



Brussels, 25.9.2019
C(2019) 6631 final

ANNEX

ANNEX

to the

COMMISSION RECOMMENDATION

**on the implementation of the new metering and billing provisions of the Energy
Efficiency Directive 2012/27/EU**

Annex
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1. INTRODUCTION

1.1. Legal and policy context

Articles 9, 10 and 11 and Annex VII of Directive 2012/27/EU on energy efficiency ('the EED') cover the metering and billing of individual energy consumption. The changes related to metering and billing introduced by the revision of the EED through an amending Directive¹ essentially comprise:

- the addition of new legal provisions specifically applicable to thermal energy, namely Articles 9a, 9b, 9c, 10a, 11a and Annex VIIa, and
- the removal of thermal energy from the scope of the original EED provisions (Articles 9, 10, 11 and Annex VII).

As regards the metering and billing of **electricity**, the existing body of EU law has been consolidated within a recast of the Electricity Market Directive which was also adopted as part of the Clean Energy for All Europeans Package.

For **gas**, the legislator (the European Parliament and the Council) included as part of the EED revision a review clause in Article 24(14) to ensure that the case for similar changes is considered based on an assessment or a proposal from the Commission no later than 31 December 2021.

In summary, the revised EED substantially modifies the provisions on metering and billing as regards the requirements applicable to thermal energy. For electricity, these provisions remain unchanged until the new provisions in the Recast Electricity Market Directive apply as of 1 January 2021²; for gas they remain unchanged until and unless the legislator adopts further changes.

1.2. Scope and purpose of this document

The aim of this Recommendation is to facilitate the effective and coherent application of the EED provisions on the metering and billing of thermal energy. It partly supplements and partly supersedes guidance already published by the Commission.

The Commission's 2013 guidance note on Articles 9-11³ remains relevant for electricity and gas, since the original EED provisions on electricity and gas remain in force for the time being. For thermal energy, however, much has been changed or clarified, and the 2013 note will therefore be only partially relevant once the deadline for transposing the revised provisions (25 October 2020) has passed⁴.

¹ Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency, OJ L 328, 21.12.2018, p. 210-230.

² Cf. Articles 70 and 73 of 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.

³ SWD(2013) 448 final, Brussels, 6.11.2013, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1416394987283&uri=SWD:2013:448:FIN>.

⁴ In particular, the principles set out in paragraphs 19-26, 50-54, and 56 of the 2013 note are also relevant for the new provisions covering thermal energy.

The Commission has also published specific guidance for the sub-metering of thermal energy in multi-unit buildings⁵. The general approach of this guidance remains valid, as do many of its recommendations.

1.3. Overview of changes relating to the metering and billing of thermal energy

The main differences introduced under the revised EED for metering and billing requirements for thermal energy supplies are as follows:

- Introduction of the notion of ‘**final users**’ alongside the existing ‘final customer’ notion. This is in particular **to clarify that the rights to billing and consumption information (Article 10a) also apply to consumers without individual or direct contracts with the supplier of energy** used in collective heating, cooling or hot water production systems in multi-apartment and multi-purpose buildings.
- A clearer **distinction between metering and sub-metering** (Articles 9a and 9b respectively).
- **Explicit requirement for Member States to publish criteria, methodologies and procedures used to grant exemptions** from the general requirement for sub-metering in multi-apartment and multi-purpose buildings (Article 9b(1)).
- Clarified **unconditional requirement to sub-meter domestic hot water** in residential parts of new multi-apartment and multi-purpose buildings (Article 9b(2)).
- New mandatory requirement for Member States to have in place transparent and publicly available **cost allocation rules** (Article 9b(3)).
- Introduction of **remote reading** requirements for meters and heat cost allocators (Article 9c).
- Strengthened requirements for **frequent billing and consumption information** wherever remotely readable devices are available (two or four times per year as of 25 October 2020 and monthly as of 1 January 2022) (Article 10a and Annex VIIa).
- Introduction of **more useful and complete billing information** based on climate corrected consumption data and including relevant comparisons and new elements such as information on related energy mix and GHG emissions, and on available complaints procedures or dispute resolution mechanisms (Annex VIIa).

⁵ ‘Guidelines on good practice in cost-effective cost allocation and billing of individual consumption of heating, cooling and domestic hot water in multi-apartment and multi-purpose buildings’, empirica GmbH — Communication and Technology Research, Simon Robinson, Georg Vogt, December 2016 <https://ec.europa.eu/energy/en/studies/specific-guidance-sub-metering-thermal-energy-multi-unit-buildings-implementation-articles-9>.

2. OBLIGATION FOR METERING (ARTICLE 9A)

The new Article 9a is made up of two paragraphs, each of which develops a similar requirement in the original EED, namely the first sub-paragraphs of Article 9(1) and 9(3). Together they constitute the general obligation to meter the supply of thermal energy.

Article 9a(1) contains the general requirement to ensure that **final customers⁶ are provided with meters⁷** that accurately reflect their actual energy consumption. In contrast to the original EED Article 9(1), this requirement is not subject to any conditions. The provision does not include a requirement for the meter to provide information on actual time of use.

Article 9a(2) contains a more specific requirement for a meter to be installed at the heat exchanger or point of delivery where thermal energy is supplied to a **building** from a central source that services multiple buildings or from a district heating or district cooling system. This provision was already included in the original EED Article 9(3).

In many situations, the requirements of the two provisions referred to above overlap and lead to the same outcome: this is the case where a final customer is supplied with thermal energy exclusively for purposes relating to a single building (typically for space heating and domestic hot water production). This is also the case where a building is divided into multiple units that each have their own heat exchanger/substation and where each unit's occupant is a final customer with his/her own, direct contract with the district heating/cooling network⁸. In both of these cases, the Article 9a provisions imply a need to install a meter at the point of delivery/heat exchanger for each individual final customer's premises.

However, the requirements are also complementary. Consumption can in principle occur outside a building, for example for process heat purposes at an industrial site. Under Article 9a(1), supply like this must also be metered. Similarly, some final customers may receive supplies for several buildings. By way of example, a final customer may receive supplies to several buildings from the same district heating network. If all these are connected to the network via a single point, Article 9a(1) by itself would require only one meter. In such cases, however, Article 9a(2) is intended to ensure that each building's individual consumption is also determined⁹. Another example could be a large site, for example a military base, with its own plant supplying heating, cooling or domestic hot water to multiple buildings on the site. In this case Article 9a(2) (but not Article 9a(1)) would be relevant.

⁶ A final customer is defined in EED Article 2(23) as 'a natural or legal person who purchases energy for own end use'.

⁷ Compared to Article 9, Article 9a does not refer to 'individual' meters. This difference does not change the scope of the requirement and is simply intended to reinforce the clearer distinction between metering and sub-metering and between final customers and final users. In the revised EED, the term 'individual' is mainly used in the context of sub-metering.

⁸ This situation is not so common but does occur. The more common situation is that there are several *final users* but only one *final customer* — c.f. also Section 7.1.

⁹ It should be noted that the responsibility for installing such building-level meters should not be placed on the district heating company but rather on the buildings' owner or manager.

Situations involving thermal storage systems may raise particular questions on the application of Article 9a. A situation where more than one final customer, final user or building connected to an aquifer thermal energy storage system (ATES) is supplied with heat from a collective shallow geothermal ground source can serve as an example. In such a case, the system does not necessarily need to be considered as district heating under Article 9a(1)¹⁰ nor as a central source of heating or domestic hot water under in Article 9a(2) provided that:

- the heat is supplied at a temperature which needs to be upgraded by individual heat pumps to be useful for space heating or domestic hot water production, and
- the energy required to run the heat pumps is not part of the service but is individually paid for by each final customer or final user¹¹.

In this case, metering of the low-temperature heat is not required under Article 9a.

Likewise, where such a system is reversible and also provides cooling, metering of the cold retrieved from the ground storage is not required under Article 9a, if such an operation is required for seasonal regeneration of the heat source and if the cold source is regenerated exclusively through (seasonally) alternating heating/cooling operations¹².

Finally, special considerations may be necessary in situations where thermal energy in the form of already prepared domestic hot water is delivered from a district heating system or a similar external source to a multi-apartment or multi-purpose building where the occupants are individually final customers of the supplier. In this case, and given that the EED does not specify whether a heat or a water meter is required for domestic hot water, water meters at the individual flats may in principle be sufficient if the delivery points are considered to be the taps or inlets in each apartment/unit. However, this presupposes that the energy supplier has sole responsibility for any thermal losses occurring up to those delivery points within the building. If the latter is not the case, and given that thermal energy losses in district heating networks can be considerable, it would be necessary to also place a heat meter at the point where the supplier's responsibility ends. Otherwise it will be impossible for the final customers to ascertain whether billing corresponds to actual consumption in energy terms: the supplier may argue that the losses occurred within the building, beyond their responsibility, and without a heat meter there will be no means of verifying to what extent this is the case.

¹⁰ District heating is not defined in the EED, but according to the Renewable Energy Directive it means the '*...distribution of thermal energy in the form of steam [or] hot water.. from central or decentralised sources of production through a network to multiple buildings or sites, for the use of space or process heating.*'

¹¹ Since thermal energy sourced from a shallow geothermal ground source tends to come at low temperatures at which it is not directly useful (unless combined with a heat pump) for typical energy uses (space heating, domestic hot water preparation, process heating), it is arguable that it should not necessarily be considered district heating or a 'source' of 'heating ...or domestic hot water'. In relation to Art 9a(2), such an interpretation is further strengthened if any heat pumps used (to make the thermal energy from the ground source useful) are individually paid for because, if this is the case, a critical component of the heating service does not come from a central source.

¹² Under these conditions, it is arguable that there is no net supply of cold sold by the system operator but a temporary use of a storage facility used to provide heat in colder periods.

3. OBLIGATION FOR SUB-METERING (ARTICLE 9B(1))

As explained in recital 31 to the amending Directive, 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. To clarify this aspect of the legislation, the term ‘sub-metering’ was introduced and refers to measuring consumption in individual units of multi-apartment or multi-purpose buildings where such units are supplied from a central source and where the occupants¹³ have no direct or individual contract with the energy supplier¹⁴.

Sub-metering is required as a general rule, subject to certain conditions, under Article 9b. It was already included under Article 9(3), second sub-paragraph, of the original EED, according to which the deadline for introducing sub-metering was 31 December 2016. The deadline is not found in the revised text simply because it has already passed.

The requirement set out in the new Article 9b is in substance identical to the requirement contained in the original EED. However, a few clarifications have been made; these are explained below.

Firstly, the wording of the first sub-paragraph now more clearly indicates the nature of the conditions under which sub-metering is mandatory, namely ‘...where [it is] *technically feasible and cost effective in terms of being proportionate to the potential energy savings*.’ This is also reflected in Recital 30 which states that ‘...whether sub-metering is cost-efficient or not depends on whether the related costs are proportionate in relation to the potential energy savings’, and that 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.’ This clarification confirms the approach taken in the specific guidance published by the Commission to help Member States apply the relevant conditions¹⁵ when implementing the original EED.

Secondly, the provision now spells out the obligation for Member States to clearly set out and publish the ‘*general criteria, methodologies and/or procedures*’ used to determine a lack of technical feasibility or cost effectiveness. Again, this is consistent with the approach taken in the specific guidance referred to above. The Commission has consistently considered it necessary for Member States to be explicit about how the conditions are made operational and how they are applied in practice¹⁶.

¹³ Occupants can be households, companies or any other entities entitled to occupy the premises concerned.

¹⁴ Occupants that do have individual, direct contracts with the energy supplier have such rights by virtue of being final customers (i.e. natural or legal persons purchasing the energy concerned for their own end use) under Article 9a, 10a and 11a.

¹⁵ See footnote 5.

¹⁶ Cf. Para 25 in SWD(2013) 448 final.

4. SPECIFIC OBLIGATION FOR SUB-METERING DOMESTIC HOT WATER IN RESIDENTIAL PARTS OF NEW BUILDINGS (ARTICLE 9B(2))

As a general rule, the sub-metering of domestic hot water consumption is required, subject to conditions of technical feasibility and cost effectiveness under Article 9b(1). However, under Article 9b(2), a stricter, unconditional requirement applies in the special case of new multi-apartment buildings and the residential parts of new multi-purpose buildings that are equipped with a central heating source for domestic hot water or are supplied with domestic hot water from district heating systems.

The reasoning behind this stricter requirement is that, in such situations, the sub-metering of domestic hot water can generally be assumed to be both technically feasible and cost-effective. In new multi-apartment buildings and in the residential parts of new multi-purpose buildings, the additional costs of metering the domestic hot water consumption of individual dwellings can be assumed to be limited, as appropriate provisions can be made already at the construction phase. At the same time, there are no particular reasons to expect that demand for domestic hot water will decrease systematically or significantly over time so the benefits of encouraging efficient behaviours through consumption-based billing and feedback (in terms of the potential savings triggered) can be expected to remain significant.

The revised EED does not specify what constitutes a ‘new’ building for the purposes of Article 9b(2). On the one hand, occupants of newly constructed buildings made available for occupation for the first time after the transposition deadline (i.e. 25 October 2020) might expect the building to be equipped with metering devices. On the other hand, metering may not have been planned for if the applications for construction permits were submitted before national transposition took place. In transposing this provision, Member States may therefore wish to assess the extent to which it is possible or reasonable to meet expectations. In any event, new buildings for which applications for construction permits were submitted after the transposition deadline fall within the scope of the requirement in Article 9b(2) and must be equipped with meters.

The requirement is for a meter, but does not specify whether this should be a water meter or a heat meter. Where individual units have their own substation supplying both space heating and energy for domestic hot water preparation taking place in the unit, and where the total energy consumption of each substation is metered, the requirement in Article 9b(2) has been met. In other words, where domestic hot water preparation occurs in each unit by means of thermal energy supplied from a central source or a district heating substation, the related energy consumption may be metered together with consumption related to space heating.

5. HEAT COST ALLOCATION RULES (ART 9B(3))

Where a sub-metering system is implemented, the measurement values or indices obtained by reading the individual devices (be they meters or heat cost allocators) are used to allocate the total cost to the individual premises covered by the system. This can be done in many ways

and there is arguably no single, best way¹⁷, at least not for space heating or cooling in the typical case of multi-apartment or multi-purpose buildings where individual units are not thermally independent of each other, i.e. where heat flows across internal walls are not negligible compared to the flows across the building's envelope (external walls, roof etc.).

However, the use of cost allocation methods that are perceived as fair and based on sound principles greatly facilitate acceptance among users. Therefore, and as acknowledged in Recital 32 of the amending Directive, transparency of accounting for individual consumption of thermal energy can facilitate the implementation of sub-metering. In the original EED, having such national rules in place was optional, and only around two thirds of Member States have put such rules in place. The revised EED now requires Member States to have in place transparent, publicly available cost allocation rules¹⁸.

More precisely, Article 9b(3) states that '*[w]here 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 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*'. Since buildings in which at least one of the conditions are fulfilled can be found in most, if not all, Member States, by 25 October 2020 most if not all Member States will have to have put such rules in place, or make existing rules publicly available.

It is worth highlighting that national **cost allocation rules do not necessarily need to define every detail** of how costs are allocated. Member States may choose to only lay down a framework that sets out key principles or parameters, and to leave regional or local authorities, or even stakeholders of individual buildings, some flexibility to specify or agree on further details.

Regardless of the level of detail, however, the rules should be designed in a way that ensures that the achievement of certain EED-related objectives is not undermined. In particular, cost allocation rules must ensure that the principle of billing based on actual consumption is not in practice undermined by too weak a link between the device readings of a given final user and his/her final bill. If too little weight is given to individual readings in the calculation of individual occupants' share of total costs, the intended incentive to use energy efficiently will be undermined. On the other hand, it is equally important that this link is not too strong in

¹⁷ For a discussion and analysis of heat cost allocation principles, see for example Castellazzi, L., Analysis of Member States' rules for allocating heating, cooling and hot water costs in multi-apartment/purpose buildings supplied from collective systems — Implementation of EED Article 9(3), EUR 28630 EN, Luxembourg: Publications Office of the European Union, 2017, ISBN 978-92-7969286-4, doi:10.2760/40665, JRC106729 <https://ec.europa.eu/jrc/en/publication/analysis-member-states-rules-allocating-heating-cooling-and-hot-water-costs-multi-apartmentpurpose>.

¹⁸ It should be noted that the requirement applies without distinction to the prevalence of sub-metering, and that the rules should also cover situations where individual data for actual consumption or heat cost allocator readings are not available because sub-metering has been found not to be technically feasible or cost-effective.

situations where the consumption of each user is not entirely independent of the consumption of others, and where the outcome could be that the distribution of costs across individual building units could be very varied. A varied distribution of costs can create or exacerbate split incentives among occupants with respect to energy efficiency investments at the level of the whole building (such as improvements to the building envelope). Where Member States' national cost allocation rules are designed in such a way that they do not mitigate this risk, the Commission takes the view that this could potentially be contrary to Article 19 of the EED which obliges Member States to evaluate and take appropriate measures to address split incentives among building owners and/or tenants. As already stated, there is no single correct way of allocating costs, but well-designed rules guarantee a balance between the resulting incentives for occupants as individuals and as a community. Allocation rules that fail to strike such a balance and allow extreme outcomes risk jeopardising the achievement of the aims pursued by Articles 9b and 19, respectively. Possible tools used by some Member States to achieve such outcomes include permissible ranges for the fraction of costs allocated according to individual readings, maximum limits for individual bills' deviations from the building's average or systems of correction factors reflecting unfavourable positions of naturally colder/more exposed apartments within a building.

In this context, the Commission stresses that the obligation under Article 10a for billing to be based on actual consumption or heat cost allocator readings should not be understood to imply that billing must be *exclusively* based on readings from such devices. In multi-apartment and multi-purpose buildings there are indeed good, objective reasons for not allocating costs exclusively based on or in proportion to such readings, at least in so far as space heating and cooling is concerned (cf. footnote 16). Two requests for preliminary rulings on questions of potential relevance to this issue were lodged before the Court of Justice in late 2017¹⁹. The Advocate-General's conclusions in these joint cases, presented on 30 April 2019, reflect similar arguments on this matter²⁰.

6. REMOTE READING (ART 9C)

6.1. The transition to remotely readable devices

As proposed by the Commission, a specific objective of the EED revision was to '*[e]mpower consumers of thermal energy through better and sufficiently frequent feedback on their consumption including by taking advantage of progress in technology*'²¹.

To this end, the revised EED contains new requirements to promote the use of remotely readable devices as critical enablers of frequent feedback to final users on their consumption.

¹⁹ See Cases C-708/17 and C-725/17:

<http://curia.europa.eu/juris/document/document.jsf?text=&docid=200142&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=1928887> and

<http://curia.europa.eu/juris/document/document.jsf?text=&docid=200154&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=1928887>.

²⁰ <http://curia.europa.eu/juris/document/document.jsf?text=&docid=213510>

²¹ Cf. Commission Impact Assessment, section 3, p. 26 (SWD(2016)405 final).

The amending Directive does not define in technical terms what constitutes a remotely readable device. In Recital 33 of Directive (EU) 2018/2002, it states that ‘*[r]emotely readable devices do not require access to individual apartments or units to be read*’. This, however, should be understood as a common minimum feature of remotely readable devices, but not necessarily as the *only* feature. Recital 33 also states that ‘*Member States are free to decide whether walk-by or drive-by technologies are to be considered remotely readable or not.*’ This is an important decision for Member States to take, because their choice has direct implications for how they should transpose and enforce the requirements set out in Article 9c and in Annex VIIa. Where, for example, a Member State decides to consider so-called walk-by or drive-by technologies as remotely readable, it might consider such technologies to be sufficient to comply with the obligations to introduce remote reading contained in Article 9c. Doing so, however, would also mean that the condition which triggers the obligation to provide frequent information as provided for in point 2 of Annex VIIa would be fulfilled in buildings equipped with such systems. In other words **if a device is considered remotely readable for the purpose of Article 9c, it must also be considered as such for the purpose of point 2 of Annex VIIa.**

Conversely, if a Member State decides not to consider walk-by/drive-by technologies as remotely readable, it would have to provide for a requirement to install other, more advanced or additional devices or systems to comply with Article 9c²². In this situation, the condition triggering the obligations to provide frequent information under point 2 of Annex VIIa would only be met when and where systems of the latter kind had been introduced.

When deciding whether to consider walk-by/drive-by technologies as remotely readable or not, Member States may differentiate this decision according to objective parameters such as the types of energy service or devices concerned, the type or location of the buildings concerned, and whether the devices are used for metering or sub-metering. For example, drive-by/walk-by devices might be considered remotely readable for the purpose of metering supplies from a district cooling network but not for the purpose of metering supplies from a district heating network. Where Member States do decide to differentiate based on such parameters, they should ensure that the applicable rules are clear and easy to communicate and understand.

It is important for market players that Member States take and communicate their national decisions on whether walk-by/drive-by technologies are considered remote reading as soon as possible during the transposition process and in any event before 25 October 2020. Otherwise, building owners and service providers preparing for new installations after that date will not have clarity on precisely which functional requirements will apply. In the absence of such decisions, they can of course choose to go for remotely readable solutions that do not rely on walk-by/drive-by technology to be on the safe side.

²² In many cases a walk-by/drive-by installation can be made ‘truly’ remotely readable by installing one or more ‘gateways’ in the building. Such gateways collect signals from the devices and transmit them via the internet or telecommunication systems to the service providers’ data systems.

Neither the legal provisions nor the above considerations intend to introduce a hierarchical relation between walk-by/drive-by based technologies and technologies based on other communication infrastructures. Whereas a decision to consider the former as remotely readable would enlarge the range of devices that can be used for compliance with Article 9c in the Member State concerned, and could in that sense be seen as the least demanding option, it would also have implications for compliance with Annex VIIa(2) which would most likely be more demanding. Member States may wish to take into consideration, however, that walk-by/drive-by technologies will typically restrict the frequency at which data can realistically and cost-effectively be collected, which in turns limits the potential additional services and co-benefits that might be derived from the devices. By way of example, in a district heating network where metering data are transmitted/collected automatically on an hourly or daily basis, such data will represent a significantly higher value in terms of their potential use for optimising system operation, fault detection, alert services etc., than metering data collected on a monthly basis with walk-by/drive-by technologies.

6.2. Devices installed after 25 October 2020

Under the revised EED, Article 9c requires the gradual introduction of remotely readable meters and heat cost allocators *‘for the purposes of Articles 9a and 9b’*, i.e. irrespective of whether the devices are used for metering or sub-metering.

The transition to remotely readable devices is promoted in two different ways. The first is set out in Article 9c(1), which states that meters and heat cost allocators installed after 25 October 2020 must be remotely readable. This requirement means, for example, that meters installed after this date at any new or existing connection points in a district heating network will have to be remotely readable. It also means that heat meters, domestic hot water meters or heat cost allocators installed after this date as part of a sub-metering system will have to be remotely readable (see, however, remarks in section 6.3 below).

Article 9c(1) states that *‘[t]he conditions of technical feasibility and cost effectiveness set out in Article 9b(1) shall continue to apply’*. This should not be understood to imply that the remote reading obligation itself, as provided for in Article 9c(1), is conditional or subject to such criteria. The statement rather clarifies that in the context of installing a system for sub-metering in a building (which is the subject of Article 9b(1), to which Article 9c(1) refers) after 25 October 2020, technical feasibility and cost-effectiveness would continue to be valid reasons for making exemptions from the general sub-metering requirement, especially because the remote reading requirement applicable after that date in some cases might affect the extent to which one or other criterion is met. A situation where this could be relevant would be a situation where the existing sub-metering system in a given building has reached its technical life-time and needs to be replaced, or where a system is to be installed for the first time. In situations like these, it would be justified to make an assessment of the criteria provided for in Article 9b(1) to determine whether sub-metering as a whole would be technically feasible and cost-effective, taking into account the remote-reading requirement. In other words, the reference in Article 9c(1) to the *‘conditions ...set out in Article 9b(1)’* should

be understood not as a separate conditionality relating to a device's features, but as part of the general assessment under Article 9b(1).

6.3. Replacements or additions of individual sub-metering devices in existing installations

A specific question may arise as regards situations where an existing, already installed device needs to be replaced prematurely because it has broken, disappeared or no longer works correctly. In principle, Article 9c(1) also applies in such cases. However, if a device to be added or replaced is one of many devices that together constitute a sub-metering system for a building, it may in certain, specific circumstances not be possible or meaningful to replace the malfunctioning or missing devices with remotely readable ones:

- For heat cost allocator installations, all devices in a given sub-metering installation must be of the same manufacture and type to be compliant with European standards²³. In the case of evaporation heat cost allocators, remote readable alternatives are simply not available as a technical option.
- In the case of electronic heat cost allocators, a remotely readable version of the model used elsewhere in the building may not always be available, but even if it were, the capability would be of limited or no use since the data from the remaining sub-metering devices necessary to draw up the cost allocation accounts are anyhow only available at less frequent intervals after manual readings.
- The same situation arises if radiators are added to an apartment in a building equipped with non-remotely readable heat cost allocators.
- A similar issue can also arise in the case of an individual heat or hot water meter being replaced or added in a sub-metered building where the other meters are not remotely readable.

The Commission is therefore of the view that, in the above specific circumstances, Article 9c(1) should not be interpreted as preventing the replacement of individual devices with non-remotely readable devices when they form part of a sub-metering system based on non-remotely readable devices, even after the deadline referred to in Article 9c(1) has passed.

On the other hand, the requirement to render all devices and installations remotely readable by 1 January 2027, set out in Article 9c(2) (cf. the section below), also needs to be considered where the need for isolated replacements in a building equipped with non-remotely readable devices arises; if replacements are not remotely readable, the risk of them representing sunk costs will increase as the 2027 deadline approaches.

6.4. Existing installations

Article 9c(2) states that *'[m]eters and heat cost allocators which are not remotely readable but which have already been installed shall be rendered remotely readable or replaced with*

²³ Cf. EN834 section 6.5 and EN835 section 6.4.

remotely readable devices by 1 January 2027, save where the Member State in question shows that this is not cost-efficient’.

This requirement aims to ensure that all final users of metered or sub-metered premises will eventually obtain the benefits derived from remotely readable devices, in particular the provision of monthly information (cf. section 9), the absence of a recurring need to be home to give meter readers access and, where applicable, any additional services enabled by such devices (e.g. leak alerts for hot water).

In the light of this, the possibility to deviate from the requirement must be interpreted in a very restrictive manner and any deviations should be specific and duly justified and documented.

The deadline of 2027 — more than 10 years into the future from the time the Commission’s proposal was published — was intended to minimise the risk of sunk costs arising due to devices having to be replaced significantly before they have been depreciated. Many devices are in any event replaced within such a time-span for technical reasons. The vast majority of new heat cost allocators installed nowadays are electronic and typically need to be replaced within 10 years due to battery constraints. As regards meters, most Member States have in place calibration requirements that in practice typically lead to meters being replaced at intervals of 10 years or less. Where devices are older than 10 years they have typically in any case reached their economic life-time/been depreciated already.

For these reasons, sunk costs related to existing devices cannot be considered an adequate justification for deviating from the remote reading requirement. More specific circumstances would need to be present. One example where compliance could conceivably be proven not to be cost-effective would be where a building is constructed with materials that prevent the wireless technologies available in 2026 from functioning properly and where wired alternatives would be disproportionately costly to put in place (for example if there are large amounts of iron in walls and floor separations).

6.5. Considerations on verification and enforcement

Under Article 13 of the EED, Member States are obliged to ‘...lay down the rules on penalties applicable in case of non-compliance with the national provisions adopted pursuant to Articles 7 to 11 ...’ and ‘...to take the necessary measures to ensure that they are implemented.’ The penalties provided for must be effective, proportionate and dissuasive.

As a result of the amendment of the EED, the scope of this obligation now covers both some existing and some new provisions, including the new remote reading requirements in Article 9c²⁴.

²⁴ Articles 9a, 9b, 9c and 10a added by Directive (EU) 2018/2002 fall within the range ‘Articles 7 to 11’. The recast of the Electricity Market Directive further amends Article 13 of the EED to ensure that Article 11a also falls within the range referred to in that paragraph.

As part of their wider responsibility and efforts to ensure effective implementation and enforcement of the Directive, Member States will therefore also have to consider how to verify compliance with the new requirements for remote reading. In doing so, they may wish to consider whether any existing EPBD²⁵-related or national processes could be adapted to also serve this purpose. However, the remote reading requirements apply not only to new buildings (for which construction permits are normally needed) or to existing buildings being sold or rented out to a new tenant (for which Energy Performance Certificates are required under the EPBD), and they apply without regard to the size of a building and no matter what the capacity of the heating installation. This means that existing processes related to building permits, HVAC inspections or energy labels/EPCs may not necessarily be sufficient to verify compliance with the new requirements.

As regards the transition to remote reading for meters used for the purposes of Article 9a(1), one possibility could be that Member States oblige operators of district heating and cooling systems and operators of any other installations supplying multiple buildings with thermal energy to document compliance and/or regularly report on the share of connection points in their network that is metered with remotely readable meters. Since this share should in principle²⁶ reach 100 % no later than 1 January 2027, Member States could monitor the figures to verify that sufficient progress towards compliance is made before the deadline is reached.

For sub-metering, similar obligations could be envisaged for the parties responsible, but as who they are varies between Member States and may depend on the type of tenancy or ownership, a mix of approaches may be relevant. Where Member States have a system for identifying or registering providers of sub-metering services, such systems might help identify operators from which information on the type of equipment present in each building under their management could be collected in a cost-effective way.

7. BILLING AND CONSUMPTION INFORMATION (ART 10A)

7.1. The terms ‘final users’ and ‘final customers’

One of the key clarifications in the revised EED comes from the introduction of the term ‘**final users**’ in Article 10a, complementing the existing term ‘**final customers**’.

The original EED defines a ‘final customer’ as ‘*a natural or legal person who purchases energy for own end use*’²⁷. The scope of this definition has however been the subject of different interpretations. In its 2013 Guidance Note, the Commission argued that individual end-users/households in multi-apartment buildings with collective systems and contracts for the supply of energy should be considered as final customers too²⁸. However, as was noted in Recital 31 to the revision of the EED, ‘*the definition of the term ‘final customer’ is capable of being understood as referring only to natural or legal persons purchasing energy based on a*

²⁵ Directive 2010/31/EU on Energy Performance of Buildings, as amended.

²⁶ i.e. save where specific exceptions are duly justified and documented, cf. section 6.4.

²⁷ EED Article 2, point 23.

²⁸ See para 9 of SWD(2013) 448 final.

direct, individual contract with an energy supplier. For the purposes of the relevant provisions, the term ‘final user’ should therefore be introduced to refer to a broader group of consumers and should, in addition to final customers purchasing heating, cooling or domestic hot water for their own end use, also cover occupants of individual buildings or of individual units of multi-apartment or multi-purpose buildings where such units are supplied from a central source and where the occupants have no direct or individual contract with the energy supplier.’

To this end, the operative requirement in Article 10a(1) refers to ‘final users’ and clarifies that these are:

- a) natural or legal persons purchasing heating, cooling or domestic hot water for their own end use (such final users are also final customers as defined under Article 2(23)),
or
- b) natural or legal persons 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 who have no direct or individual contract with the energy supplier.

It is worth emphasising that the notion of final users includes final customers. Where provisions refer to final users, these should therefore not be understood to exclude final customers.

This clarification means that, from now on, under the revised EED, it is beyond any doubt that sub-metered consumers are also entitled to consumption-based billing²⁹ and consumption information.

For the purposes of Article 9a, 9c, 10a and 11a, in the context of a multi-apartment or multi-purpose building, supplied from a district heating or cooling system or from a similar central source, based on a single contract with an energy supplier, who the ‘final customer’ actually is may vary from situation to situation. Where the building has a single owner, the owner will typically, but not necessarily, be the contractual party to the supply contract with the energy supplier. Similarly, where there are multiple owners, an association or a community of co-owners will often but not always be the contractual party vis-à-vis the energy supplier. In some situations, owners delegate certain tasks to third parties or a representative, such as a management company (in some countries known as a ‘syndic’), and these parties may also be the contractual party vis-à-vis the energy supplier. Where owners have rented out units, the tenants may or may not have contractual relationships with the energy supplier.

In transposing the revised Directive, Member States will have to take account of the diversity of situations that are relevant in their jurisdiction. However, regardless of which entity or body purchases the energy collectively on behalf of the occupants of the building, it is important that implementation is organised in such a way that the information required under Annex VIIa is effectively provided and can also be used as the basis for informing the

²⁹ In a sub-metering context sometimes also referred to as ‘heat cost allocation’.

occupants of each apartment/unit. The fact that the definition of ‘final customer’ refers to a person who purchases energy ‘for own end use’ should for example not be understood as implying that there is no final customer in situations where a delegated management company or ‘syndic’ is the actual contractual party for the building’s energy supplier.

7.2. Who is responsible for the billing and consumption information?

The EED does not specify who is responsible for providing final users with the billing and consumption information referred to in Article 10a. For final users who are also final customers (and purchase energy from the concerned energy supplier), it would appear most logical that the energy supplier is made responsible for providing information. In contrast, the energy supplier may not be the best placed to have the responsibility for informing final users with whom they have no direct or individual contractual relationship. Therefore, Article 10a(3) of the revised EED explicitly states that ‘*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.*’ Which entities are best placed to inform final users will depend on national circumstances and specific tenancy situations. Potential candidates could be building owners, building managers, delegated management companies or service providers, owners’ associations etc. **In transposing the revised Directive, Member States need to ensure that the responsibility for informing final users is clearly defined for all relevant situations.**

7.3. Billing based on actual consumption

Article 10a requires Member States to ensure ‘*that billing **and consumption information is reliable, accurate and based on actual consumption or heat cost allocator readings ...***’.

This wording is similar but not identical to the original EED’s requirement to ensure ‘*that billing information is accurate and based on actual consumption*’.

The inclusion of ‘**consumption information**’ is significant and reflects the EED’s flexibility, as now meeting the requirement specified in Annex VIIa point 2 is possible by providing frequent billing or consumption information. Consumption information is simpler to provide because it relates only to the quantities consumed, not to the costs involved or to any other element of billing information.

The legislator considered it appropriate to add the words ‘**or heat cost allocator readings**’ to eliminate any doubt that such readings can be used as a basis for billing. Such doubts had been expressed because heat cost allocators are devices that allow the measurement of heat supplied to an individual apartment in a less direct way, and which in certain specific circumstances may be considered as a poorer indication of the amount of energy actually released by the heating installation in the individual apartment concerned.

However, above and beyond the differences between heat meters and heat cost allocators, it is worth stressing that **the requirement for billing and consumption information to be based**

on actual consumption or heat cost allocator readings should not be interpreted as requiring that costs for space heating or cooling are allocated exclusively based on readings from individual meters or heat cost allocators. In a sub-metering context, doing so risks creating adverse outcomes in terms of fairness and split incentives (see also section 5 above). From a technical point of view, individual apartments in multi-apartment buildings cannot usually be considered thermally independent from the rest of the building. Whenever temperature differences occur across internal walls or horizontal separations, heat will naturally flow across such separations since these are rarely thermally insulated to a very high degree compared to the buildings' external walls. Individual units are therefore typically heated not only by heat emitted from radiators within the unit itself but also, at least in part, by heat emitted in other parts of the building. As already discussed in section 5, well-designed cost allocation rules should take account of this fact.

Whether the actual heat emission within each unit is measured or estimated by means of individual meters or heat cost allocators, the fact that heat can flow across internal separations constitutes a good reason not to allocate a building's total heating costs exclusively based on readings obtained from such devices. It is common (and good) practice that only a certain proportion of costs is based on individual measurements and that the remaining costs are allocated to occupants based on other factors (such as the apartments' share of total floor area or heated volume of the building). This is the case even where the individual units are equipped with heat meters and not heat cost allocators. It is also normal practice that the cost of heating a building's common areas (staircases, corridors etc.) be shared between the occupants of the individual units. Costs due to losses from building level installations and for heating common areas are usually not directly controlled by individual user behaviour, and Member States typically include them among fixed costs in their respective allocation rules. The fixed cost part of total heating costs can usually be recovered by charging occupants in proportion to the respective size of the property they occupy (e.g. floor area or volume).

Where the information provided is based on heat cost allocator readings, this must be done in a way that is clear and useful for the final user. Heat cost allocation may for example involve applying technical coefficients related to radiator types and/or correction factors for an apartment's location within a building. Such parameters should be taken into account in the information provided to final users.

7.4. Self-reading

The original EED obliges Member States to ensure that billing information is accurate and based on actual consumption, '*in accordance with point 1.1 of Annex VII*', which in turn specifies certain minimum frequencies with which billing and billing information need to be provided. Article 10 provides that '*[t]his 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*'. For example, this makes it possible for an annual settlement bill to be

based on readings communicated by the customer to the energy supplier without the latter needing to visit the premises to read the meter.

In the context of the transition to remotely readable devices, self-reading will lose relevance over time. The revised EED nevertheless allows self-reading for thermal energy, but only under certain circumstances³⁰. In particular, self-reading is not allowed in the case of sub-metering of space heating on the basis of heat cost allocators. This would require each user to communicate readings for each radiator, and the legislator did not consider this to be either realistic or desirable.

For metering or other sub-metering situations, for example the space heating or cooling of premises equipped with heat meters, or of domestic hot water consumption, self-reading can in principle be allowed if the Member State in question ‘so provides’. In other words district heating companies, building managers and other entities made responsible for providing the information required under Article 10a to final users may not rely on self-reading to meet these obligations unless the Member State in question has expressly provided for that possibility in the national transposition measures.

7.5. Data availability and privacy

Article 10a(2) point a) states 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 by the final user, to an energy service provider designated by the final user*’. A similar provision is found in the original EED, but the new one removes any doubts about the right to access data on energy billing and historical consumption or heat cost allocator readings applying to situations where sub-metering is used. The entity responsible for sub-metering — be it a building manager, a sub-metering service provider or anybody else — will thus upon request have to provide any single final user with access to such data in an appropriate and useful format. In the context of sub-metering, this in particular must be understood to include both the device readings of the user’s own device(s) and the sum of readings of the entire installation as the former is only useful together with the latter. Upon request, such information should also include key technical parameters such as rating factors applied for radiators in order to allow for independent verification or plausibility checks of the heat cost allocation calculations.

At the same time, Article 10a(2) point a) guarantees that billing information related to a main meter measuring supplies from a district heating or cooling network to a sub-metered multi-apartment or multi-purpose building can be made available directly to energy service

³⁰ Article 10a(1) second subparagraph states that ‘*[t]his obligation may, where a Member State so provides, save in the case of sub-metered consumption based on heat cost allocators under Article 9b, 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.*’

providers³¹ responsible for the sub-metering and cost allocation within the building. This is important since accurate cost-allocation requires timely access to the aggregate consumption values. Direct and timely access to billing information, including metering values, is particularly important where buildings are sub-metered with remotely readable devices and where there is therefore a need to provide sub-annual information. In such cases, the customer of the district heating/cooling network can request that the information relating to the main meter be made available to an energy service provider of their choice, which could be the company providing sub-metering services.

Article 10a(2) point c) states that Member States must ensure that *‘clear and comprehensible information is provided with the bill to all final users in accordance with point 3 of Annex VIIa’*. The implications of this are discussed in further detail in section 9.3 below. **For final users without a direct/individual contract with the energy supplier, ‘the bill’ should also be understood to refer to heat cost allocation accounts or any other recurring request for payment for heating/cooling/domestic hot water services** on behalf of the natural or legal person responsible for providing such services³².

Finally, a new provision (Article 10a(2) point d) emphasises that Member States must *‘promote cybersecurity and ensure the privacy and data protection of final users in accordance with applicable Union law.’* While this provision adds no specific obligations over and above those already applicable under EU law (such as the General Data Protection Regulation³³), it highlights that cybersecurity, privacy and data protection are also relevant in the context of metering, sub-metering, remote reading and billing of thermal energy.

7.6. Access to electronic billing information and bills

As is the case in the original EED, the revised EED obliges Member States to ensure that final customers are offered the option of electronic billing information and bills (Article 10a(2) point b). It should be noted here that the reference is only to final customers, and not final users, which means that the revised EED does not confer a right to opt for electronic delivery to individual sub-metered consumers. The EU legislator deliberately made this choice to avoid restricting the freedom of the stakeholders involved in a given building or for national authorities to decide on how to organise the delivery of billing information and bills to sub-metered consumers.

³¹ Article 2(24) of EED defines ‘energy service provider’ as a natural or legal person who delivers energy services or other energy efficiency improvement measures to a final customer’s facility or premises.

³² This includes requests for payments of recurring charges that include specified energy costs in buildings of the kind referred to in Article 9b(1) where sub-metering has been shown not to be cost-effective or technically feasible.

³³ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)
<http://data.europa.eu/eli/reg/2016/679/2016-05-04>.

8. COSTS OF ACCESS TO METERING AND BILLING AND CONSUMPTION INFORMATION (ART 11A)

The revised EED's new Article 11a is almost identical to Article 11 in the original EED. A few differences should be noted, however.

Firstly, the new provision reflects the clarified position of sub-metered consumers and therefore makes reference to final users rather than just final customers (recalling that the latter is a sub-set of the former, broader group).

Secondly, the new article clarifies that paragraph 2 applies to both multi-apartment and multi-purpose buildings.

Thirdly, a new paragraph 3 is added to clarify that '*[i]n 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 and/or the use of interoperable devices and systems facilitating switching between service providers*'. Whilst the actions referred to in this provision are clearly optional and not mandatory for a Member State to undertake, the legislator considered the provision helpful as it spells out examples of specific measures that Member States may take to stimulate competition in the provision of sub-metering services with a view to minimising the costs of the transition to remotely readable devices and systems.

Finally, paragraph 2 of the original Article 11 is deleted because the revised EED reduces its scope to electricity and gas, and since the original Article 11(2) concerned only sub-metering of thermal energy and is now replaced by the new Article 11a(2).

In addition to the drafting differences discussed above, another development relating to this topic is worth noting. In April 2018, a preliminary ruling request was lodged with the Court of Justice³⁴ by a Finnish Court. In summary, the question asked was whether the obligation to provide billing free of charge should be understood as preventing rebates being given to customers that receive bills electronically. The Commission in the 2013 Guidance Note³⁵ had argued that the requirement to provide billing free of charge does not prevent discounts being offered to customers who chose a particular billing delivery method. In its judgement of 2 May 2019 the Court of Justice took a similar view. It concluded that Article 11(1) must be interpreted as not precluding, in circumstances such as those at issue in the main proceedings, a discount on electricity network charges granted by an electricity retail sales company exclusively to final customers who have chosen electronic billing.

³⁴ See C-294/18

<http://curia.europa.eu/juris/document/document.jsf?text=&docid=203750&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=1938672>.

³⁵ Commission Staff Working Document — Guidance note on Articles 9-11 metering, billing information, cost of access to metering and billing information, para. 50-52 (SWD/2013/0448 final).

9. REQUIREMENTS FOR BILLING AND CONSUMPTION INFORMATION

9.1. Annual billing based on actual consumption

The new Annex VIIa requires that *‘[i]n 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’*. A very similar requirement exists under Annex VII to the original EED, but the phrasing in Annex VIIa makes reference to final users (and thus applies to sub-metered consumers). Moreover, the word ‘should’ found in Annex VII has been replaced with ‘shall’ in Annex VIIa to reflect the binding nature of the requirement. As mentioned in section 7.2, it is worth stressing that, in sub-metering contexts, **the requirement for billing and consumption information to be based on actual consumption or heat cost allocator readings should not be interpreted as requiring that costs for space heating or cooling are allocated exclusively based on readings from individual meters or heat cost allocators.**

In essence, the requirement makes sure that final users of thermal energy are informed about their actual consumption at least once a year and that their payment for their consumption is calculated or adjusted accordingly, for instance by the settlement of any differences between the actual amount due and the sums paid on the basis of regular flat rate payments not based on actual consumption or heat cost allocator readings.

9.2. Frequent billing or consumption information

9.2.1. Situations where provision of sub-annual information is required

The frequency with which final users are informed about their actual consumption of thermal energy was a key objective of the proposal to revise the EED and is reflected in point 2 of the new Annex VIIa.

Under the original EED, the provision of sub-annual information is obligatory where ‘technically possible and economically justified’. In the revised EED, this conditionality has been simplified so that the requirements apply *‘where remotely readable meters or heat cost allocators have been installed’*.

Whether this condition is met or not must be assessed in the light of each Member State’s decision as regards what types of devices are considered remotely readable (cf. section 6.1).

It is possible that a building contains both remotely readable and non-remotely-readable devices. Such situations need to be considered on a case-by-case basis.

For example: in a multi-apartment building supplied from district heating, where the devices installed in each building unit are remotely readable heat cost allocators or meters, the building’s main meter measuring the total heat supplied or consumed is perhaps not remotely readable. In this case a fully-fledged heat cost allocation calculation can in principle only be made whenever readings are also available from the main meter. A similar situation could arise for a building with a common boiler operating, say, on gas or oil: also in this case an

exact value for the aggregate consumption for each sub-annual period might not be available if the main gas meter is not remotely readable, or if the oil tank or burner is not equipped with a gauge allowing the remote reading of consumption. In such cases it is nevertheless still possible to make an approximate heat allocation calculation by using the readings from individual devices and extrapolating an estimated value for total consumption. A question could then arise on how to reconcile the requirement in Article 10a(1) that ‘...*billing and consumption information is **reliable, accurate and based on actual consumption or heat cost allocator readings**, in accordance with points 1 and 2 of Annex VIIa for all final users*’ with the fact that in the absence of sub-annual values for aggregate consumption (by installing a remotely readable gas meter, by manually reading the main gas meter more frequently, by installing a connected oil gauge etc.), any heat cost allocation calculation made can only be approximate. The Commission takes the view that the absence of sub-annual readings of the main meter is not a justification for not providing sub-annual consumption information to sub-metered users as long as circumstances make it possible to make a reasonably fair estimate/approximation of the cost allocation calculation. In such cases it should simply be made clear that the sub-annual values are partly estimated/extrapolated. The value of the sub-annual information for the consumer will very likely outweigh the slightly reduced accuracy arising from the lack of an aggregate consumption value.

On the other hand, if a sub-metered building is equipped with a remotely readable main meter towards a district heating/cooling network, but the devices used for sub-metering within the building are not remotely readable, the condition in Annex VIIa(2) is not met in so far as the sub-metered final users are concerned. In contrast, it *would* be met for the district heating/cooling network and its customer/the building as a whole. In this case, building level information would have to be provided to the final customer, in accordance with Annex VIIa(2).

Another example could be a sub-metered building where heat cost allocators are remotely readable but where domestic hot water meters are not. In this case, each service can be treated separately, and sub-annual information can be provided for space heating but not for domestic hot water.

9.2.2. *Minimum frequency required*

The implication of the simplified conditionality explained above is that, wherever remotely readable devices are in place, final users must be provided with frequent information, which can be either billing information or simply consumption information. As of 22 months after the date on which the amending Directive enters into force, i.e. as of 25 October 2020, the minimum frequency required will be similar to the one provided for in the original EED, namely ‘*at least quarterly, on request or where the final customers³⁶ have opted to receive*

³⁶ The use of ‘final customers’ here rather than ‘final users’ reflects the fact that the EED does not require that sub-metered consumers have the right to opt to receive electronic billing, cf. section 7.6. In a sub-metered building, the final customer for the building might opt for electronic billing and thus be entitled to sub-annual information quarterly, but this does not automatically imply that the buildings’ individual occupants (who are

electronic billing or else twice yearly'. As of 1 January 2022, the minimum frequency will be monthly.

9.2.3. Exemptions outside heating/cooling seasons

Heating and cooling may be exempted from the requirement to provide monthly information outside the heating/cooling seasons. What constitutes the heating or cooling seasons may vary depending on location and jurisdiction, or from building to building. The possibility to make exceptions to the monthly requirement can be understood as a possibility to suspend the provision of information during the period in which space heating or cooling is not provided by a building's collective installation.

9.2.4. Distinguishing between the provision and making available of information

The requirement that, where remotely readable meters or heat cost allocators have been installed, billing or consumption information based on actual consumption or heat cost allocator readings must be **provided** to final users at sub-annual intervals may trigger questions about what constitutes compliance. The Commission notes that the legislator deliberately left the **means** of providing the information open, while also clearly making a distinction between providing information and making it available.

The core requirement is to **provide** information to the user. This can be done **on paper or by electronic means** such as email. Information can also be **made available** via the internet (and interfaces such as a web portal or a smartphone app), but in such cases the final user must be **notified** in some way at the regular intervals indicated, otherwise the information cannot be considered as having been provided to the final user with that frequency, but merely made available. Merely making information available but leaving it to the final user to find it would not be aligned with the overall objective of this part of the revised EED, namely to raise final users' awareness of their consumption.

This subtle but important distinction is important to highlight also because the legislator included the optional, additional making available of information via the internet after the core requirement to provide information at regular intervals: *'It may also be made available via the internet and be updated as frequently as allowed by the measurement devices and systems used*. The term **'also'** was not used in the sense of 'instead' but to flag an **additional** possibility. Any other interpretation would leave too much scope for designing and using systems that do not make frequent feedback possible, thereby circumventing the core requirement and undermining the achievement of a key aim of the revised EED. This interpretation is confirmed by the use of the wording 'may instead' in point 3 of Annex VIIa, where the legislator clearly intended that the provisions constitute alternatives. **In short, the continuous 'making available' of information via the internet is not an alternative or sufficient means of complying with the requirements under Annex VIIa point 2 to**

final users but not final customers) are entitled to such information more than twice a year before 1 January 2022.

provide sub-annual information *unless* it is combined with some kind of active notification of the final user at the intervals required.

9.2.5. *The content of sub-annual billing or consumption information*

As mentioned in section 7.3, the revised EED provides flexibility as to the nature of the information that has to be provided at sub-annual intervals under Annex VIIa point 2.

As a minimum, basic information on how actual consumption (or heat cost allocator readings) has developed must be included. This may for example be combined with estimates of how the observed trend might affect the final user's future consumption and what their bill level would be if consumption continues in the same way.

If billing takes place at the same time as the provision of information under point 2 of Annex VIIa, the provisions in point 3 of this annex will determine the minimum requirements for the content of the billing information.

9.3. Minimum information contained in the bill

Point 3 of Annex VIIa specifies certain minimum elements of information that must be available to final users in or with bills, with differing requirements depending on whether or not the bill is based on actual consumption or heat cost allocator readings. It is worth noting that final users who occupy parts of a building not equipped with individual meters or heat cost allocators, or those who rent their premises on a 'warm rent' basis³⁷, may never receive bills based on actual consumption or heat cost allocator readings. Indeed, in the case of 'warm rent' they may not even receive any energy bills at all, and none of the requirements in Article 10a or Annex VIIa would therefore apply.

Compared to Annex VII of the original EED, the new Annex VIIa is worded in a way that more clearly reflects the binding nature of the requirements it contains, for instance by leaving out qualifications like 'where appropriate' or 'preferably'³⁸.

Annex VIIa also contains some entirely new elements, including an obligation for bills to contain '*information about related complaints procedures, ombudsman services or alternative dispute resolution mechanisms, as applicable in the Member States*'. In transposing this requirement, Member States should publicly identify which, if any, ombudsman services or alternative dispute resolution mechanisms³⁹ are legally competent to deal with complaints and disputes relating to metering, sub-metering, billing and cost-allocation, so that energy suppliers and other parties issuing bills can include this information on their bills.

³⁸ In at least two cases, this has not been done consistently in all language versions. The Commission considers that a formal corrigendum should be issued to address these inconsistencies. The intention in the Commission's proposal was clear in this respect, cf. bullet 1.3.3. in section 4.3.2 of the impact assessment (Commission Staff Working Document, SWD(2016)0405 final).

³⁹ Such as those listed here: <https://ec.europa.eu/consumers/odr/main/?event=main.adr.show2>.

9.3.1. Bills based on actual consumption/heat cost allocator readings

The individual information elements to be made available in or with a bill based on actual consumption or device readings are in part based on the existing Annex VII and in part new.

While not all need an explanation, a few aspects are worth highlighting.

As in the original EED, Annex VIIa point 3(a) refers to ‘**actual prices**’. For final customers of district heating and cooling, this will typically imply specification of the total price to pay as well as its various components, such as consumption-related, capacity-related and fixed tariffs/prices. For sub-metering, this should include at least the individual’s share of the heat cost to pay, together with the device readings and the totals for the building from which it is derived.

As regards **comparison with consumption in the same period in previous years (point 3(c))**, the obligation to make this available in graphic and climate-corrected form should be noted. In the light of data protection and privacy requirements (cf. also section 7.5) this requirement should be understood to only apply to information about energy consumed by the current occupant, i.e. the same final user that the information must be made available to.

For the purpose of the **climate correction**, it may be necessary to make assumptions about the share of energy used for domestic hot water production where that energy is not measured separately from space heating needs. Moreover, location-specific or representative **outdoor temperature data** are necessary for calculating the heating degree days (HDDs) or cooling degree days (CDDs) that are used to perform the climate-correction. In order to be used for billing information purposes, such data need to be available without significant delays. Member States and parties responsible for providing billing information need to identify available sources of such data, which could conceivably be either national, regional, local or building-specific (if for example a building is equipped with an outdoor sensor from which measurements can be retrieved). They should also be transparent about the methodology used to perform the climate correction⁴⁰.

As regards information about the **fuel mix** used, this will be relatively straightforward in most multi-apartment/multi-purpose buildings equipped with their own collective boiler, in particular where these are always operated using the same kind of fuel. Where boilers can be operated using multiple fuels or, for example, where they use pilot fuels when starting up, annual average values would be sufficient for compliance purposes. Where buildings are supplied from district heating or district cooling networks, the legal or physical person who is the final customer will by virtue of the same provision be entitled to receive information on the fuel mix used to provide the district heating/cooling service. In multi-apartment/multi-

⁴⁰ There is no universal standard for how to calculate degree days, and in the absence of better alternatives Member States may wish to encourage or require the use of the methodology used by Eurostat: Cf. https://ec.europa.eu/eurostat/cache/metadata/en/nrg_chdd_esms.htm (section 3.4).

purpose buildings that information can in turn can be used⁴¹ to provide fuel mix information to the final users occupying each unit.

The means used to provide information on fuel mix can also be used to provide information on the **share of renewable energy** used in district heating and cooling, thus fulfilling in part the obligation of Member States under Article 24(1) of the **revised Renewable Energy Directive (RED II)**⁴², which states that ‘*Member States shall ensure that information on the energy performance and the share of renewable energy in their district heating and cooling systems is provided to final consumers in an easily accessible manner, such as on the suppliers’ websites, on annual bills or upon request.*’ The RED II does not define the term ‘final consumers’ but, in the Commission’s understanding, the term ‘final user’, as it is used in the revised EED, fully covers the term ‘final consumers’ as used in Article 24(1) of RED II. In particular, both terms include occupants of individual units within multi-apartment/multi-purpose buildings supplied with district heating/cooling even if they have no individual or direct contract with the supplier⁴³. Therefore, the billing and consumption information provision implemented under the EED can be used to provide information on the share of renewable energy used in district heating and cooling under RED II. This can be a cost-effective way of complying with the relevant provisions of both the EED and RED II, as fuel mix information must include the share of renewable energy where such energy is part of the fuel mix.

This way of meeting the requirements of the information provision on the share of renewable energy in district heating and cooling systems would be unequivocal and would thus avoid possible legal challenge, if the information on fuel mix would include the category of renewable energy (with possible specification of its type/s) in the fuel mix information, specifying a value of zero (0) in cases where there is no renewable component.

The fuel mix disclosure specifying the renewable component of the supply of heat or cold would not fully satisfy the requirements under Article 24(1) of RED II unless information about the energy performance of the district heating and/or cooling systems is also included.

As regards the **way in which the information is provided**, the requirements under EED Annex VIIa point 3(b) and RED II Article 24(1) are slightly different. The former is slightly stricter in the sense that fuel mix information must be provided ‘*in or with [final users’] bills*’ whereas the RED II allows the renewables share and energy performance information to be provided ‘*in an easily accessible manner*’ via the supplier’s website or upon request. Conversely, the RED II requirement is slightly stricter in the sense that it applies to all final

⁴¹ By whoever is responsible for informing the sub-metered consumers/final users, in accordance with the decisions taken by the Member States under Article 10a(3).

⁴² 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.

⁴³ This is explicit in the revised EED (cf. also section 7.1). In the RED II, it can be inferred from the use of the narrower term ‘customer’ in Article 24(2), indicating the legislators’ desire to differentiate the scope of the obligations contained in Article 24(1) and Article 24(2).

consumers whereas the EED requirement only applies in the context of billing based on actual consumption or heat cost allocator readings.

As regards information on the related **annual greenhouse gas emissions**, a number of issues arise depending on whether supplies come from a single fuel source, for example a collective gas or oil boiler in a building, or from a district heating or district cooling system. In both cases, attention must be paid to how and to what extent the impact of efficiency losses in the building or the network is reflected, and which indicators are used (i.e. absolute or relative/specific (kgCO₂e/kJ), aggregate or per apartment, etc.).

As a minimum, district heating and cooling operators must provide the network's annual average emissions per energy unit billed/supplied (i.e. including the impact of network losses), so that the corresponding absolute emissions for any given final customer can be calculated.

On this basis, or based on the building's own fuel consumption, sub-metered consumers can have information on their share of absolute emissions (kg) AND their relative/specific average emissions, e.g. reflecting district heating composition or fuel used, and where relevant, local renewable energy sources.

In any case, 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. Where a Member State chooses to do so, this allows in particular small-to-medium sized district heating networks and sub-metered buildings with their own boilers to be exempt from the need to provide such information. It must be emphasised that this **possibility to limit the scope of the information requirement does not apply for fuel mix information**, it only concerns the related annual greenhouse gas emissions information.

In district heating or cooling systems where customers have the option to choose particular 'green' products sold as derived from a particular fuel mix (e.g. 100 % renewables) or with a particular greenhouse gas emission footprint differing from the system's average, this should be accounted for in order to avoid double-counting and misleading consumer information. Any such sales should be excluded when calculating the average fuel mix or GHG footprint for final customers. Not doing so would potentially constitute a breach of EU consumer legislation⁴⁴.

Annex VIIa point 3 (f) requires **comparisons of the user's consumption with the consumption of an average normalised or benchmarked final user in the same user category**, so Member States will have to develop or delegate the responsibility for developing adequate benchmarks and user categories. For sub-metering, sub-metering service

⁴⁴ Cf. Also SWD(2016) 163 final, 25.5.2016: Commission Staff Working Document: Guidance on the Implementation/Application of Directive 2005/29/EC on Unfair Commercial Practices.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016SC0163>.

providers could make relevant and accurate benchmarks available based on data from the buildings in their portfolios. For electronic bills, such comparisons may be made available online and should then be signposted within the bills themselves. For bills provided in paper copy, the comparisons must of course be included with the actual bill, as is the case for other elements that must be included.

9.3.2. *Bills not based on actual consumption/heat cost allocator readings*

It is currently common practice (at least in situations where remotely readable devices are not available) to base any regular/sub-annual bills on flat rate estimates of yearly consumption. Such bills do not need to include all the elements listed above, but must ‘*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)*’ of Annex VIIa point 3. These requirements also apply in situations where bills are never based on actual consumption/heat cost allocator readings. This will be the case for individual final users in multi-apartment and multi-purpose buildings that are not-sub-metered, and where energy costs are passed on to the final users through recurring charges or heat cost accounting based exclusively on other parameters such as floor area, volume, etc.