assistance, to scale up existing initiatives and use the Union programmes as a catalyst to leverage and trigger private financing.

11. Member States may set up a national energy efficiency fund. The purpose of this fund shall be to implement energy efficiency measures to support Member States in meeting their national energy efficiency contributions and their indicative trajectories referred to in Article 4(2). The national energy efficiency fund may be established as a dedicated fund within an already existing national facility promoting capital investments. The national energy efficiency fund may be financed with revenues from the allowance auctions pursuant to the EU ETS on buildings and transport sectors.
12. Where Member States set up national energy efficiency funds, as referred to in paragraph 11 of this Article, they shall establish financing instruments, including public guarantees, to increase the uptake of private investments in energy efficiency and of the energy efficiency lending products and innovative schemes referred to in paragraph 3 of this Article. Pursuant to Article 8(3) and Article 24, the national energy efficiency fund shall support the implementation of measures as a priority among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing. That support shall include financing for energy efficiency measures for SMEs in order to leverage and trigger private financing for SMEs.
13. Member States may allow public bodies to fulfil the obligations set out in Article 6(1) by means of annual contributions to the national energy efficiency fund equivalent to the amount of the investments required to achieve those obligations.

14. Member States may provide that obligated parties can fulfil their obligations set out in Article 8(1) and (4) by contributing every year to the national energy efficiency fund an amount equal to the investments required to achieve those obligations.
15. Member States may use their revenues from annual emission allocations under Decision No 406/2009/EC for the development of innovative financing for energy efficiency improvements.
16. The Commission shall assess the effectiveness and efficiency of energy efficiency public funding support at Union and national level and the Member States' capacity to increase the uptake of private investments in energy efficiency, while also taking into account public financing needs expressed in the national energy and climate plans. The Commission shall evaluate whether an energy efficiency mechanism at Union level, with the objective of providing a Union guarantee, technical assistance and associated grants to enable the implementation of financial instruments, and financing and support schemes at national level, could support in a cost-effective way the achievement of the Union energy efficiency and climate targets, and, if appropriate, propose the establishment of such a mechanism.

To that end, the Commission shall submit by 30 March 2024 a report to the European Parliament and to the Council, accompanied, where appropriate, by legislative proposals.

17. Member States shall report to the Commission by 15 March 2025 and every two years thereafter, as part of their integrated national energy and climate progress reports submitted pursuant to Article 17 and in accordance with Article 21 of Regulation (EU) 2018/1999, the following data:

- (a) the volume of public investments on energy efficiency and the average leverage factor achieved by public funding supporting energy efficiency measures;
- (b) the volume of energy efficiency lending products, distinguishing between different products;
- (c) where relevant, national financing programmes put in place to increase uptake of energy efficiency and best practices, and innovative financing schemes for energy efficiency.

To facilitate the preparation of the report referred to in the first subparagraph of this paragraph, the Commission shall integrate the requirements set out in that subparagraph in the common template laid down in the implementing acts adopted pursuant to Article 17(4) of Regulation (EU) 2018/1999.

18. For the purpose of fulfilling the obligation referred to in paragraph 17, point (b), and without prejudice to additional national measures, Member States shall take into consideration the existing disclosure obligations for financial institutions, including:

- (a) the disclosure rules for credit institutions under Commission Delegated Regulation (EU) 2021/2178¹;
- (b) the ESG risks disclosure requirements for credit institutions in accordance with Article 449a of Regulation (EU) No 575/2013 of the European Parliament and of the Council².

To facilitate the collection and aggregation of data on volume of energy efficiency lending product for the purpose of fulfilling the obligation referred to in paragraph 17, point (b), the Commission shall by 15 March 2024 provide guidance to Member States on the arrangements for accessing, collecting and aggregating data on the volume of energy efficiency lending products at national level.

¹ Commission Delegated Regulation (EU) 2021/2178 of 6 July 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifying the methodology to comply with that disclosure obligation (OJ L 443, 10.12.2021, p. 9).

² Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and amending Regulation (EU) No 648/2012 (OJ L 176 27.6.2013, p. 1).

Article 31

Conversion factors and primary energy factors

1. For the purpose of comparison of energy savings and conversion to a comparable unit, the net calorific values in Annex VI of Regulation (EU) 2018/2066 and the primary energy factors set out in paragraph 2 of this Article shall apply unless the use of other values or factors can be justified.
2. A primary energy factor shall be applicable when energy savings are calculated in primary energy terms using a bottom-up approach based on final energy consumption.
3. For savings in kWh electricity, Member States shall apply a coefficient in order to accurately calculate the resulting primary energy consumption savings. Member States shall apply a default coefficient of 1,9 unless they use their discretion to define a different coefficient based upon justified national circumstances.
4. For savings in kWh of other energy carriers, Member States shall apply a coefficient in order to accurately calculate the resulting primary energy consumption savings.
5. Where Member States establish their own coefficient to a default value provided pursuant to this Directive, Member States shall establish that coefficient through a transparent methodology on the basis of national, regional or local circumstances affecting primary energy consumption. The circumstances shall be substantiated, verifiable and based on objective and non-discriminatory criteria.

6. Where establishing an own coefficient, Member States shall take into account the energy mix included in the update of their integrated national energy and climate plans submitted pursuant to Article 14(2) of Regulation (EU) 2018/1999 and their subsequent integrated national energy and climate plans notified to the Commission pursuant to Article 3 and Articles 7 to 12 of that Regulation. If they deviate from the default value, Member States shall notify the coefficient that they use to the Commission along with the calculation methodology and underlying data in those updates and subsequent plans.
7. By 25 December 2026 and every four years thereafter, the Commission shall revise the default coefficients on the basis of observed data. Those revisions shall be carried out taking into account its effects on Union law such as Directive 2009/125/EC and Regulation (EU) 2017/1369.

Chapter VII

Final provisions

Article 32

Penalties

Member States shall lay down the rules on penalties applicable to infringements of national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for shall be effective, proportionate and dissuasive. Member States shall by ... [two years after the date of entry into force of this Directive] notify the Commission of those rules and of those measures and shall notify it without delay of any subsequent amendment affecting them.

Article 33

Delegated acts

1. The Commission is empowered to adopt delegated acts in accordance with Article 34 to review the harmonised efficiency reference values laid down in Regulation (EU) 2015/2402.
2. The Commission is empowered to adopt delegated acts in accordance with Article 34 to amend this Directive by adapting to technical progress the values, calculation methods, default primary energy coefficients and the requirements referred to in Article 31 and in Annexes II, III, V, VIII to XII, and XIV.

3. The Commission is empowered to adopt delegated acts in accordance with Article 34 to supplement this Directive by establishing, after having consulted the relevant stakeholders, a common Union scheme for rating the sustainability of data centres located in its territory. The Commission shall adopt the first such delegated act by 31 December 2023. The common Union scheme shall establish the definition of data centre sustainability indicators and shall set out the key performance indicators and the methodology to measure them.

Article 34

Exercise of the delegation

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
2. The power to adopt delegated acts referred to in Article 33 shall be conferred on the Commission for a period of five years from ... [the date of entry into force of this 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.
3. The delegation of power referred to in Article 33 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.

4. Before adopting a delegated act, the Commission shall consult experts designated by each Member State in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making.
5. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
6. A delegated act adopted pursuant to Article 33 shall enter into force only if no objection has been expressed either by the European Parliament or by the Council within a period of two months of notification of that act to the European Parliament and 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.

Article 35

Review and monitoring of implementation

1. In the context of its State of the Energy Union report submitted pursuant to Article 35 of Regulation (EU) 2018/1999, the Commission shall report on the functioning of the carbon market in accordance with Article 35(1) and Article 35(2), point (c), of that Regulation, taking into consideration the effects of the implementation of this Directive.

2. By 31 October 2025 and every four years thereafter, the Commission shall evaluate the existing measures to achieve energy efficiency increase and decarbonisation in heating and cooling. The evaluation shall take into account all of the following:
- (a) energy efficiency and GHG emissions trends in heating and cooling, including in district heating and cooling;
 - (b) interlinkages between measures taken;
 - (c) changes in energy efficiency and greenhouse gas emissions in the heating and cooling;
 - (d) existing and planned energy efficiency policies and measures and greenhouse gas reduction policies and measures at Union and national level;
 - (e) measures which Member States provided in their comprehensive assessments pursuant to Article 25(1) of this Directive and notified in accordance with Article 17(1) of Regulation (EU) 2018/1999.

By 31 October 2025 and every four years thereafter, the Commission shall submit a report to the European Parliament and to the Council on that evaluation and, if appropriate, propose measures to ensure the achievement of the Union's climate and energy targets.

3. Member States shall submit to the Commission before 30 April each year statistics on national electricity and heat production from high and low efficiency cogeneration, in accordance with the general principles set out in Annex II, in relation to total heat and electricity production. They shall also submit annual statistics on cogeneration heat and electricity capacities and fuels for cogeneration, and on district heating and cooling production and capacities, in relation to total heat and electricity production and capacities. Member States shall submit statistics on primary energy savings achieved by the application of cogeneration in accordance with the methodology set out in Annex III.
4. By 1 January 2021, the Commission shall submit a report to the European Parliament and to the Council, on the basis of an assessment of the potential for energy efficiency in conversion, transformation, transmission, transportation and storage of energy, accompanied, where appropriate, by legislative proposals.
5. By 31 December 2021, the Commission shall, subject to any changes to the provisions relating to retail markets in Directive 2009/73/EC, carry out an assessment, and submit a report to the European Parliament and to the Council, on the provisions related to metering, billing and consumer information for natural gas, with the aim of aligning them, where appropriate, with the relevant provisions for electricity in Directive (EU) 2019/944, in order to strengthen consumer protection and enable final customers to receive more frequent, clear and up-to-date information about their natural gas consumption and to regulate their energy use. As soon as possible after the submission of that report, the Commission shall, where appropriate, adopt legislative proposals.

6. By 31 October 2022, the Commission shall assess whether the Union has achieved its 2020 headline targets on energy efficiency.
7. By 28 February 2027 and every five years thereafter, the Commission shall evaluate the implementation of this Directive and submit a report to the European Parliament and to the Council.

That evaluation shall include:

- (a) an assessment of the general effectiveness of this Directive and the need to further adjust the Union's energy efficiency policy in accordance with the objectives of the Paris Agreement and in light of economic and innovation developments;
- (b) a detailed assessment of the aggregated macroeconomic impact of this Directive, with an emphasis on the effects on the Union's energy security, energy prices, minimising energy poverty, economic growth, competitiveness, job creation, mobility cost and household purchasing power;
- (c) the Union's 2030 headline targets on energy efficiency set out in Article 4(1) with a view to revising those targets upwards in the event of substantial cost reductions resulting from economic or technological developments, or where needed to meet the Union's decarbonisation targets for 2040 or 2050, or its international commitments for decarbonisation;

- (d) whether Member States are to continue to achieve new annual savings in accordance with Article 8(1), first subparagraph, point (b)(iv), for a ten-year periods after 2030;
- (e) whether Member States are to continue to ensure that at least 3 % of the total floor area of heated and/or cooled buildings that are owned by public bodies is renovated each year in accordance with Article 6(1) with a view to revising the renovation rate in that Article;
- (f) whether Member States are to continue to achieve a share of energy savings among people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing, pursuant to Article 8(3) for the ten-year periods after 2030;
- (g) whether Member States are to continue to achieve a reduction of final energy consumption in accordance with Article 5(1);
- (h) the impacts of this Directive on supporting economic growth, increasing industrial output, the deployment of renewables or advanced efforts to climate neutrality.

The evaluation shall also cover the effects on efforts to electrify the economy and the introduction of hydrogen, including whether any change to the treatment of clean renewable energy sources might be justified, and shall propose, where appropriate, solutions to any potentially identified adverse effect.

That report shall be accompanied by a detailed assessment of whether there is a need to amend this Directive in the interests of regulatory simplification and, where appropriate, by proposals for further measures.

8. By 31 October 2032, the Commission shall assess whether the Union has achieved its 2030 headline targets on energy efficiency.

Article 36

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with Articles 1, 2 and 3, Article 4(1) to (4), Article 4(5), first, second, fourth, fifth and sixth subparagraphs, Article 4(6) and (7), Articles 5 to 11, Article 12(2) to (5), Articles 21 to 25, Article 26(1), (2) and (4) to (14), Article 27, Article 28(1) to (5), Articles 29 to 32 and Annexes I, III to VII, X, XI and XV by ... [two years after the date of entry into force of this Directive].

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with Article 4(5), third subparagraph, Article 12(1), Article 26(3) and Article 28(6) by the dates referred to therein. They shall immediately communicate the text of those measures to the Commission.

When Member States adopt those measures, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. They shall also include a statement that references in existing laws, regulations and administrative provisions to the Directive repealed by this Directive shall be construed as references to this Directive. Member States shall determine how such reference is to be made and how that statement is to be formulated.

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 37

Amendment to Regulation (EU) 2023/955

In Article 2 of Regulation (EU) 2023/955, point (1) is replaced by the following:

- ‘(1) “energy poverty” means energy poverty as defined in Article 2, point (52), of Directive (EU) 2023/... of the European Parliament and of the Council*+.

* Directive (EU) 2023/... of the European Parliament and of the Council of ... on energy efficiency and amending Regulation (EU) 2023/955 (OJ L ..., ..., ...).’.

+ OJ: Please insert in the text the number of the Directive contained in document PE-CONS 15/23 (2021/0203(COD)) and insert the number, date, title and OJ reference of that Directive in the footnote.

Article 38

Repeal

Directive 2012/27/EU, as amended by the acts listed in Part A of Annex XVI is repealed with effect from ... [2 years after the entry into force of this Directive plus 1 day], without prejudice to the obligations of the Member States relating to the time-limits for the transposition into national law of the Directives set out in Part B of Annex XVI.

References to the repealed Directive shall be construed as references to this Directive and shall be read in accordance with the correlation table in Annex XVII.

Article 39

Entry into force and application

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

Articles 13, 14, 15, 16, 17, 18, 19 and 20 and Annexes II, VIII, IX, XII, XIII and XIV shall apply from ... [2 years after the entry into force of this Directive plus 1 day].

Article 37 shall apply from ... [the date by which Regulation (EU) 2023/955 is applied].

Article 40
Addressees

This Directive is addressed to the Member States.

Done at Strasbourg

For the European Parliament
The President

For the Council
The President

ANNEX I

NATIONAL CONTRIBUTIONS TO THE UNION'S ENERGY EFFICIENCY TARGETS IN 2030 IN FINAL ENERGY CONSUMPTION AND/OR PRIMARY ENERGY CONSUMPTION

1. The level of national contributions is calculated on the basis of the indicative formula:

$$FEC_{C_{2030}} = C_{EU}(1 - Target) FEC_{B_{2030}}$$

$$PEC_{C_{2030}} = C_{EU}(1 - Target) PEC_{B_{2030}}$$

Where C_{EU} is a correction factor, Target is the level of national-specific ambition and $FEC_{B_{2030}}$ $PEC_{B_{2030}}$ is the 2020 EU Reference Scenario used as a baseline for 2030.

2. The following indicative formula represents the objective criteria reflecting the factors listed in Article 4(3), points (d)(i) to (iv), each used for defining the level of national-specific ambition in % (Target) and having the same weight in the formula (0,25):

- (a) early action dependent contribution (' $F_{early-action}$ ');
- (b) GDP-per-capita dependent contribution (' F_{wealth} ');
- (c) energy intensity dependent contribution (' $F_{intensity}$ ');
- (d) cost-effective energy savings potential contribution (' $F_{potential}$ ').

3. $F_{\text{early-action}}$ shall be calculated for each Member State as the product of its amount of energy savings and the improvement in the energy intensity that each Member State achieved. The amount of energy savings for each Member State shall be calculated on the basis of the reduction of energy consumption (in toe) to the Union's reduction of energy consumption between the three-year average for the period 2007-2009 and the three-year average for the period 2017-2019. The improvement in the energy intensity for each Member State shall be calculated on the basis of the reduction of energy intensity (in toe/EUR) to the Union's reduction of energy intensity between the three-year average for the period 2007-2009 and the three-year average for the period 2017-2019.
4. F_{wealth} shall be calculated for each Member State on the basis of its three-year average Eurostat's real GDP per capita index to the Union's three-year average over the 2017-2019 period, expressed in Purchasing power parities (PPPs).
5. $F_{\text{intensity}}$ shall be calculated for each Member State on the basis of its three-year average final energy intensity (FEC or PEC per real GDP in PPPs) index to the Union's three-year average over 2017-2019 period.
6. $F_{\text{potential}}$ shall be calculated for each Member State on the basis of the final or primary energy savings under the PRIMES MIX 55% scenario for 2030. The savings are expressed in relation to 2020 EU Reference Scenario projections for 2030.

7. For each criteria provided in point 2(a) to (d), a lower and upper limit shall be applied. The level of ambition for factors F_{wealth} , $F_{\text{intensity}}$ and $F_{\text{potential}}$ shall be capped at 50 % and 150 % of the Union average level of ambition under a given factor. The level of ambition for factor $F_{\text{early-action}}$ shall be capped at 50 % and 100 % of the Union average level of ambition.
 8. The source of the input data used to calculate the factors is Eurostat unless stated otherwise.
 9. F_{total} shall be calculated as the weighted sum of all four factors ($F_{\text{early-action}}$, F_{wealth} , $F_{\text{intensity}}$ and $F_{\text{potential}}$). The target shall be then calculated as the product of the total factor F_{total} and the Union target.
 10. The Commission shall calculate a primary and final energy correction factor C_{EU} , which shall be applied to adjust the sum of the formula results for all national contributions to the respective Union targets in 2030. The factor C_{EU} is identical for all Member States.
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ANNEX II

GENERAL PRINCIPLES FOR THE CALCULATION OF ELECTRICITY FROM COGENERATION

Part I

General principles

Values used for calculation of electricity from cogeneration shall be determined on the basis of the expected or actual operation of the unit under normal conditions of use. For micro-cogeneration units the calculation may be based on certified values.

- (1) Electricity production from cogeneration shall be considered equal to total annual electricity production of the unit measured at the outlet of the main generators if the following conditions are met:
 - (a) in cogeneration units of types (2), (4), (5), (6), (7) and (8) as referred to in Part II with an annual overall efficiency set by Member States at a level of at least 75 %;
 - (b) in cogeneration units of types (1) and (3) as referred to in Part II with an annual overall efficiency set by Member States at a level of at least 80 %.

- (2) In cogeneration units with an annual overall efficiency below the value referred to in point (1)(a), namely the cogeneration units of types (2), (4), (5), (6), (7), and (8) as referred to in Part II, or with an annual overall efficiency below the value referred to in point (1)(b), namely the cogeneration units of types (1) and (3) as referred to in Part II, electricity from cogeneration is calculated according to the following formula:

$$E_{\text{CHP}} = H_{\text{CHP}} * C$$

where:

E_{CHP} is the amount of electricity from cogeneration;

C is the power-to-heat ratio;

H_{CHP} is the amount of useful heat from cogeneration (calculated for this purpose as total heat production minus any heat produced in separate boilers or by live steam extraction from the steam generator before the turbine).

The calculation of electricity from cogeneration shall be based on the actual power-to-heat ratio. If the actual power-to-heat ratio of a cogeneration unit is not known, the following default values may be used, in particular for statistical purposes, for units of types (1), (2), (3), (4) and (5) as referred to in Part II provided that the calculated cogeneration electricity is less or equal to total electricity production of the unit:

Type of the unit	Default power to heat ratio, C
Combined cycle gas turbine with heat recovery	0,95
Steam back pressure turbine	0,45
Steam condensing extraction turbine	0,45
Gas turbine with heat recovery	0,55
Internal combustion engine	0,75

If Member States introduce default values for power-to-heat ratios for units of types (6), (7), (8), (9), (10) and (11) as referred to in Part II, such default values shall be published and shall be notified to the Commission.

- (3) If a share of the energy content of the fuel input to the cogeneration process is recovered in chemicals and recycled, that share can be subtracted from the fuel input before calculating the overall efficiency used in points (1) and (2).
- (4) Member States may determine the power-to-heat ratio as the ratio of electricity to useful heat when operating in cogeneration mode at a lower capacity using operational data of the specific unit.
- (5) Member States may use reporting periods other than annual reporting periods for the purpose of the calculations in accordance with points (1) and (2).

Part II

Cogeneration technologies covered by this Directive

- (1) Combined cycle gas turbine with heat recovery
- (2) Steam back pressure turbine
- (3) Steam condensing extraction turbine
- (4) Gas turbine with heat recovery
- (5) Internal combustion engine
- (6) Microturbines
- (7) Stirling engines
- (8) Fuel cells
- (9) Steam engines
- (10) Organic Rankine cycles
- (11) Any other type of technology or combination comprising cogeneration.

When implementing and applying the general principles for the calculation of electricity from cogeneration, Member States shall use the detailed Guidelines established by Commission Decision 2008/952/EC¹.

¹ Commission Decision 2008/952/EC of 19 November 2008 establishing detailed guidelines for the implementation and application of Annex II to Directive 2004/8/EC of the European Parliament and of the Council (OJ L 338, 17.12.2008, p. 55).

ANNEX III

METHODOLOGY FOR DETERMINING THE EFFICIENCY OF THE COGENERATION PROCESS

Values used for calculation of efficiency of cogeneration and primary energy savings shall be determined on the basis of the expected or actual operation of the unit under normal conditions of use.

(a) High-efficiency cogeneration

For the purpose of this Directive, high-efficiency cogeneration shall fulfil the following criteria:

- cogeneration production from cogeneration units shall provide primary energy savings calculated in accordance with point (b) of at least 10 % compared with the references for separate production of heat and electricity;
- production from small-scale and micro-cogeneration units providing primary energy savings may qualify as high-efficiency cogeneration;
- for cogeneration units that are built or substantially refurbished after the transposition of this Annex, direct emissions of the carbon dioxide from cogeneration production that is fuelled with fossil fuels, are less than 270 gCO₂ per 1 kWh of energy output from the combined generation (including heating/cooling, power and mechanical energy);

- cogeneration units in operation before ... [the entry into force of this Directive], may derogate from this requirement until 1 January 2034 provided that they have a plan to reduce progressively the emissions to meet the threshold of less than 270 gCO₂ per 1 kWh by 1 January 2034 and that they have notified this plan to relevant operators and competent authorities.

When a cogeneration unit is built or substantially refurbished, Member States shall ensure that there is no increase in the use of fossil fuels other than natural gas in existing heat sources compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment, and that any new heat sources in that system do not use fossil fuels other than natural gas.

(b) Calculation of primary energy savings

The amount of primary energy savings provided by cogeneration production defined in accordance with Annex II shall be calculated on the basis of the following formula:

$$PES = \left(1 - \frac{1}{\frac{CHPH\eta}{RefH\eta} + \frac{CHPE\eta}{RefE\eta}} \right) \times 100\%$$

Where:

PES is primary energy savings.

CHP H η is the heat efficiency of the cogeneration production defined as annual useful heat output divided by the fuel input used to produce the sum of useful heat output and electricity from cogeneration.

Ref $H\eta$ is the efficiency reference value for separate heat production.

CHP $E\eta$ is the electrical efficiency of the cogeneration production defined as annual electricity from cogeneration divided by the fuel input used to produce the sum of useful heat output and electricity from cogeneration. Where a cogeneration unit generates mechanical energy, the annual electricity from cogeneration may be increased by an additional element representing the amount of electricity which is equivalent to that of mechanical energy. This additional element does not create a right to issue guarantees of origin in accordance with Article 26(13).

Ref $E\eta$ is the efficiency reference value for separate electricity production.

(c) Calculations of energy savings using alternative calculation

Member States may calculate primary energy savings from a production of heat and electricity and mechanical energy as indicated below without applying Annex II to exclude the non-cogenerated heat and electricity parts of the same process. Such a production can be regarded as high-efficiency cogeneration provided that it fulfils the efficiency criteria set out in point (a) of this Annex and, for cogeneration units with an electrical capacity larger than 25 MW, the overall efficiency is above 70 %. However, specification of the quantity of electricity from cogeneration produced in such a production, for issuing a guarantee of origin and for statistical purposes, shall be determined in accordance with Annex II.

If primary energy savings for a process are calculated using alternative calculation as indicated above the primary energy savings shall be calculated using the formula in point (b) of this Annex replacing: ‘CHP $H\eta$ ’ with ‘ $H\eta$ ’ and ‘CHP $E\eta$ ’ with ‘ $E\eta$ ’, where:

$H\eta$ means the heat efficiency of the process, defined as the annual heat output divided by the fuel input used to produce the sum of heat output and electricity output.

$E\eta$ means the electricity efficiency of the process, defined as the annual electricity output divided by the fuel input used to produce the sum of heat output and electricity output. Where a cogeneration unit generates mechanical energy, the annual electricity from cogeneration may be increased by an additional element representing the amount of electricity which is equivalent to that of mechanical energy. This additional element will not create a right to issue guarantees of origin in accordance with Article 26(13).

Member States may use reporting periods other than annual reporting periods for the purpose of the calculations in accordance with points (b) and (c) of this Annex.

For micro-cogeneration units the calculation of primary energy savings may be based on certified data.

(d) Efficiency reference values for separate production of heat and electricity

The harmonised efficiency reference values shall consist of a matrix of values differentiated by relevant factors, including year of construction and types of fuel, and shall be based on a well-documented analysis taking into account, inter alia, data from operational use under realistic conditions, fuel mix and climate conditions as well as applied cogeneration technologies.

The efficiency reference values for separate production of heat and electricity in accordance with the formula set out in point (b) shall establish the operating efficiency of the separate heat and electricity production that cogeneration is intended to substitute.

The efficiency reference values shall be calculated according to the following principles:

- (i) for cogeneration units the comparison with separate electricity production shall be based on the principle that the same fuel categories are compared;
- (ii) each cogeneration unit shall be compared with the best available and economically justifiable technology for separate production of heat and electricity on the market in the year of construction of the cogeneration unit;
- (iii) the efficiency reference values for cogeneration units older than 10 years shall be fixed on the reference values of units of 10 years;
- (iv) the efficiency reference values for separate electricity production and heat production shall reflect the climatic differences between Member States.

ANNEX IV

ENERGY EFFICIENCY REQUIREMENTS FOR PUBLIC PROCUREMENT

In award procedures for public contracts and concessions, contracting authorities and contracting entities that purchase products, services, buildings and works, shall:

- (a) where a product is covered by a delegated act adopted under Regulation (EU) 2017/1369, Directive 2010/30/EU or by a related Commission implementing act, purchase only the products that comply with the criterion laid down in Article 7(2) of that Regulation;
- (b) where a product not covered under point (a) is covered by an implementing measure under Directive 2009/125/EC, purchase only products that comply with energy efficiency benchmarks specified in that implementing measure;
- (c) where a product or a service is covered by the Union green public procurement criteria or available equivalent national criteria, with relevance to energy efficiency of the product or service, make best efforts to purchase only products and services that respect at least the technical specifications set at 'core' level in the relevant Union green public procurement criteria or available equivalent national criteria including among others for data centres, server rooms and cloud services, road lighting and traffic signals, computers, monitors tablets and smartphones;

- (d) purchase only tyres that comply with the criterion of having the highest fuel energy efficiency class, as defined in Regulation (EU) 2020/740, which shall not prevent public bodies from purchasing tyres with the highest wet grip class or external rolling noise class where justified by safety or public health reasons;
- (e) require in their tenders for service contracts that service providers use, for the purposes of providing the services in question, only products that comply with points (a), (b) and (d), when providing the services in question. This requirement shall apply only to new products purchased by service providers partially or wholly for the purpose of providing the service in question;
- (f) purchase, or make new rental agreements for, buildings that comply at least with nearly zero-energy level, without prejudice to Article 6 of this Directive, unless the purpose of the purchase is:
 - (i) to undertake deep renovation or demolition;
 - (ii) in the case of public bodies, to re-sell the building without using it for the public body's own purposes; or
 - (iii) to preserve it as a building officially protected as part of a designated environment, or because of its special architectural or historic merit.

Compliance with the requirements laid down in point (f) of this Annex shall be verified by means of the energy performance certificates referred to in Article 11 of Directive 2010/31/EU.

ANNEX V

COMMON METHODS AND PRINCIPLES FOR CALCULATING THE IMPACT OF ENERGY EFFICIENCY OBLIGATION SCHEMES OR OTHER POLICY MEASURES UNDER ARTICLES 8, 9 AND 10 AND ARTICLE 30(14)

1. Methods for calculating energy savings other than those arising from taxation measures for the purposes of Articles 8, 9 and 10 and Article 30(14).

Obligated, participating or entrusted parties, or implementing public authorities, may use the following methods for calculating energy savings:

- (a) deemed savings, by reference to the results of previous independently monitored energy improvements in similar installations. The generic approach is termed '*ex ante*';
- (b) metered savings, whereby the savings from the installation of a measure, or package of measures, are determined by recording the actual reduction in energy use, taking due account of factors such as additionality, occupancy, production levels and the weather which may affect consumption. The generic approach is termed '*ex post*';

- (c) scaled savings, whereby engineering estimates of savings are used. This approach may be used only where establishing robust measured data for a specific installation is difficult or disproportionately expensive, for example replacing a compressor or electric motor with a different kWh rating from that for which independent information about savings has been measured, or where those estimates are carried out on the basis of nationally established methodologies and benchmarks by qualified or accredited experts that are independent of the obligated, participating or entrusted parties involved;
- (d) when calculating the energy savings for the purpose of Article 8(3) that can be counted to fulfil the obligation in that Article, Member States may estimate the energy savings of people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing on the basis of engineering estimates using standardised occupancy and thermal comfort conditions or parameters, such as parameters defined in national building regulations. The way comfort is considered for actions in buildings should be reported by the Member States to the Commission together with explanations of their calculation methodology.
- (e) surveyed savings, where consumers' response to advice, information campaigns, labelling or certification schemes or smart metering is determined. This approach shall be used only for savings resulting from changes in consumer behaviour. It shall not be used for savings resulting from the installation of physical measures.

2. In determining the energy savings for an energy efficiency measure for the purposes of Articles 8, 9 and 10 and Article 30(14), the following principles apply:
- (a) Member States shall demonstrate that one of the objectives of the policy measure, whether new or existing, is the achievement of end-use energy savings pursuant to Article 8(1) and shall provide evidence and their documentation showing that the energy savings are caused by a policy measure, including voluntary agreements;
 - (b) the savings shall be shown to be additional to those that would have occurred in any event without the activity of the obligated, participating or entrusted parties, or implementing public authorities. To determine the savings that can be claimed as additional, Member States shall have regard to how energy use and demand would evolve in the absence of the policy measure in question by taking into account at least the following factors: energy consumption trends, changes in consumer behaviour, technological progress and changes caused by other measures implemented at Union and national level;

- (c) savings resulting from the implementation of mandatory Union law shall be considered to be savings that would have occurred in any event, and thus shall not be claimed as energy savings for the purpose of Article 8(1). By way of derogation from that requirement, savings related to the renovation of existing buildings, including the savings resulting from the implementation of minimum energy performance standards in buildings in accordance with Directive 2010/31/EU, may be claimed as energy savings for the purpose of Article 8(1), provided that the materiality criterion referred to in point 3(h) of this Annex is ensured. Measures promoting energy efficiency improvements in the public sector pursuant to Article 5 and Article 6 may be eligible to be taken into account for the fulfilment of energy savings required under Article 8(1), provided that they result in verifiable and measurable or estimable end-use energy savings. The calculation of energy savings shall comply with this Annex;
- (d) end-use energy savings resulting from the implementation of energy efficiency improvement measures taken pursuant to emergency regulations under Article 122 TFEU may be claimed for the purpose of Article 8(1), provided that they result in verifiable and measurable or estimable end-use energy savings, with the exception of those energy savings resulting from rationing or curtailment measures;
- (e) measures taken pursuant to Regulation (EU) 2018/842 can be considered material, but Member States have to show that they result in verifiable and measurable or estimable end-use energy savings. The calculation of energy savings shall comply with this Annex;

- (f) Member States shall count only end use energy savings from policy measures in sectors or installations covered by Chapter IVa of Directive 2003/87/EC if they result from the implementation of Article 9 or 10 of this Directive and which go beyond the requirements laid down in Directive 2003/87/EC or beyond the implementation of actions linked to the allocation of free allowances under that Directive.

Member States shall demonstrate that the policy measures result in verifiable and measurable or estimable end-use energy savings. The calculation of energy savings shall comply with this Annex. If an entity is an obligated party under a national energy efficiency obligation scheme under Article 9 of this Directive and under the EU ETS for buildings and road transport under Chapter IVa of Directive 2003/87/EC, the monitoring and verification system shall ensure that the carbon price passed through when releasing fuel for consumption under that Chapter is taken into account when calculating and reporting the energy savings of its energy saving measures;

- (g) credit may be given, provided that it is only given for savings exceeding the following levels:

- (i) Union emission performance standards for new passenger cars and new light commercial vehicles following the implementation of Regulation (EU) 2019/631 of the European Parliament and of the Council¹; Member States must provide reasons, their assumptions and their calculation methodology to show additionality to the Union's new vehicle CO₂ requirements;

¹ Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (OJ L 111, 25.4.2019, p. 13).

- (ii) Union requirements relating to the removal from the market of certain energy related products following the implementation of implementing measures under Directive 2009/125/EC. Member States shall provide evidence, their assumptions and their calculation methodology to show additionality;
- (h) policies with the purpose of encouraging higher levels of energy efficiency of products, equipment, transport systems, vehicles and fuels, buildings and building elements, processes or markets shall be permitted, except for policy measures:
 - (i) regarding the use of direct combustion of fossil fuel technologies that are newly implemented as from 1 January 2026; and
 - (ii) subsidising the use of direct combustion of fossil fuel technologies in residential buildings as from 1 January 2026.
- (i) energy savings as a result of policy measures newly implemented as from 1 January 2024 regarding the use of direct fossil fuel combustion in products, equipment, transport systems, vehicles, buildings or works shall not count towards the fulfilment of energy savings obligation pursuant to Article 8(1)(b). In the case of policy measures promoting combinations of technologies, the share of energy savings related to the fossil fuel combustion technology are not eligible as from 1 January 2024.

- (j) by way of derogation from point (i), for the period 1 January 2024 to 31 December 2030, energy savings from direct fossil fuel combustion technologies improving the energy efficiency in energy intense enterprises in the industry sector may be counted as energy savings only for the purpose of Article 8(1), points (b) and (c), until 31 December 2030, provided that:
- (i) the enterprise has carried out an energy audit pursuant to Article 11(2) and an implementation plan including:
- an overview of all cost-effective energy efficiency measures with a payback period of five years or less, on the basis of simple pay-back period methodologies provided by the Member State,
 - a timeframe for the implementation of all recommended energy efficiency measures with a payback period of five years or fewer,
 - a calculation of expected energy savings resulting from the energy efficiency measures recommended, and
 - energy efficiency measures related to the use of direct fossil fuel combustion technologies with the relevant information needed for:
 - proving that the measure identified does not increase the amount of energy needed or the capacity of an installation,

- justifying that the uptake of sustainable, non-fossil fuel technologies is technically not feasible,
 - showing that the direct fossil fuel combustion technology complies with the most up-to-date corresponding Union emission performance legislation and prevents technology lock-in effects by ensuring future compatibility with climate-neutral alternative non-fossil fuels and technologies.
- (ii) the continuation of the use of direct fossil fuel technologies is an energy efficiency measure to decrease energy consumption with a payback period of five years or less, on the basis of simple pay-back period methodologies provided by the Member State, recommended as result of an energy audit pursuant to Article 11(2) and included in the implementation plan;
- (iii) the use of direct fossil fuel technologies complies with the most up-to-date corresponding Union emission performance legislation, does not lead to technology lock-in effects and ensures future compatibility with climate-neutral alternative fuels and technologies;
- (iv) the use of direct fossil fuel technologies in the enterprise does not lead to an increased energy consumption or increase the capacity of the installation in that enterprise;

- (v) evidence is provided that no alternative, sustainable non-fossil fuel solution was technically feasible;
 - (vi) the use of direct fossil fuel technologies result in verifiable and measurable or estimable end-use energy savings calculated in accordance with this Annex;
 - (vii) evidence is published on a website or is made publicly available for all interested citizens;
- (k) measures promoting the installation of small-scale renewable energy technologies on or in buildings may be eligible to be taken into account for the fulfilment of energy savings required under Article 8(1), provided that they result in verifiable and measurable or estimable end-use energy savings. The calculation of energy savings shall comply with this Annex;
- (l) measures promoting the installation of solar thermal technologies may be eligible to be taken into account for the fulfilment of energy savings required under Article 8(1) provided that they result in verifiable and measurable or estimable end-use energy savings. The heat produced by solar thermal technologies from solar radiation can be excluded from their end-use energy consumption;

- (m) for policies that accelerate the uptake of more efficient products and vehicles, except those newly implemented as from 1 January 2024 regarding the use of direct fossil fuel combustion, full credit may be claimed, provided that it is shown that such uptake takes place before the expiry of the average expected lifetime of the product or vehicle, or before the product or vehicle would usually be replaced, and the savings are claimed only for the period until the end of the average expected lifetime of the product or vehicle to be replaced;
- (n) in promoting the uptake of energy efficiency measures, Member States shall, where relevant, ensure that quality standards for products, services and installation of measures are maintained or introduced where such standards do not exist;
- (o) to account for climatic variations between regions, Member States may choose to adjust the savings to a standard value or to accord different energy savings in accordance with temperature variations between regions;

(p) the calculation of energy savings shall take into account the lifetime of the measures and the rate at which the savings decline over time. That calculation shall count the savings each individual action will achieve during the period from its date of implementation to the end of each obligation period. Alternatively, Member States may adopt another method that is estimated to achieve at least the same total quantity of savings. When using another method, Member States shall ensure that the total amount of energy savings calculated using that method does not exceed the amount of energy savings that would have been the result of their calculation when counting the savings each individual action will achieve during the period from its date of implementation to 2030. Member States shall describe in detail in their integrated national energy and climate plans notified pursuant to Article 3 and Articles 7 to 12 of Regulation (EU) 2018/1999 that other method and the provisions made to ensure that the binding calculation requirement is met.

3. Member States shall ensure that the following requirements for policy measures taken pursuant to Article 10 and Article 30(14) are met:

- (a) policy measures and individual actions produce verifiable end-use energy savings;
- (b) the responsibility of each participating party, entrusted party or implementing public authority, as relevant, is clearly defined;
- (c) the energy savings that are achieved or are to be achieved are determined in a transparent manner;

- (d) the amount of energy savings required or to be achieved by the policy measure is expressed in either primary energy consumption or final energy consumption, using the net calorific values or primary energy factors referred to in Article 31;
- (e) an annual report on the energy savings achieved by entrusted parties, participating parties and implementing public authorities be provided and made publicly available, as well as data on the annual trend of energy savings;
- (f) monitoring of the results and taking appropriate measures if progress is not satisfactory;
- (g) the energy savings from an individual action are not claimed by more than one party;
- (h) the activities of the participating party, entrusted party or implementing public authority are shown to be material to the achievement of the energy savings claimed;
- (i) the activities of the participating party, entrusted party or implementing public authority have no adverse effects on people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing.

4. In determining the energy savings from taxation-related policy measures introduced under Article 10, the following principles shall apply:
- (a) credit shall be given only for energy savings from taxation measures exceeding the minimum levels of taxation applicable to fuels as required in Council Directive 2003/96/EC¹ or 2006/112/EC²;
 - (b) short-run price elasticities for the calculation of the impact of the energy taxation measures shall represent the responsiveness of energy demand to price changes, and shall be estimated on the basis of recent and representative official data sources, which are applicable for the Member State, and, where applicable, on the basis of accompanying studies from an independent institute. If a different price elasticity than short-run elasticities is used, Member States shall explain how energy efficiency improvements due to the implementation of other Union legislation have been included in the baseline used to estimate the energy savings, or how a double-counting of energy savings from other Union legislation has been avoided;
 - (c) the energy savings from accompanying taxation policy instruments, including fiscal incentives or payment to a fund, shall be accounted separately;
 - (d) short-run elasticity estimates should be used to assess the energy savings from taxation measures to avoid overlap with Union law and other policy measures;

¹ Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity (OJ L 283, 31.10.2003, p. 51).

² Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax (OJ L 347, 11.12.2006, p. 1).

- (e) Member States shall determine distributional effects of taxation and equivalent measures on people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing, and show the effects of the mitigation measures implemented in accordance with Article 24(1), (2) and (3);
- (f) Member States shall provide evidence, including calculation methodologies, that where there is an overlap in the impact of energy or carbon taxation measures or emissions trading in accordance with Directive 2003/87/EC, there is no double counting of energy savings.

5. Notification of methodology

Member States shall, in accordance with Regulation (EU) 2018/1999, notify to the Commission their proposed detailed methodology for the operation of the energy efficiency obligation schemes and alternative measures referred to in Articles 9 and 10, and Article 30(14) of this Directive. Except in the case of taxation, such notification shall include information on:

- (a) the level of the energy savings required under Article 8(1), first subparagraph, or savings expected to be achieved over the whole period from 1 January 2021 to 31 December 2030;
- (b) how the calculated quantity of new energy savings required under Article 8(1), first subparagraph, or energy savings expected to be achieved will be phased over the obligation period;

- (c) the obligated, participating or entrusted parties, or implementing public authorities;
- (d) target sectors;
- (e) policy measures and individual actions, including the expected total amount of cumulative energy savings for each measure;
- (f) policy measures or programmes or measures financed under a national energy efficiency fund implemented as a priority among people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing;
- (g) the share and the amount of energy savings to be achieved among people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing;
- (h) where applicable, the indicators applied, the arithmetic average share and the outcome of policy measures established pursuant to Article 8(3);
- (i) where applicable, impacts and adverse effects of policy measures implemented pursuant to Article 8(3) on people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing;
- (j) the duration of the obligation period for the energy efficiency obligation scheme;

- (k) where applicable, the amount of energy savings or cost reduction targets to be achieved by obligated parties among people affected by energy poverty, vulnerable customers and, where applicable, people living in social housing;
- (l) the actions provided for by the policy measure;
- (m) the calculation methodology, including how additionality and materiality have been determined and which methodologies and benchmarks are used for deemed and scaled savings, and, where applicable, the net calorific values and conversion factors used;
- (n) the lifetimes of measures, and how they are calculated or what they are based upon;
- (o) the approach taken to address climatic variations within the Member State;
- (p) the monitoring and verification systems for measures under Articles 9 and 10 and how their independence from the obligated, participating or entrusted parties is ensured;

- (q) in the case of taxation:
- (i) the target sectors and segment of taxpayers;
 - (ii) the implementing public authority;
 - (iii) the savings expected to be achieved;
 - (iv) the duration of the taxation measure;
 - (v) the calculation methodology, including the price elasticities used and how they have been established and
 - (vi) how overlaps with EU ETS in accordance with Directive 2003/87/EC have been avoided and the risk of double counting has been abolished.
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ANNEX VI

MINIMUM CRITERIA FOR ENERGY AUDITS INCLUDING THOSE CARRIED OUT AS PART OF ENERGY MANAGEMENT SYSTEMS

The energy audits referred to in Article 11 shall:

- (a) be based on up-to-date, measured, traceable operational data on energy consumption and (for electricity) load profiles;
- (b) comprise a detailed review of the energy consumption profile of buildings or groups of buildings, industrial operations or installations, including transportation;
- (c) identify energy efficiency measures to decrease energy consumption;
- (d) identify the potential for cost-effective use or production of renewable energy;
- (e) build, whenever possible, on life-cycle cost analysis instead of simple payback periods in order to take account of long-term savings, residual values of long-term investments and discount rates;
- (f) be proportionate, and sufficiently representative to permit the drawing of a reliable picture of overall energy performance and the reliable identification of the most significant opportunities for improvement.

Energy audits shall allow detailed and validated calculations for the proposed measures so as to provide clear information on potential savings.

The data used in energy audits shall be storable for historical analysis and tracking performance.

ANNEX VII

MINIMUM REQUIREMENTS FOR MONITORING AND PUBLISHING THE ENERGY PERFORMANCE OF DATA CENTRES

The following minimum information shall be monitored and published with regard to the energy performance of data centres referred to in Article 12:

- (a) the name of the data centre, the name of the owner and operators of the data centre, the date on which the data centre started its operations and the municipality where the data centre is based;
- (b) the floor area of the data centre, the installed power, the annual incoming and outgoing data traffic, and the amount of data stored and processed within the data centre;
- (c) the performance, during the last full calendar year, of the data centre in accordance with key performance indicators about, inter alia, energy consumption, power utilisation, temperature set points, waste heat utilisation, water usage and use of renewable energy, using as a basis, where applicable, the CEN/CENELEC EN 50600-4 'Information technology - Data centre facilities and infrastructures', until the entry into force of the delegated act adopted pursuant to Article 33(3).

ANNEX VIII

MINIMUM REQUIREMENTS FOR BILLING AND BILLING INFORMATION BASED ON ACTUAL CONSUMPTION OF NATURAL GAS

1. Minimum requirements for billing

1.1. Billing based on actual consumption

In order to enable final customers to regulate their own energy consumption, billing should take place on the basis of actual consumption at least once a year, and billing information should be made available at least on a quarterly basis, on request or where the consumers have opted to receive electronic billing or else twice a year. Gas used only for cooking purposes may be exempt from this requirement.

1.2. Minimum information contained in the bill

Member States shall ensure that, where appropriate, the following information is made available to final customers in clear and understandable terms in or with their bills, contracts, transactions, and receipts at distribution stations:

- (a) current actual prices and actual consumption of energy;
- (b) comparisons of the final customer's current energy consumption with consumption for the same period in the previous year, preferably in graphic form;

- (c) contact information for final customers' organisations, energy agencies or similar bodies, including website addresses from which information may be obtained on available energy efficiency improvement measures, comparative end-user profiles and objective technical specifications for energy-using equipment.

In addition, wherever possible and useful, Member States shall ensure that comparisons with an average normalised or benchmarked final customer in the same user category are made available to final customers in clear and understandable terms, in, with or signposted to within, their bills, contracts, transactions, and receipts at distribution stations.

1.3. Advice on energy efficiency accompanying bills and other feedback to final customers

When sending contracts and contract changes, and in the bills customers receive or through websites addressing individual customers, energy distributors, distribution system operators and retail energy sales companies shall inform their customers in a clear and understandable manner of contact information for independent consumer advice centres, energy agencies or similar institutions, including their internet addresses, where they can obtain advice on available energy efficiency measures, benchmark profiles for their energy consumption and technical specifications of energy using appliances that can serve to reduce the consumption of those appliances.

ANNEX IX

MINIMUM REQUIREMENTS FOR BILLING AND CONSUMPTION INFORMATION FOR HEATING, COOLING AND DOMESTIC HOT WATER

1. Billing based on actual consumption or heat cost allocator readings

In order to enable final users to regulate their own energy consumption, billing shall take place on the basis of actual consumption or heat cost allocator readings at least once per year.

2. Minimum frequency of billing or consumption information

Until 31 December 2021, where remotely readable meters or heat cost allocators have been installed, billing or consumption information based on actual consumption or heat cost allocator readings shall be provided to final users at least on a quarterly basis upon request or where final customers have opted to receive electronic billing, or else twice a year.

From 1 January 2022, where remotely readable meters or heat cost allocators have been installed, billing or consumption information based on actual consumption or heat cost allocator readings shall be provided to final users at least on a monthly basis. It may also be made available via the internet and be updated as frequently as allowed by the measurement devices and systems used. Heating and cooling may be exempted from that requirement outside the heating or cooling seasons.

3. Minimum information contained in the bill

Member States shall ensure that the following information is made available to final users in clear and comprehensible terms in or with their bills where those are based on actual consumption or heat cost allocator readings:

- (a) current actual prices and actual consumption of energy or total heat cost and heat cost allocator readings;
- (b) the fuel mix used and the related annual GHG emissions, including for final users supplied by district heating or district cooling, and a description of the different taxes, levies and tariffs applied;
- (c) comparisons of the final users' current energy consumption with consumption for the same period in the previous year, in graphic form and climate corrected for heating and cooling;
- (d) contact information for final customers' organisations, energy agencies or similar bodies, including website addresses, from which information on available energy efficiency improvement measures, comparative end-user profiles and objective technical specifications for energy-using equipment may be obtained;
- (e) information about related complaints procedures, ombudsman services or alternative dispute resolution mechanisms, as applicable in the Member States;

- (f) comparisons with an average normalised or benchmarked final user in the same user category. In the case of electronic bills, such comparisons may instead be made available online and signposted to within the bills.

Member States may limit the scope of the requirement to provide information about GHG emissions pursuant to point (b) of the first subparagraph to include only supplies from district heating systems with a total rated thermal input exceeding 20 MW.

Bills that are not based on actual consumption or heat cost allocator readings shall contain a clear and comprehensible explanation of how the amount set out in the bill was calculated, and at least the information referred to in points (d) and (e).

ANNEX X

POTENTIAL FOR EFFICIENCY IN HEATING AND COOLING

The comprehensive assessment of national heating and cooling potentials referred to in Article 25(1) shall include and shall be based on the following:

Part I

OVERVIEW OF HEATING AND COOLING

1. heating and cooling demand in terms of assessed useful energy¹ and quantified final energy consumption in GWh per year² by sector:
 - (a) residential;
 - (b) services;
 - (c) industry;
 - (d) any other sector that individually consumes more than 5 % of total national useful heating and cooling demand;

¹ The amount of thermal energy needed to satisfy the heating and cooling demand of end-users.

² The most recent data available should be used.

2. the identification, or, in the case of point (a)(i), the identification or estimation, of current heating and cooling supply:
- (a) by technology, in GWh per year¹, within the sectors referred to in point 1 where possible, distinguishing between energy derived from fossil and renewable sources:
 - (i) provided on-site in residential and service sites by:
 - heat only boilers;
 - high-efficiency heat and power cogeneration;
 - heat pumps;
 - other on-site technologies and sources;
 - (ii) provided on-site in non-service and non-residential sites by:
 - heat only boilers;
 - high-efficiency heat and power cogeneration;
 - heat pumps;
 - other on-site technologies and sources;

¹ The most recent data available should be used.

- (iii) provided off-site by:
 - high-efficiency heat and power cogeneration;
 - waste heat;
 - other off-site technologies and sources;

- (b) the identification of installations that generate waste heat or cold and their potential heating or cooling supply, in GWh per year:
 - (i) thermal power generation installations that can supply or can be retrofitted to supply waste heat with a total thermal input exceeding 50 MW;
 - (ii) heat and power cogeneration installations using technologies referred to in Part II of Annex II with a total thermal input exceeding 20 MW;
 - (iii) waste incineration plants;
 - (iv) renewable energy installations with a total thermal input exceeding 20 MW other than the installations specified under points (i) and (ii) generating heating or cooling using the energy from renewable sources;
 - (v) industrial installations with a total thermal input exceeding 20 MW which can provide waste heat;

- (c) reported share of energy from renewable sources and from waste heat or cold in the final energy consumption of the district heating and cooling¹ sector over the past 5 years, in accordance with Directive (EU) 2018/2001;
3. aggregated data on cogeneration units in existing district heating and cooling networks in five capacity ranges covering:
- (a) primary energy consumption;
 - (b) overall efficiency;
 - (c) primary energy savings;
 - (d) CO₂ emission factors;
4. aggregated data on existing district heating and cooling networks supplied from cogeneration in five capacity ranges covering:
- (a) overall primary energy consumption;
 - (b) primary energy consumption of cogeneration units;
 - (c) share of cogeneration in district heating or cooling supply;
 - (d) district heating system losses;

¹ The identification of ‘renewable cooling’ shall, after the methodology for calculating the quantity of renewable energy used for cooling and district cooling is established in accordance with Article 35 of Directive (EU) 2018/2001, be carried out in accordance with that Directive. Until then it shall be carried out according to an appropriate national methodology.

- (e) district cooling system losses;
 - (f) connection density;
 - (g) shares of systems per different operating temperature groups;
5. a map covering the entire national territory, which, while preserving commercially sensitive information, identifies:
- (a) heating and cooling demand areas following from the analysis of point 1, while using consistent criteria for focusing on energy dense areas in municipalities and conurbations;
 - (b) existing heating and cooling supply points identified under point 2(b) and district heating transmission installations;
 - (c) planned heating and cooling supply points of the type described under point 2(b) and identified new areas for the district heating and cooling;
6. a forecast of trends in the demand for heating and cooling to maintain a perspective of the next 30 years in GWh and taking into account, in particular, projections for the next 10 years, the change in demand in buildings and different sectors of the industry, and the impact of policies and strategies related to the demand management, such as long-term building renovation strategies under Directive (EU) 2018/844 of the European Parliament and of the Council¹;

¹ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency (OJ L 156, 19.6.2018, p. 75).

Part II

OBJECTIVES, STRATEGIES AND POLICY MEASURES

7. planned contribution of the Member State to its national objectives, targets and contributions for the five dimensions of the Energy Union, as laid out in Article 3(2), point (b), of Regulation (EU) 2018/1999, delivered through efficiency in heating and cooling, in particular related to Article 4, point (b), points 1 to 4 and to Article 15 (4), point (b) of that Regulation, identifying which of those elements is additional compared to the integrated national energy and climate plan notified pursuant to Article 3 and Articles 7 to 12 of that Regulation;
8. a general overview of the existing policies and measures as described in the most recent report submitted in accordance with Articles 3, 20 and 21 and Article 27(a) of Regulation (EU) 2018/1999;

Part III

ANALYSIS OF THE ECONOMIC POTENTIAL FOR EFFICIENCY IN HEATING AND COOLING

9. an analysis of the economic potential¹ of different technologies for heating and cooling shall be carried out for the entire national territory by using the cost-benefit analysis referred to in Article 25(3) and shall identify alternative scenarios for more efficient and renewable heating and cooling technologies, distinguishing between energy derived from fossil and renewable sources where applicable.

¹ The analysis of the economic potential should present the volume of energy (in GWh) that can be generated per year by each technology analysed. The limitations and interrelations within the energy system should also be taken into account. The analysis may make use of models based on assumptions representing the operation of common types of technologies or systems.

The following technologies should be considered:

- (a) industrial waste heat and cold;
- (b) waste incineration;
- (c) high efficiency cogeneration;
- (d) renewable energy sources, such as geothermal, solar thermal and biomass, other than those used for high efficiency cogeneration;
- (e) heat pumps;
- (f) reducing heat and cold losses from existing district networks;
- (g) district heating and cooling;

10. the analysis of economic potential shall include the following steps and considerations:

- (a) Considerations:
 - (i) the cost-benefit analysis for the purposes of Article 25(3) shall include an economic analysis that takes into consideration socioeconomic and environmental factors¹, and a financial analysis performed to assess projects from the investors' point of view, both economic and financial analyses using the net present value as a criterion for the assessment;

¹ Including the assessment referred to in Article 15 (7) of Directive (EU) 2018/2001.

- (ii) the baseline scenario should serve as a reference point and take into account existing policies at the time of compiling this comprehensive assessment¹, and be linked to data collected under Part I and Part II, point 6 of this Annex;
- (iii) alternative scenarios to the baseline shall take into account energy efficiency and the renewable energy objectives of Regulation (EU) 2018/1999, each scenario presenting the following elements compared to the baseline scenario:
 - economic potential of technologies examined using the net present value as criterion;
 - GHG emission reductions;
 - primary energy savings in GWh per year;
 - impact on the share of renewables in the national energy mix.

Scenarios that are not feasible due to technical reasons, financial reasons or national regulation may be excluded at an early stage of the cost-benefit analysis, if justified on the basis of careful, explicit and well-documented considerations.

¹ The cut-off date for taking into account policies for the baseline scenario is the end of the year preceding to the year by the end of which the comprehensive assessment is due. That is to say, policies enacted within a year prior to the deadline for submission of the comprehensive assessment do not need to be taken into account.

The assessment and decision-making should take into account costs and energy savings from the increased flexibility in energy supply and from a more optimal operation of the electricity networks, including avoided costs and savings from reduced infrastructure investment, in the analysed scenarios.

(b) Costs and benefits

The costs and benefits referred to in point (a) shall include at least the following costs and benefits:

(i) costs:

- capital costs of plants and equipment;
- capital costs of the associated energy networks;
- variable and fixed operating costs;
- energy costs;
- environmental, health and safety costs, to the extent possible;
- labour market costs, energy security and competitiveness, to the extent possible.

(ii) benefits:

- value of output to the consumer (heating, cooling and electricity);
- external benefits such as environmental, greenhouse gas emissions and health and safety benefits, to the extent possible;
- labour market effects, energy security and competitiveness, to the extent possible.

(c) Relevant scenarios to the baseline:

All relevant scenarios to the baseline shall be considered, including the role of efficient individual heating and cooling. The cost-benefit analysis may cover either a project assessment or a group of projects for a broader local, regional or national assessment in order to establish the most cost-effective and beneficial heating or cooling solution against a baseline for a given geographical area for the purpose of planning.

(d) Boundaries and integrated approach:

- (i) the geographical boundary shall cover a suitable, well-defined geographical area;

- (ii) the cost-benefit analyses shall take into account all relevant centralised or decentralised supply resources available within the system and geographical boundary, including technologies considered under Part III, point 9, of this Annex, and heating and cooling demand trends and characteristics.
- (e) Assumptions:
 - (i) Member States shall provide assumptions, for the purpose of the cost-benefit analyses, on the prices of major input and output factors and the discount rate;
 - (ii) the discount rate used in the economic analysis to calculate net present value shall be chosen according to European or national guidelines;
 - (iii) Member States shall use national, European or international energy price development forecasts, if appropriate, in their national, regional or local context;
 - (iv) the prices used in the economic analysis shall reflect socio-economic costs and benefits. External costs, such as environmental and health effects, should be included to the extent possible, namely when a market price exists or when it is already included in European or national regulation.
- (f) Sensitivity analysis: a sensitivity analysis shall be included to assess the costs and benefits of a project or group of projects and be based on variable factors having a significant impact on the outcome of the calculations, such as different energy prices, levels of demand, discount rates and other.

Part IV

POTENTIAL NEW STRATEGIES AND POLICY MEASURES

11. an overview of new legislative and non-legislative policy measures¹ to realise the economic potential identified in accordance with points 9 and 10, together with a forecast of:
- (a) greenhouse gas emission reductions;
 - (b) primary energy savings in GWh per year;
 - (c) impact on the share of high-efficiency cogeneration;
 - (d) impact on the share of renewables in the national energy mix and in the heating and cooling sector;
 - (e) links to national financial programming and cost savings for the public budget and market participants;
 - (f) estimated public support measures, if any, with their annual budget and identification of the potential aid element.

¹ This overview shall include financing measures and programmes that may be adopted over the period of the comprehensive assessment, not prejudging a separate notification of the public support schemes for a State aid assessment.

ANNEX XI

COST-BENEFIT ANALYSES

Cost-benefit analyses shall provide information for the purpose of the measures referred to in Article 25(3) and Article 26(7):

If an electricity-only installation or an installation without heat recovery is planned, a comparison shall be made between the planned installations or the planned refurbishment and an equivalent installation producing the same amount of electricity or process heat, but recovering the waste heat and supplying heat through high-efficiency cogeneration or district heating and cooling networks, or both.

Within a given geographical boundary the assessment shall take into account the planned installation and any appropriate existing or potential heat or cooling demand points that could be supplied from it, taking into account rational possibilities, for example, technical feasibility and distance.

The system boundary shall be set to include the planned installation and the heat and cooling loads, such as building(s) and industrial process. Within this system boundary the total cost of providing heat and power shall be determined for both cases and compared.

Heat or cooling loads shall include existing heat or cooling loads, such as an industrial installation or an existing district heating or cooling system, and also, in urban areas, the heat or cooling load and costs that would exist if a group of buildings or part of a city were provided with or connected into a new district heating or cooling network, or both.

Cost-benefit analyses shall be based on a description of the planned installation and the comparison installation(s), covering electrical and thermal capacity, as applicable, fuel type, planned usage and the number of planned operating hours every year, location and electricity and thermal demand.

An assessment of waste heat utilisation shall take into consideration current technologies. The assessment shall take into consideration the direct use of waste heat or its upgrading to higher temperature levels, or both. In the case of waste heat recovery on-site, at least the use of heat exchangers, heat pumps, and heat to power technologies shall be assessed. In the case of waste heat recovery off-site, at least industrial installations, agriculture sites and district heating networks shall be assessed as potential demand points.

For the purpose of the comparison, the thermal energy demand and the types of heating and cooling used by the nearby heat or cooling demand points shall be taken into account. The comparison shall cover infrastructure related costs for the planned and comparison installation.

Cost-benefit analyses for the purposes of Article 26(7) shall include an economic analysis covering a financial analysis reflecting actual cash flow transactions from investing in and operating individual installations.

Projects with positive cost-benefit outcome are those where the sum of discounted benefits in the economic and financial analysis exceeds the sum of discounted costs (cost-benefit surplus).

Member States shall set guiding principles for the methodology, assumptions and time horizon for the economic analysis.

Member States may require that the companies responsible for the operation of thermal electric generation installations, industrial companies, district heating and cooling networks, or other parties influenced by the defined system boundary and geographical boundary, contribute data for use in assessing the costs and benefits of an individual installation.

ANNEX XII

GUARANTEE OF ORIGIN FOR ELECTRICITY PRODUCED FROM HIGH-EFFICIENCY COGENERATION

- (1) Member States shall take measures to ensure that:
 - (a) the guarantee of origin of the electricity produced from high-efficiency cogeneration:
 - enables producers to demonstrate that the electricity they sell is produced from high-efficiency cogeneration and is issued to that effect in response to a request from the producer;
 - is accurate, reliable and fraud-resistant;
 - is issued, transferred and cancelled electronically;
 - (b) the same unit of energy from high-efficiency cogeneration is taken into account only once.
- (2) The guarantee of origin referred to in Article 26(13) shall contain at least the following information:
 - (a) the identity, location, type and capacity (thermal and electrical) of the installation where the energy was produced;
 - (b) the dates and places of production;

- (c) the lower calorific value of the fuel source from which the electricity was produced;
- (d) the quantity and the use of the heat generated together with the electricity;
- (e) the quantity of electricity from high-efficiency cogeneration in accordance with Annex III that the guarantee of origin represents;
- (f) the primary energy savings calculated in accordance with Annex III on the basis of the harmonised efficiency reference values indicated in Annex III, point (d);
- (g) the nominal electric and thermal efficiency of the plant;
- (h) whether and to what extent the installation has benefited from investment support;
- (i) whether and to what extent the unit of energy has benefited in any other way from a national support scheme, and the type of support scheme;
- (j) the date on which the installation became operational; and
- (k) the date and country of issue and a unique identification number.

The guarantee of origin shall be of the standard size of 1 MWh. It shall relate to the net electricity output measured at the station boundary and exported to the grid.

ANNEX XIII

ENERGY EFFICIENCY CRITERIA FOR ENERGY NETWORK REGULATION AND FOR ELECTRICITY NETWORK TARIFFS

1. Network tariffs shall be transparent and non-discriminatory, and shall comply with Article 18 of Regulation (EU) 2019/943 and be cost-reflective of cost-savings in networks achieved from demand-side and demand- response measures and distributed generation, including savings from lowering the cost of delivery or of network investment and a more optimal operation of the network.
2. Network regulation and tariffs shall not prevent network operators or energy retailers making available system services for demand response measures, demand management and distributed generation on organised electricity markets, including over-the-counter markets and electricity exchanges for trading energy, capacity, balancing and ancillary services in all timeframes, including forward, day-ahead and intra-day markets, in particular:
 - (a) the shifting of the load from peak to off-peak times by final customers taking into account the availability of renewable energy, energy from cogeneration and distributed generation;
 - (b) energy savings from demand response of distributed consumers by independent aggregators;

- (c) demand reduction from energy efficiency measures undertaken by energy service providers, including ESCOs;
 - (d) the connection and dispatch of generation sources at lower voltage levels;
 - (e) the connection of generation sources from closer location to the consumption; and
 - (f) the storage of energy.
3. Network or retail tariffs may support dynamic pricing for demand response measures by final customers, such as:
- (a) time-of-use tariffs;
 - (b) critical peak pricing;
 - (c) real time pricing; and
 - (d) peak time rebates.
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ANNEX XIV

ENERGY EFFICIENCY REQUIREMENTS FOR TRANSMISSION SYSTEM OPERATORS AND DISTRIBUTION SYSTEM OPERATORS

Transmission system operators and distribution system operators shall:

- (a) set up and make public their standard rules relating to the bearing and sharing of costs of technical adaptations, such as grid connections, grid reinforcements and the introduction of new grids, improved operation of the grid and rules on the non-discriminatory implementation of the grid codes, which are necessary in order to integrate new producers feeding electricity produced from high-efficiency cogeneration into the interconnected grid;
- (b) provide any new producer of electricity produced from high-efficiency cogeneration wishing to be connected to the system with the comprehensive and necessary information required, including:
 - (i) a comprehensive and detailed estimate of the costs associated with the connection;
 - (ii) a reasonable and precise timetable for receiving and processing the request for grid connection;

- (iii) a reasonable indicative timetable for any proposed grid connection. The overall process to become connected to the grid should be no longer than 24 months, bearing in mind what is reasonably practicable and non-discriminatory;
- (c) provide standardised and simplified procedures for the connection of distributed high-efficiency cogeneration producers to facilitate their connection to the grid.

The standard rules referred to in point (a) of the first paragraph shall be based on objective, transparent and non-discriminatory criteria taking particular account of all the costs and benefits associated with the connection of those producers to the grid. They may provide for different types of connection.



ANNEX XV

MINIMUM ITEMS TO BE INCLUDED IN ENERGY PERFORMANCE CONTRACTS OR IN THE ASSOCIATED TENDER SPECIFICATIONS

- Findings and recommendations set out in analyses and energy audits carried out before the contract has been concluded that cover energy use of the building with a view to implementing energy efficiency improvement measures.
- A clear and transparent list of the efficiency measures to be implemented or the efficiency results to be obtained.
- Guaranteed savings to be achieved by implementing the measures of the contract.
- The duration and milestones of the contract, terms and period of notice.
- A clear and transparent list of the obligations of each contracting party.
- Reference date(s) to establish achieved savings.
- A clear and transparent list of steps to be performed to implement a measure or package of measures and, where relevant, associated costs.
- An obligation to fully implement the measures in the contract and documentation of all changes made during the project.

- Regulations specifying the inclusion of equivalent requirements in any subcontracting with third parties.
 - A clear and transparent display of the financial implications of the project and the distribution of the share of both parties in the monetary savings achieved, namely the remuneration of the service provider.
 - A clear and transparent provisions on measurement and verification of the guaranteed savings achieved, quality checks and guarantees.
 - Provisions clarifying the procedure to deal with changing framework conditions that affect the content and the outcome of the contract, namely changing energy prices and the use intensity of an installation.
 - Detailed information on the obligations of each contracting party and of the penalties for their breach.
-

ANNEX XVI

Part A

Repealed Directive with list of the successive amendments thereto
(referred to in Article 39)

Directive 2012/27/EU of the European Parliament and of the Council (OJ L 315, 14.11.2012, p. 1)	
Council Directive 2013/12/EU (OJ L 141, 28.5.2013, p. 28)	
Directive (EU) 2018/844 of the European Parliament and of the Council (OJ L 156, 19.6.2018, p. 75)	only Article 2
Directive (EU) 2018/2002 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 210)	
Regulation (EU) 2018/1999 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1)	only Article 54
Decision (EU) 2019/504 of the European Parliament and of the Council (OJ L 85I, 27.3.2019, p. 66)	only Article 1
Commission Delegated Regulation (EU) 2019/826 (OJ L 137, 23.5.2019, p. 3)	
Directive (EU) 2019/944 of the European Parliament and of the Council (OJ L 158, 14.6.2019, p. 125)	only Article 70

Part B

Time-limits for transposition into national law (referred to in Article 39)

Directive	Time-limit for transposition
2012/27/EU	5 June 2014
(EU) 2018/844	10 March 2020
(EU) 2018/2002	25 June 2020, with the exception of points 5 to 10 of Article 1 and points 3 and 4 of the Annex 25 October 2020 as regards points 5 to 10 of Article 1 and points 3 and 4 of the Annex
(EU) 2019/944	31 December 2019 as regards point (5)(a) of Article 70 25 October 2020 as regards point (4) of Article 70 31 December 2020 as regards points (1) to (3), (5)(b) and (6) of Article 70

ANNEX XVII

Correlation Table

Directive 2012/27/EU	This Directive
Article 1	Article 1
Article 2, introductory wording	Article 2, introductory wording
Article 2, point 1	Article 2, point 1
-	Article 2, points 2, 3 and 4
Article 2, point 2	Article 2, point 5
Article 2, point 3	Article 2, point 6
-	Article 2, point 7
Article 2, point 4	Article 2, point 8
Article 2, point 5	Article 2, point 9
Article 2, point 6	Article 2, point 10
Article 2, point 7	Article 2, point 11
Article 2, point 8	Article 2, point 12
Article 2, point 9	-
Article 2, point 10	Article 2, point 13
-	Article 2, points 14 and 15
Article 2, point 11	Article 2, point 16
Article 2, point 12	Article 2, point 17
Article 2, point 13	Article 2, point 18
Article 2, point 14	Article 2, point 19
Article 2, point 15	Article 2, point 20
Article 2, point 16	Article 2, point 21

Directive 2012/27/EU	This Directive
Article 2, point 17	Article 2, point 22
Article 2, point 18	Article 2, point 23
Article 2, point 19	Article 2, point 24
Article 2, point 20	Article 2, point 25
Article 2, point 21	Article 2, point 26
Article 2, point 22	Article 2, point 27
Article 2, point 23	Article 2, point 28
Article 2, point 24	Article 2, point 29
-	Article 2, point 30
-	Article 2, point 31
Article 2, point 25	Article 2, point 32
Article 2, point 26	-
Article 2, point 27	Article 2, point 33
Article 2, point 28	Article 2, point 34
Article 2, point 29	Article 2, point 35
Article 2, point 30	Article 2, point 36
Article 2, point 31	Article 2, point 37
Article 2, point 32	Article 2, point 38
Article 2, point 33	Article 2, point 39
Article 2, point 34	Article 2, point 40
Article 2, point 35	Article 2, point 41
Article 2, point 36	Article 2, point 42
Article 2, point 37	Article 2, point 43
Article 2, point 38	Article 2, point 44
Article 2, point 39	Article 2, point 45

Directive 2012/27/EU	This Directive
Article 2, point 40	-
Article 2, point 41	Article 2, point 46
Article 2, point 42	Article 2, point 47
Article 2, point 43	Article 2, point 48
-	Article 2, point 49
Article 2, point 44	Article 2, point 50
Article 2, point 45	Article 2, point 51
-	Article 2, points 52, 53,54, 55 and 56
-	Article 3
-	Article 4(1)
Article 3(1), first subparagraph	Article 4(2), first subparagraph
	Article 4(2), second subparagraph
Article 3(1), second subparagraph, introductory wording	Article 4(3), first subparagraph, introductory wording
Article 3(1), second subparagraph, points (a) and (b)	Article 4(3), first subparagraph, points (a) and (b)
Article 3(1), second subparagraph, point (c)	-
Article 3(1), second subparagraph, point (d)	Article 4(3), first subparagraph, point (c)
Article 3(1), third subparagraph, introductory wording	-
-	Article 4(3), first subparagraph, point (d), introductory wording
-	Article 4(3), first subparagraph, points (d)(i), (ii) and (iii)
Article 3(1), third subparagraph, point (a)	Article 4(3), first subparagraph, point (d)(iv)
-	Article 4(3), first subparagraph, point (e), introductory wording

Directive 2012/27/EU	This Directive
Article 3(1), third subparagraph, point (b)	Article 4(3), first subparagraph, point (e)(i)
Article 3(1), third subparagraph, point (c)	Article 4(3), first subparagraph, point (e)(ii)
Article 3(1), third subparagraph, point (d)	Article 4(3), first subparagraph, point (e)(iii)
Article 3(1), third subparagraph, point (e)	-
-	Article 4(3), first subparagraph, point (e)(iv)
Article 3(2) and (3)	-
Article 3(4)	Article 35(6)
Article 3(5) and (6)	-
-	Article 4(4)
-	Article 4(5)
	Article 4(6)
	Article 4(7)
-	Article 5
Article 5(1), first subparagraph	Article 6(1), first subparagraph
Article 5(1), second subparagraph	Article 6(1), fifth subparagraph
-	Article 6(1), second and third subparagraph
Article 5(1), third subparagraph	Article 6(1), fourth subparagraph
Article 5(1), fourth and fifth subparagraph	-
Article 5(2)	Article 6(2)
-	Article 6(2), second subparagraph
Article 5(3)	Article 6(3)
Article 5(4)	Article 6(4)
Article 5(5)	Article 6(5)
Article 5(5), first subparagraph, point (b)	Article 6(5), second subparagraph, point (c)
-	Article 6(5), second subparagraph, point (b)

Directive 2012/27/EU	This Directive
Article 5(6)	Article 6(6)
-	Article 6(6), second subparagraph, point (a)
Article 5(6), second subparagraph	Article 6(6), second subparagraph, point (b)
Article 5(6), third subparagraph	Article 6(6), third subparagraph
Article 5(7)	-
Article 6(1), first subparagraph	Article 7(1), first subparagraph
Article 6(1), second subparagraph	Article 7(1), first subparagraph
	Article 7(1), second subparagraph
	-
Article 6(2), (3) and (4)	Article 7(2), (3) and (4)
-	Article 7(5), (6), (7) and (8)
-	
Article 7(1), introductory wording, point (a)	Article 8(1), introductory wording, point (a)
and (b)	and (b)
-	Article 8(1), point (c)
Article 7(1), second subparagraph	Article 8(5)
Article 7(1), third subparagraph	Article 8(1), fifth subparagraph
Article 7(1), fourth subparagraph	Article 8(1), fourth subparagraph
-	Article 8 (3) and (4)
Article 7(2)	Article 8(6)
Article 7(3)	Article 8(7)
Article 7(4)	Article 8(8)
Article 7(5)	Article 8(9)
Article 7(6)	Article 8(10)
Article 7(7)	-
Article 7(8)	-

Directive 2012/27/EU	This Directive
Article 7(9)	-
Article 7(10)	Article 8(2)
Article 7(11)	-
	Article 8(11), (12) and (13)
Article 7(12)	Article 8(14)
Article 7a (1)	Article 9(1)
Article 7a(2)	Article 9(3)
Article 7a(3)	Article 9(4)
-	Article 9(2)
-	Article 9(5), (6) and (7)
Article 7a (4) and (5)	Article 9(8) and (9)
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Article 7a (6) and (7)	Article 9(11) and (12)
Article 7b (1) and (2)	Article 10(1) and (2)
-	Article 10(3) and (4)
-	Article 11(1) and (2)
-	Article 11(3) and (4)
Article 8(1) and (2)	Article 11(5), (6) and (7)
Article 8(3) and (4)	-
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Article 8(5)	Article 11(9)
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Article 8(6)	Article 11(11)
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Directive 2012/27/EU	This Directive
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Article 9a	Article 14
Article 9b	Article 15
Article 9c	Article 16
Article 10	Article 17
Article 10a	Article 18
Article 11	Article 19
Article 12	Article 20
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-	Article 22(1)
Article 12(1)	Article 22(2)
Article 12(2), introductory wording and point (a), points (i) to (v)	Article 22(2), second subparagraph, points (a) to (g)
Article 12(2), point (b)	Article 22(2), second subparagraph, point (h)
-	Article 22(3), third subparagraph
Article 12(2), point (b), points (i) and (ii)	Article 22(3), third subparagraph, points (a) and (b)
-	Article 22(3), third subparagraph, points (c) and (d)
-	Article 22(3), third subparagraph, point (e)
-	Article 22 (4) to (9)
-	Article 23
-	Article 24

Directive 2012/27/EU	This Directive
Article 13	Article 32
Article 14(1)	Article 25(1)
-	Article 25(2)
Article 14(2)	Article 25(5)
Article 14(3)	Article 25(3), first subparagraph
-	Article 25(3), second subparagraph
Article 14(4)	Article 25(4)
-	Article 25(6)
-	Article 26(1), (2), (3), (4), (5) and (6)
Article 14(5), introductory wording and point (a)	Article 26(7), introductory wording and point (a)
Article 14(5), points (b), (c) and (d)	-
-	Article 26(7), points (b), (c) and (d) and second subparagraph
Article 14(5), second and third subparagraphs	Article 26(7), third and fourth subparagraphs
Article 14(6), point (a)	Article 26(8), point (a)
Article 14(6), point (b)	-
Article 14(6), point (c)	Article 26(8), point (b)
-	Article 26(8), point (c)
Article 14(6), second and third subparagraphs	Article 26(8), second and third subparagraphs
Article 14(7), (8) and (9)	Article 26(9), (10) and (11)
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Article 15(1), first subparagraph	Article 27(1)
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Directive 2012/27/EU	This Directive
-	Article 27(2), (3) and (4)
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Article 15(2) and (2a)	-
Article 15(3), (4) and (5), first subparagraph	Article 27(6), (7) and (8)
Article 15(5), second subparagraph	-
Article 15(6), first subparagraph	-
Article 15(6), second subparagraph	Article 27(9)
Article 15(7)	Article 27(10)
Article 15(9), first subparagraph	Article 27(11)
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Article 16(1) and (2)	-
-	Article 28(1), (2), (3) and (5)
Article 16(3)	Article 28(4)
Article 17(1), first subparagraph	-
Article 17(1), second subparagraph	Article 30(3)
Article 17(2)	Article 22(7)
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Article 17(5)	Article 22(10)
Article 18(1), introductory wording	Article 29(1), introductory wording
Article 18(1), point (a), points (i) and (ii)	Article 29(1), points (a) and (b)
-	Article 29(1), points (c) and (d)
Article 18(1), point (b)	Article 29(2)
Article 18(1), point (c)	Article 29(3)
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Directive 2012/27/EU	This Directive
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-	Article 29(5), point (c)
Article 18(2), points (a) and (b)	Article 29(6), points (a) and (b)
Article 18(2), point (c) and (d)	-
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Article 18(3)	Article 29(8)
Article 19(1), point (a)	Article 22(5), first subparagraph
Article 19(1), point (b)	Article 7(7), first subparagraph
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Article 19(2)	-
Article 20(1) and (2)	Article 30(1) and (2)
-	Article 30(3), (4), (5),
Article 20(3), (3a), (3b) and (3c)	Article 30(6), (7), (8) and (9)
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-	Article 30(10), second subparagraph
Article 20(4), (5), (6) and (7)	Article 30(11), (13), (14) and (15)
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Directive 2012/27/EU	This Directive
Article 22(1) and (2)	Article 33(1) and (2)
-	Article 33(3)
Article 23	Article 34
Article 24(4a), (5) and (6)	Article 35(1), (2) and (3)
Article 24(7), (8), (9), (10), (12)	-
Article 24(13) and (14)	Article 35(4) and (5)
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Article 24(15), point (a)	-
Article 24(15), point (b)	Article 35(7), point (a)
-	Article 35(7), point (b), (c), (d), (e), (f), (g) and (h)
-	Article 35(7), second subparagraph
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Article 27, second paragraph	-
Article 27, third paragraph	Article 38, second paragraph
Article 28(1), first subparagraph	Article 36(1), first subparagraph
Article 28(1), second subparagraph	-
Article 28(1), third and fourth subparagraphs	Article 36(1), second subparagraph
Article 28(2)	Article 36(2)
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Directive 2012/27/EU	This Directive
-	Article 39, second paragraph
-	Article 39, third paragraph
Article 30	Article 40
-	Annex I
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Annex V	Annex V
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Annex VII	Annex VIII
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Annex VIII	Annex X
Annex IX	Annex XI
Annex X	Annex XII
Annex XI	Annex XIII
Annex XII	Annex XIV
Annex XIII	Annex XV
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-	Annex XVI
-	Annex XVII