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ANNEXES 1 to 16

ANNEXES

to the

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on energy efficiency~~, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC~~ (recast)

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⇩ new

ANNEX I

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

1. The level of national contributions is calculated based on 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_{B2030} PEC_{B2030} is the 2020 Reference Scenario used as a baseline for 2030.

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

a) a flat rate contribution ("F_{flat}");

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_{flat} represents the 2030 Union target that includes the additional efforts needed to reach the Union's energy efficiency targets in FEC and PEC compared to the 2020 Reference Scenario projections for 2030.

4. F_{wealth} shall be calculated for each Member State based on 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. $F_{intensity}$ shall be calculated for each Member State based on 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. $F_{potential}$ shall be calculated for each Member State based on the final or primary energy savings under the PRIMES MIX 55% scenario for 2030. The savings are expressed in relation to 2020 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 each factor shall be capped at 50% and 150% of the Union average level of ambition under a given factor.

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_{flat}. F_{wealth} $F_{intensity}$ and $F_{potential}$). The target shall be then calculated as the product of the total factor F_{total} and the EU target.

10. A primary and final energy correction factor C_{EU} shall be applied to all Member States to calibrate the sum of all national contributions to the Union primary and

final energy consumption targets in 2030. The factor C_{EU} is identical for all Member States.

↓ 2012/27/EU (adapted)
⇨ new

ANNEX III

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.

(a) 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 following conditions are met ⌫ :

(i) in cogeneration units of types (b), (d), (e), (f), (g) and (h) referred to in Part II with an annual overall efficiency set by Member States at a level of at least 75 %; ~~and~~

(ii) in cogeneration units of types (a) and (c) referred to in Part II with an annual overall efficiency set by Member States at a level of at least 80 %.

(b) In cogeneration units with an annual overall efficiency below the value referred to in point (a)(i) ~~of point (a)~~ (cogeneration units of types (b), (d), (e), (f), (g), and (h) referred to in Part II) or with an annual overall efficiency below the value referred to in point (a)(ii) ~~of point (a)~~ (cogeneration units of types (a) and (c) referred to in Part II) ⌦ electricity from ⌫ cogeneration is calculated according to the following formula:

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

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 must 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 (a), (b), (c), (d) and (e) 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 (f), (g), (h), (i), (j) and (k) referred to in Part II, such default values shall be published and shall be notified to the Commission.

(c) If a share of the energy content of the fuel input to the cogeneration process is recovered in chemicals and recycled this share can be subtracted from the fuel input before calculating the overall efficiency used in points (a) and (b).

(d) 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.

(e) Member States may use other reporting periods than one year for the purpose of the calculations according to points (a) and (b).

Part II

Cogeneration technologies covered by this Directive

(a) Combined cycle gas turbine with heat recovery

(b) Steam back pressure turbine

(c) Steam condensing extraction turbine

(d) Gas turbine with heat recovery

(e) Internal combustion engine

(f) Microturbines

(g) Stirling engines

(h) Fuel cells

(i) Steam engines

(j) Organic Rankine cycles

(k) Any other type of technology or combination thereof falling under the definition laid down in point (30) of Article 2~~(30)~~.

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/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~~[1].

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[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).

↓ 2012/27/EU

ANNEX III~~II~~

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 according to 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;~~.~~

⇩ new

– direct emissions of the carbon dioxide from cogeneration production that is fuelled with fossil fuels, are less than 270 gCO_2 per 1 kWh of energy output from the combined generation (including heating/cooling, power and mechanical energy).

– 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.

↓ 2012/27/EU

(b) Calculation of primary energy savings

The amount of primary energy savings provided by cogeneration production defined in accordance with Annex III~~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 Hη 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 Hη is the efficiency reference value for separate heat production.

CHP Eη 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 2414(10).

Ref Eη 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 III to exclude the non-cogenerated heat and electricity parts of the same process. Such a production can be regarded as high-efficiency cogeneration provided it fulfils the efficiency criteria 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 III.

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 Hη' with 'Hη' and 'CHP Eη' with 'Eη', where:

Hη shall mean 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.

Eη shall mean 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 2414(10).

(d) Member States may use other reporting periods than one year for the purpose of the calculations according to points (b) and (c) of this Annex.

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

(f) 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 must be based on a well-documented analysis taking, inter alia, into account 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)~~2.~~ e~~E~~ach 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)~~3.~~ t~~T~~he efficiency reference values for cogeneration units older than 10 years of age shall be fixed on the reference values of units of 10 years of age;~~.~~

(iv)~~4.~~ t~~T~~he efficiency reference values for separate electricity production and heat production shall reflect the climatic differences between Member States.

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↓ 2012/27/EU (adapted)
⇨ new

ANNEX IV~~III~~

ENERGY EFFICIENCY REQUIREMENTS FOR PUBLIC PROCUREMENT, ~~SERVICES AND BUILDINGS BY CENTRAL GOVERNMENT~~

~~Central governments~~ ⇨ In award procedures for public contracts and concessions, contracting authorities and contracting entities ⇦ that purchase products, services, ~~or~~ buildings ⇨ and works ⇦, insofar ~~as this is consistent with cost-effectiveness, economical feasibility, wider sustainability, technical suitability, as well as sufficient competition,~~ 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 directive, purchase only the products that comply with the criterion ~~of belonging to the highest energy efficiency class possible in the light of the need to ensure sufficient competition~~ ⌦ 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 adopted after the entry into force of this Directive, purchase only products that comply with energy efficiency benchmarks specified in that implementing measure;

~~(c) purchase office equipment products covered by Council Decision 2006/1005/EC of 18 December 2006 concerning conclusion of the Agreement between the Government of the United States of America and the European Community on the coordination of energy-efficiency labelling programmes for office equipment[2] that comply with energy efficiency requirements not less demanding than those listed in Annex C to the Agreement attached to that Decision;~~

⇩ new

(c) where a product or a service is covered by the Union green public procurement 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 including among others for data centres, server rooms and cloud services, Union green public procurement criteria for road lighting and traffic signals, Union green public procurement criteria for computers, monitors tablets and smartphones;

↓ 2012/27/EU
⇨ new

(d) purchase only tyres that comply with the criterion of having the highest fuel energy efficiency class, as defined by ~~Regulation (EC) No 1222/2009 of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with~~

[2] ~~Council Decision 2006/1005/EC of 18 December 2006 concerning conclusion of the Agreement between the Government of the United States of America and the European Community on the coordination of energy-efficiency labelling programmes for office equipment (OJ L 381, 28.12.2006, p. 24).~~

~~respect to fuel efficiency and other essential parameters~~[3] Regulation (EU) 2020/740 of the European Parliament and of the Council[4]. This requirement 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 the requirements referred to in points (a) to (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, only buildings that comply at least with the minimum energy performance requirements referred to in Article ~~5(1)~~ ⇨ 4(1) of Directive 2010/31/EU ⇦ 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 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 historical merit.

Compliance with these requirements shall be verified by means of the energy performance certificates referred to in Article 11 of Directive 2010/31/EU.

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[3] ~~Regulation (EC) No 1222/2009 of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters (OJ L 342, 22.12.2009, p. 46).~~

[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).

↓ 2018/2002 Art. 1.16 and Annex .2

ANNEX V

COMMON METHODS AND PRINCIPLES FOR CALCULATING THE IMPACT OF ENERGY EFFICIENCY OBLIGATION SCHEMES OR OTHER POLICY MEASURES UNDER ARTICLES 8~~7~~, 9~~7a~~ AND 10~~7b~~ AND ARTICLE 28(11)~~20(6)~~

1. Methods for calculating energy savings other than those arising from taxation measures for the purposes of Articles 8~~7~~, 9~~7a~~ and 10~~7b~~ and Article 28(11)~~20(6)~~.

   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, e.g. 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) surveyed savings, where consumers' response to advice, information campaigns, labelling or certification schemes or smart metering is determined. This approach may 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~~7~~, 9~~7a~~ and 10~~7b~~ and Article 28(11)~~20(6)~~, the following principles apply:

⇩ new

   (a) Member States shall demonstrate that the policy measure has been implemented for the purpose of fulfilling the energy savings obligation and achieving end-use energy savings pursuant to Article 8(1). Member States shall provide evidence and their documentation that the energy savings are caused by a policy measure, including voluntary agreements.

↓ 2018/2002 Art. 1.16 and Annex .2
⇨ new

(b~~a~~) t~~T~~he 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~~b~~) s~~S~~avings 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~~7~~(1). By way of derogation from that requirement, savings related to the renovation of existing buildings may be claimed as energy savings for the purpose of Article 8~~7~~(1), provided that the materiality criterion referred to in point 3(h) of this Annex is ensured. ~~Savings resulting from the implementation of national minimum requirements established for new buildings prior to the transposition of Directive 2010/31/EU can be claimed as energy savings for the purpose of point (a) of Article 7(1), provided that the materiality criterion referred to in point 3(h) of this Annex is ensured and those savings have been notified by Member States in their National Energy Efficiency Action Plans in accordance with Article 24(2).~~ ⇨ 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 the requirements of this Annex. ⇦

⇩ new

(d) measures taken pursuant to Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions 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 the requirements of this Annex.

(e) Member States cannot count reduced energy use in sectors, including the transport and building sector, that would have occurred in any event as a result of emission trading pursuant to the EU ETS Directive towards the fulfilment of the energy savings obligation pursuant to Article 8(1). If an entity is an obligated party under a national energy efficiency obligation scheme under Article 9 of this Directive and under the EU Emissions Trading System for buildings and road transport [Reference to proposal], the monitoring and verification system shall ensure that the carbon price passed through when releasing fuel for consumption [according to Article XX of Directive XX] is taken into account when calculating and reporting the energy savings of its energy saving measures.

🡻 2018/2002 Art. 1.16 and Annex .2 ⇨ new

(fe) cCredit may be given only for savings exceeding the following levels:

(i) Union emission performance standards for new passenger cars and new light commercial vehicles following the implementation of ~~Regulations (EC) No 443/2009[5] and (EU) No 510/2011 of the European Parliament and of the Council[6]~~ Regulation (EU) 2019/631 of the European Parliament and of the Council[7]; ⇨ Member States must provide evidence, their assumptions and their calculation methodology to show additionality to the Union´s new vehicle CO2 requirements; ⇦

(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; ⇦

(gd) pPolicies 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 those policy measures regarding the use of direct combustion of fossil fuel technologies, that are implemented as from 1 January 2024 ⇦;

⇩ new

(h) Energy savings as a result of policy measures 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 as from 1 January 2024.

🡻 2018/2002 Art. 1.16 and Annex .2 ⇨ new

(ie) mMeasures 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 87(1), provided that they result in verifiable, and measurable or estimable, ⇨ end-use ⇦ energy savings. The calculation of energy savings shall comply with the requirements of this Annex;;

5 ~~Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles (OJ L 140, 5.6.2009, p. 1).~~

6 ~~Regulation (EU) No 510/2011 of the European Parliament and of the Council of 11 May 2011 setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO_2 emissions from light-duty vehicles (OJ L 145, 31.5.2011, p. 1).~~

7 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).

⇩ new

(j) 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 ambient heat captured by solar thermal technologies can be excluded from their end-use energy consumption;

🡻 2018/2002 Art. 1.16 and Annex .2 (adapted)
⇨ new

(k~~f~~) f~~F~~or policies that accelerate the uptake of more efficient products and vehicles, ⇨ except those regarding the use of direct fossil fuel combustion, ⇦ full credit may be claimed, provided that it is shown that such uptake takes place before 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 end of the average expected lifetime of the product or vehicle to be replaced;~~.~~

(l~~g~~) i~~I~~n 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;~~.~~

(m~~h~~) t~~T~~o 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;~~.~~

(n~~i~~) t~~T~~he 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 ⇦ ~~31 December 2020 or 31 December 2030 as appropriate~~. 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 ~~31 December 2020 or 31 December~~ 2030 ~~as appropriate~~. Member States shall describe in detail in their integrated national energy and climate plans under Regulation (EU) 2018/1999 the 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~~87b~~ and Article 28(11)~~20(6)~~ 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 final or primary energy consumption, using the ⇨ net calorific values or primary energy ⇦ ~~conversion~~ factors ⌦ referred to in Article 29 ⌫ ~~set out in Annex IV~~;

(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;~~.~~

⇩ new

(i) the activities of the participating party, entrusted party or implementing public authority have no adverse effects on vulnerable customers, people affected by energy poverty and, where applicable, people living in social housing.

🡻 2018/2002 Art. 1.16 and Annex .2
⇨ new

4. In determining the energy saving from taxation related policy measures introduced under Article 10~~7b~~, 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/EC[8] or 2006/112/EC[9];

(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, based on 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; ⇦

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8 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).

9 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).

(c) the energy savings from accompanying taxation policy instruments, including fiscal incentives or payment to a fund, shall be accounted separately;~~.~~

⇩ new

(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.

(e) Member States shall determine distributional effects of taxation and equivalent measures on vulnerable customers, people affected by energy poverty and, where applicable, people living in social housing, and show the effects of mitigation measures implemented in accordance with Article 22(1) to (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 emission trading according the EU ETS Directive, there is no double counting of energy savings.

🡻 2018/2002 Art. 1.16 and Annex .2 (adapted)

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~~7a~~ and 10~~7b~~, and Article 28(11)~~20(6)~~. Except in the case of taxation, such notification shall include details of:

(a) the level of the energy savings required under ~~point (b) of~~ the first subparagraph of Article 8~~7~~(1) or savings expected to be achieved over the whole period from 1 January 2021 to 31 December 2030;

⇩ new

(b) how the calculated quantity of new energy savings required under the first subparagraph of Article 8(1) or energy savings expected to be achieved will be phased over the obligation period;

🡻 2018/2002 Art. 1.16 and Annex .2

(c~~b~~) the obligated, participating or entrusted parties, or implementing public authorities;

(d~~c~~) target sectors;

(e~~d~~) policy measures and individual actions, including the expected total amount of cumulative energy savings for each measure;

⇩ new

(f) information on policy measures or programmes or measures financed under an Energy Efficiency National 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, information about the indicators applied, the arithmetic average share and the outcome of policy measures established according to Article 8(3);

(i) where applicable, information about 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.

🡻 2018/2002 Art. 1.16 and Annex .2

(j~~e~~) the duration of the obligation period for the energy efficiency obligation scheme;

⇩ new

(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;

🡻 2018/2002 Art. 1.16 and Annex .2

(l~~f~~) the actions provided for by the policy measure;

(m~~g~~) 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~~h~~) the lifetimes of measures, and how they are calculated or what they are based upon;

(o~~i~~) the approach taken to address climatic variations within the Member State;

(p~~j~~) the monitoring and verification systems for measures under Articles 9~~7a~~ and 10~~7b~~ and how their independence from the obligated, participating or entrusted parties is ensured;

(q~~k~~) 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; and

(v) the calculation methodology, including the price elasticities used and how they have been established;.

⇩ new

(vi) how overlaps with emission trading in accordance with the EU ETS Directive have been avoided and the risk of double counting has been abolished.

↓ 2012/27/EU
⇨ new

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~~8~~ shall be based on the following ~~guidelines~~ ⇨ criteria ⇦:

(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;

⇩ new

(c) identify energy efficiency measures to decrease energy consumption;

(d) identify the potential for cost-effective use or production of renewable energy;

↓ 2012/27/EU

(c~~c~~) build, whenever possible, on life-cycle cost analysis (LCCA) instead of Simple Payback Periods (SPP) in order to take account of long-term savings, residual values of long-term investments and discount rates;

(f~~d~~) 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.

⇩ new

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

The following minimum information shall be monitored and published as regards the energy performance of data centres referred to in Article 11(10):

(a) the name of the data centre; the name of the owner and operators of the data centre; 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.

↓ 2012/27/EU

ANNEX VII

↓ 2019/944 Art. 70.6

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

↓ 2012/27/EU

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 quarterly, on request or where the consumers have opted to receive electronic billing or else twice yearly. Gas used only for cooking purposes may be exempted 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 these appliances.

↓ 2018/2002 Art. 1.16 and Annex .4 (adapted)

ANNEX VIII~~VIIa~~

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 ⌫ ~~From 25 October 2020~~, 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 quarterly 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 monthly. 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/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) information about the fuel mix used and the related annual greenhouse gas emissions, including for final users supplied by district heating or district cooling, and a description of the different taxes, levies and tariffs applied. Member States may limit the scope of the requirement to provide information about greenhouse gas emissions to include only supplies from district heating systems with a total rated thermal input exceeding 20 MW;

(c) comparisons of the final users current energy consumption with consumption for the same period in the previous year, in graphic form, 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.

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).

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↓ 826/2019 Art. 1(1) and Annex I (adapted)

ANNEX IX~~VIII~~

POTENTIAL FOR EFFICIENCY IN HEATING AND COOLING

The comprehensive assessment of national heating and cooling potentials referred to in Article 20~~14~~(1) shall include and be based on the following:

Part I

OVERVIEW OF HEATING AND COOLING

1. heating and cooling demand in terms of assessed useful energy[10] and quantified final energy consumption in GWh per year[11] by sectors:
   (a) residential;
   (b) services;
   (c) industry;
   (d) any other sector that individually consumes more than 5 % of total national useful heating and cooling demand;
2. identification, or in the case of point 2(a)(i), identification or estimation, of current heating and cooling supply:
   (a) by technology, in GWh per year[12], within sectors mentioned under 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;
      (iii) provided off-site by:
         – high-efficiency heat and power cogeneration;
         – waste heat;

[10] The amount of thermal energy needed to satisfy the heating and cooling demand of end-users.
[11] The most recent data available should be used.
[12] The most recent data available should be used.

– other off-site technologies and sources;

(b) 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 III 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 point 2(b)(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 cooling[13] sector over the past 5 years, in line with Directive (EU) 2018/2001;

3. a map covering the entire national territory identifying (while preserving commercially sensitive information):

(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 district heating transmission installations;

4. 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;

Part II

OBJECTIVES, STRATEGIES AND POLICY MEASURES

5. planned contribution of the Member State to its national objectives, targets and contributions for the five dimensions of the Eenergy Uunion, as laid out in Article 3(2)(b) of Regulation (EU) 2018/1999, delivered through efficiency in heating and cooling, in particular related to points 1 to 4 of Article 4(b) and to paragraph (4)(b) of Article 15, identifying which of these elements is additional compared to integrated national energy and climate plans;

[13] 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.

6. general overview of the existing policies and measures as described in the most recent report submitted in accordance with Articles 3, 20, 21 and 27(a) of Regulation (EU) 2018/1999;

Part III

ANALYSIS OF THE ECONOMIC POTENTIAL FOR EFFICIENCY IN HEATING AND COOLING

7. an analysis of the economic potential[14] 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 2014(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.

   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;

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

   (a) Considerations:

      (i) the cost-benefit analysis for the purposes of Article 2014(3) shall include an economic analysis that takes into consideration socioeconomic and environmental factors[15], and a financial analysis performed to assess projects from the investors' point of view. Both economic and financial analyses shall use the net present value as criterion for the assessment;

      (ii) the baseline scenario should serve as a reference point and take into account existing policies at the time of compiling this comprehensive assessment[16], and be linked to data collected under Part I and point 6 of Part II of this Annex;

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14 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.

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

16 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.

(iii) alternative scenarios to the baseline shall take into account energy efficiency and renewable energy objectives of Regulation (EU) 2018/1999. Each scenario shall present the following elements compared to the baseline scenario:

– economic potential of technologies examined using the net present value as criterion;

– greenhouse gas 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 based on careful, explicit and well-documented considerations.

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 under point 8(a) shall include at least the following benefits and costs:

(i) 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.

(ii) 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.

(c) Relevant scenarios to the baseline:

All relevant scenarios to the baseline shall be considered, including the role of efficient individual heating and cooling.

(i) the cost-benefit analysis may either cover 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;

~~(ii) Member States shall designate the competent authorities responsible for carrying out the cost-benefit analyses pursuant to Article 14. They shall provide the detailed methodologies and assumptions in accordance with this Annex and establish and make public the procedures for the economic analysis.~~

(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 point 7 of Part III 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 and/or regional/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, i.e. when a market price exists or when it is already included in European or national regulation.

(f) Sensitivity analysis:

(i) 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

9. overview of new legislative and non-legislative policy measures[17] to realise the economic potential identified in accordance with points 7 and 8, along with their foreseen:

(a) greenhouse gas emission reductions;

(b) primary energy savings in GWh per year;

[17] 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.

(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.

↓ 2012/27/EU (adapted)
⇨ new

ANNEX X~~IX~~

COST-BENEFIT ANALYSIS

~~Part 2~~

Principles for the purpose of Article 24(4)~~14(5)~~ and (6~~7~~)

The cost-benefit analyses shall provide information for the purpose of the measures in Article 24~~14~~(4~~5~~) and (6~~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 and/or district heating and cooling networks.

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 and/or connected into a new district heating ⇨ or cooling ⇦ network.

The cost-benefit analysis 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 annually, location and electricity and thermal demand.

⇩ new

Assessment of waste heat utilization 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 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 case of waste heat recovery off-site, at least industrial installations, agriculture sites and district heating networks shall be assessed as potential demand points.

↓ 2012/27/EU
⇨ new

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 24(4)~~14(5)~~ 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.

↓ 2012/27/EU

ANNEX XI~~X~~

GUARANTEE OF ORIGIN FOR ELECTRICITY PRODUCED FROM HIGH-EFFICIENCY COGENERATION

(a) Member States shall take measures to ensure that:

(i) the guarantee of origin of the electricity produced from high-efficiency cogeneration:

– enable producers to demonstrate that the electricity they sell is produced from high-efficiency cogeneration and is issued to this effect in response to a request from the producer;~~,~~

– is accurate, reliable and fraud-resistant;~~,~~

– is issued, transferred and cancelled electronically;

(ii) the same unit of energy from high-efficiency cogeneration is taken into account only once.

(b) The guarantee of origin referred to in Article 24~~14~~(10) shall contain at least the following information:

(i) the identity, location, type and capacity (thermal and electrical) of the installation where the energy was produced;

(ii) the dates and places of production;

(iii) the lower calorific value of the fuel source from which the electricity was produced;

(iv) the quantity and the use of the heat generated together with the electricity;

(v) the quantity of electricity from high-efficiency cogeneration in accordance with Annex III~~H~~ that the guarantee represents;

(vi) the primary energy savings calculated in accordance with Annex III~~H~~ based on the harmonised efficiency reference values indicated in point (f) of Annex III~~H~~;

(vii) the nominal electric and thermal efficiency of the plant;

(viii) whether and to what extent the installation has benefited from investment support;

(ix) 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;

(x) the date on which the installation became operational; and

(xi) 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.

↓ 2012/27/EU

ANNEX XII~~XI~~

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

1. Network tariffs shall 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, 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 energy aggregators;

   (c) demand reduction from energy efficiency measures undertaken by energy service providers, including energy service companies;

   (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.

   For the purposes of this provision the term ‘organised electricity markets’ shall include 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.

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.

↓ 2012/27/EU

ANNEX XIII~~XII~~

ENERGY EFFICIENCY REQUIREMENTS FOR TRANSMISSION SYSTEM OPERATORS AND DISTRIBUTION SYSTEM OPERATORS

Transmission system operators and distribution system operators shall:

↓ 2018/2002 Art. 1.16 and Annex .6

(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;

↓ 2012/27/EU

(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) 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.

↓ 2012/27/EU (adapted)

ANNEX XIV~~XIII~~

MINIMUM ITEMS TO BE INCLUDED IN ENERGY PERFORMANCE CONTRACTS ~~WITH THE PUBLIC SECTOR~~ OR IN THE ASSOCIATED TENDER SPECIFICATIONS

⇩ new

– Findings /recommendations of an analysis/ audit carried out before the contract has been concluded that covers energy use of the building with a view to implement energy efficiency improvement measures.

↓ 2012/27/EU

– 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.

– Duration and milestones of the contract, terms and period of notice.

– Clear and transparent list of the obligations of each contracting party.

– Reference date(s) to establish achieved savings.

– Clear and transparent list of steps to be performed to implement a measure or package of measures and, where relevant, associated costs.

– 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.

– Clear and transparent display of financial implications of the project and distribution of the share of both parties in the monetary savings achieved (i.e. remuneration of the service provider).

– 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 (i.e. changing energy prices, use intensity of an installation).

– Detailed information on the obligations of each of the contracting party and of the penalties for their breach.

↓ 2012/27/EU (adapted)

~~ANNEX XV~~

~~CORRELATION TABLE~~

~~Directive 2004/8/EC~~	~~This Directive~~
~~Article 1~~	~~Article 1(1)~~
~~Article 2~~	~~Article 1(1)~~
~~Article 3, point (a)~~	~~Article 2, point (30)~~
~~Article 3, point (b)~~	~~Article 2, point (32)~~
~~Article 3, point (c)~~	~~Article 2, point (31)~~
~~Article 3, point (d)~~	~~Article 2, point (33)~~
~~Article 3, points (e) and (f)~~	~~—~~
~~Article 3, point (g)~~	~~Article 2, point (35)~~
~~Article 3, point (h)~~	~~—~~
~~Article 3, point (i)~~	~~Article 2, point (34)~~
~~Article 3, point (j)~~	~~—~~
~~Article 3, point (k)~~	~~Article 2, point (36)~~
~~Article 3, point (l)~~	~~Article 2, point (37)~~
~~Article 3, point (m)~~	~~Article 2, point (39)~~
~~Article 3, point (n)~~	~~Article 2, point (38)~~
~~Article 3, point (o)~~	~~—~~
~~—~~	~~Article 2, points (40), (41), (42), (43), and (44)~~
~~Article 4(1)~~	~~Annex II, point (f), first subpoint~~
~~Article 4(2)~~	~~Article 14(10), second subparagraph~~
~~Article 4(3)~~	~~—~~
~~Article 5~~	~~Article 14(10), first subparagraph and Annex X~~
~~Article 6~~	~~Article 14(1) and (3), Annex VIII and IX~~

~~Article 7(1)~~	~~Article 14(11)~~
~~Article 7(2) and (3)~~	~~—~~
~~Article 8~~	~~Article 15(5)~~
~~—~~	~~Article 15(6), (7), (8) and (9)~~
~~Article 9~~	~~—~~
~~Article 10(1) and (2)~~	~~Article 14(1) and 24(2), Annex XIV, Part 2~~
~~Article 10(3)~~	~~Article 24(6)~~
~~Article 11~~	~~Article 24(3)~~
~~—~~	~~Article 24(5)~~
~~Article 12(1) and (3)~~	~~—~~
~~Article 12(2)~~	~~Annex II, point (c)~~
~~Article 13~~	~~Article 22(2)~~
~~Article 14~~	~~—~~
~~Article 15~~	~~Article 28~~
~~Article 16~~	~~—~~
~~Article 17~~	~~Article 29~~
~~Article 18~~	~~Article 30~~
~~Annex I~~	~~Annex I, Part II~~
~~Annex II~~	~~Annex I, Part I and Part II, last subparagraph~~
~~Annex III~~	~~Annex II~~
~~Annex IV~~	~~Annex VIII~~
~~—~~	~~Annex IX~~

~~Directive 2006/32/EC~~	~~This Directive~~
~~Article 1~~	~~Article 1(1)~~
~~Article 2~~	~~Article 1(1)~~
~~Article 3, point (a)~~	~~Article 2, point (1)~~

~~Article 3, point (b)~~	~~Article 2, point (4)~~
~~Article 3, point (c)~~	~~Article 2, point (6)~~
~~Article 3, point (d)~~	~~Article 2, point (5)~~
~~—~~	~~Article 2, points (2) and (3)~~
~~Article 3, point (e)~~	~~Article 2, point (7)~~
~~Article 3, points (f), (g), (h) and (i)~~	~~—~~
~~—~~	~~Article 2, points (8) to (19)~~
~~Article 3, point (j)~~	~~Article 2, point (27)~~
~~—~~	~~Article 2, point (28)~~
~~Article 3, point (k)~~	~~—~~
~~Article 3, point (l)~~	~~Article 2, point (25)~~
~~—~~	~~Article 2, point (26)~~
~~Article 3, point (m)~~	~~—~~
~~Article 3, point (n)~~	~~Article 2, point (23)~~
~~Article 3, point (o)~~	~~Article 2, point (20)~~
~~Article 3, point (p)~~	~~Article 2, point (21)~~
~~Article 3, point (q)~~	~~Article 2, point (22)~~
~~Article 3, points (r) and (s)~~	~~—~~
~~—~~	~~Article 2, points (24), (29), (44) and (45)~~
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~~—~~	~~Article 4~~
~~Article 4~~	~~—~~
~~Article 5~~	~~Articles 5 and 6~~
~~Article 6(1)(a)~~	~~Article 7(8), points (a) and (b)~~
~~Article 6(1)(b)~~	~~Article 18(3)~~
~~Article 6(2)~~	~~Article 7(1), (5), (6), (7), (9), (10), (11)~~

	~~and (12)~~
—	~~Article 7(2) and (3)~~
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~~Article 6(5)~~	—
~~Article 7~~	~~Article 17~~
~~Article 8~~	~~Article 16(1)~~
—	~~Article 16(2) and (3)~~
~~Article 9(1)~~	~~Article 19~~
~~Article 9(2)~~	~~Article 18(1), point (d), subpoint (i)~~
—	~~Article 18(1), points (a), (b), (c), (d), subpoint (ii), and (e)~~
~~Article 10(1)~~	~~Article 15(4)~~
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—	~~Article 15(7), (8) and (9)~~
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—	~~Annex XV~~

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ANNEX XV

Part A

Repealed Directive with list of the successive amendments thereto (referred to in Article 36)

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 36)

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 XVI

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 and 3
Article 2, point 2	Article 2, point 4
Article 2, point 3	Article 2, point 5
Article 2, point 4	Article 2, point 6
Article 2, point 5	Article 2, point 7
Article 2, point 6	Article 2, point 8
Article 2, point 7	Article 2, point 9
Article 2, point 8	Article 2, point 10
Article 2, point 9	-
Article 2, point 10	Article 2, point 11
_	Article 2, points 12 and 13
Article 2, point 11	Article 2, point 14
Article 2, point 12	Article 2, point 15
Article 2, point 13	Article 2, point 16
Article 2, point 14	Article 2, point 17
Article 2, point 15	Article 2, point 18
Article 2, point 16	Article 2, point 19
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Article 2, point 20	Article 2, point 23

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Article 2, point 23	Article 2, point 26
Article 2, point 24	Article 2, point 27
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Article 2, point 28	Article 2, point 30
Article 2, point 29	Article 2, point 31
Article 2, point 30	Article 2, point 32
Article 2, point 31	Article 2, point 33
Article 2, point 32	Article 2, point 34
Article 2, point 33	Article 2, point 35
Article 2, point 34	Article 2, point 36
Article 2, point 35	Article 2, point 37
Article 2, point 36	Article 2, point 38
Article 2, point 37	Article 2, point 39
Article 2, point 38	Article 2, point 40
Article 2, point 39	Article 2, point 41
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-	Article 2, points 48, 49 and 50
-	Article 3

-	Article 4(1)
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Article 3(1), second subparagraph, points (a) and (b)	Article 4(2), second subparagraph, points (a) and (b)
Article 3(1), second subparagraph, point (c)	-
Article 3(1), second subparagraph, point (d)	Article 4(2), second subparagraph, point (c)
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-	Article 4(2), second subparagraph, point (d), introductory wording
-	Article 4(2), second subparagraph, points (d)(i), (ii) and (iii)
Article 3(1), third subparagraph, point (a)	Article 4(2), second subparagraph, point (d)(iv)
-	Article 4(2), second subparagraph, point (e), introductory wording
Article 3(1), third subparagraph, point (b)	Article 4(2), second subparagraph, point (e)(i)
Article 3(1), third subparagraph, point (c)	Article 4(2), second subparagraph, point (e)(ii)
Article 3(1), third subparagraph, point (d)	Article 4(2), second subparagraph, point (e)(iii)
Article 3(1), third subparagraph, point (e)	-
Article 3(2) and (3)	-
Article 3(4)	Article 33(6)
Article 3(5) and (6)	-
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Article 7(8)	-
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Article 7(12)	Article 8(14)
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Article 7a (4) and (5)	Article 9(7) and (8)
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Article 7b (1) and (2)	Article 10(1) and (2)
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-	Article 11(1) and (2)
Article 8(1) and (2)	Article 11(3) and (4)
Article 8(3) and (4)	-
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Article 14(5), second and third subparagraphs	Article 24(4), third and fourth subparagraphs
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Article 15(7)	Article 25(10)
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Article 16(1) and (2)	-
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