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Energy Efficiency in the ‘Fit for 55’ Framework: Increasingly Ambitious Targets Coupled with Hardening Governance

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Abstract

Energy efficiency has been progressively brought to the forefront to the EU’s decarbonization efforts. The EU’s efforts to develop an energy efficiency framework have traditionally relied on energy end-use reduction, but nowadays it seeks to promote a more integrated approach to energy efficiency in its energy policy framework. A key to this end is, in particular, the ‘energy efficiency first’ principle that was first introduced by the EU’s Energy Union framework. The principle is envisaged as the fundamental principle on which the EU’s energy system should be built. Since its introduction, it has been planted in all areas of the EU energy sector. This development has now culminated in the ‘Fit for 55’ framework, in which the EU Commission’s proposal elevates ‘energy efficiency first’ as a legally binding principle. In addition to the energy efficiency first principle, the Commission’s proposal includes other robust measures to improve energy efficiency, such as more ambitious targets for energy efficiency and stricter reporting obligations. This paper seeks to provide a comprehensive overview of the most important measures proposed by the Commission that concern energy efficiency. We will first discuss the role of energy efficiency in the low-carbon energy transition as well as the drivers of the new proposal before examining the newly proposed measures in more detail. Finally, some concluding remarks are provided.

Introduction: What is the Role of Energy Efficiency in the Low-Carbon Energy Transition?

Energy production and consumption represent the largest source of greenhouse gas emissions globally. In order to mitigate the impact of climate change in the energy sector, it is necessary to introduce measures that aim to reduce greenhouse gas emissions. The EU Commission has made it clear that full decarbonization of the EU economy cannot be achieved without increased energy efficiency.¹ According to the Commission, ‘the cheapest and cleanest source of energy is the energy that does not need to be produced or used’.² Energy efficiency is also today characterized as a ‘first fuel’: the energy source (fuel) you do not have to use.³

Energy efficiency has recently been brought to the forefront in the EU’s efforts to mitigate climate change, in particular due to its ‘untapped potential’ and ‘multiple benefits’.⁴ These

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¹ Proposal for a Directive of the European Parliament and of the Council on energy efficiency, Brussels, 14.7.2021. COM(2021) 558 final (‘Proposal’), p. 2.

² European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: Clean Energy for All Europeans*, Brussels, 30.11.2016, COM(2016) 860 final 4.

³ International Energy Agency (IEA), *Capturing the Multiple Benefits of Energy Efficiency* (OECD/IEA 2014) 18.

⁴ *ibid*, 18-19.

benefits range from environmental benefits to broader social and economic impacts.⁵ For example, whereas the environmental benefits of reducing the need to generate fossil-fuel-based energy and thus reducing greenhouse gas emissions are relatively well known, energy efficiency retrofits in buildings contribute to the building occupant's health, wellbeing and – of course – reduced energy bills. Reduced energy demand not only contributes to ensuring security of supply but can also delay or defer the need for system upgrades and infrastructure investments.

Energy efficiency thus resonates in many areas and sectors and therefore has wider systemic implications than has perhaps earlier been acknowledged (or admitted). Due to the broadness of the concept, European energy efficiency policy has an impact not only on the energy production sector but also on several other sectors. Measures have been introduced and adopted to achieve efficiency gains in areas such as transport, buildings and products (electronic devices, in particular) over the past few decades. Whereas the EU's efforts to develop an energy efficiency framework have traditionally relied on energy end-use reduction, nowadays it seeks to promote a more integrated approach to energy efficiency in its energy policy framework.

Energy efficiency and energy saving are explicitly mentioned in Article 194 TFEU, which empowers the EU to act in the area of energy.⁶ This gives the EU the competence to promote – in a spirit of solidarity between Member States – energy efficiency and energy savings in the context of the establishment and functioning of the internal market and with regard to the need to preserve and improve the environment. Hence, energy efficiency and energy saving are now firmly established in the EU energy *acquis*.

In 2006, the Commission adopted the Energy Efficiency Action Plan which suggested various measures aimed at realizing a 20% saving in primary energy consumption by 2020.⁷ This was regarded as necessary from both economic and environmental viewpoints: the objective was both to achieve significant monetary savings and to reduce emissions by reducing energy consumption. The European Council subsequently agreed, in March 2007, to the goal of improving the EU's energy efficiency by 20% by 2020.⁸ By 2010 energy efficiency was clearly identified as one of the EU's key objectives in the fields of energy and the environment. After the adoption of the Energy Efficiency Action Plan, the 2020 goal and the 'Europe 2020' strategy, a large number of energy efficiency measures were adopted relating to various areas of action. In 2018, as part of the 'Clean Energy for all Europeans' package, a new target was set to cut energy consumption by at least 32.5% by 2030, relative to a 'business as usual' scenario.⁹ The EU's energy and climate targets for 2030 are collective targets, i.e. they are to be achieved collectively by the Member States and they are not translated into national Member State specific targets. While the Energy Efficiency Directive¹⁰ (EED) of 2012 introduced

⁵ *ibid*, 18-19.

⁶ Treaty on the Functioning of the European Union (TFEU) [2008] OJ C115/47, art 194(1)(c).

⁷ Communication from the Commission, Action Plan for Energy Efficiency: Realising the Potential, Brussels, 19.10.2006, COM(2006) 545 final.

⁸ Council of the European Union, 'Presidency Conclusions: 8/9 March 2007' Ref.7224/1/07/Rev.1

⁹ Both the targets for 2020 and 2030 apply to EU-28. With the UK's withdrawal from the EU, the latter's energy consumption figures for 2020 and 2030 were adjusted to reflect the situation of the 27 remaining Member States. A technical adaptation, respecting the same calculation principles, results in a primary energy consumption of no more than 1 312 Mtoe in 2020 and 1 128 Mtoe in 2030 and a final energy consumption of no more than 959 Mtoe in 2020 and 846 Mtoe in 2030.

¹⁰ Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC [2012] OJ L315/1.

measures necessary to reach the EU's target for 2020, the amendments made to it in 2018 focused on the 2030 framework.

Today, energy efficiency plays 'the protagonist role'¹¹ in the EU. 'Energy efficiency first' is one of the key principles of the Energy Union, and is intended to ensure a secure, sustainable, competitive and affordable energy supply in the EU. As defined in the Governance Regulation,¹² 'energy efficiency first' means 'taking utmost account in energy planning, and in policy and investment decisions, of alternative cost-efficient energy efficiency measures to make energy demand and energy supply more efficient, in particular by means of cost-effective end-use energy savings, demand response initiatives and more efficient conversion, transmission and distribution of energy, whilst still achieving the objectives of those decisions'.¹³ It is envisaged as the fundamental principle on which the EU's energy system should be built. According to this principle, energy efficiency should be taken into account throughout the energy system, which means, inter alia, 'actively managing demand so as to optimise energy consumption, reduce costs for consumers and import dependency, while treating investment in energy efficiency infrastructure as a cost-effective pathway towards low-carbon and circular economy'.¹⁴

To put it simply, energy efficiency should always be prioritized over any investment in new power generation, grids or pipelines, and fuel supplies in the event that efficiency improvements are shown to be more cost-effective than these options. When considering any planning or new investments, the principle of energy efficiency prompts the question 'would it be cheaper or more valuable to help customers invest directly in energy-saving actions and demand-side response, rather than paying more for supply-side networks, fuels, and infrastructure?'¹⁵ Embedding the energy efficiency first principle into the whole energy system requires a fundamental rethinking of energy efficiency and treating it as an energy source in its own right, representing the value of the energy saved. As a result, energy efficiency in today's context refers not only to end-use efficiency and related savings, but also reflects the impact energy efficiency and related measures have across the entire energy system. This includes measures that lead to primary and/or final energy savings, taking into account both end-use and supply efficiency, but also system efficiency, such as demand side-management. Given the reach of the principle, it resonates not only in the legislation concerning energy efficiency, such as the EED and the Energy Performance of Buildings Directive¹⁶ (EPBD) but also in legislation

¹¹ As described in Nikolaos Gkonis and others, 'Multi-perspective design of energy efficiency policies under the framework of national energy and climate action plans' (2020) 140 Energy Policy 111401.

¹² Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council [2018] OJ L328/1.

¹³ Governance Regulation art 2(18).

¹⁴ European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: Clean Energy for All Europeans, Brussels, 30.11.2016, COM(2016) 860 final 4.

¹⁵ Edith Bayer, *Energy Efficiency First: A Key Principle for Energy Union Governance* (Regulatory Assistant Project 2018), available at <http://www.raponline.org/wp-content/uploads/2018/04/rap-bayer-key-principle-for-energy-union-governance-2018-april-17.pdf> accessed 11 December 2021.

¹⁶ Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings [2010] OJ L153/13.

on market design as well as certain product groups falling under the scope of Ecodesign and related legislative instruments.¹⁷

Despite the increasing importance and emphasis placed on energy efficiency, the implementation of energy efficiency measures has proven challenging. The implementation of the adopted measures and the achievement of the desired levels of energy savings have been hindered especially by several market failures and behavioural anomalies, among others.¹⁸ This ‘energy efficiency gap’ has long been identified as one of the problematic areas in EU decarbonization efforts.¹⁹

In July 2021 the Commission published the ‘Fit for 55’ package, which set out proposed revisions and updates of the existing legislation along with new measures to ensure that the EU will be on track to meet the 55% emissions reduction targets and the binding climate neutrality target set in the Climate Law for 2050.²⁰ This paper seeks to provide a comprehensive overview of the most important measures proposed by the Commission that concern energy efficiency. We will first discuss the drivers of the new proposal, before examining the newly proposed measures in more detail. Finally, some concluding remarks are provided.

The Drivers of the New Proposal

As noted above, of all the sub-sectoral policy areas relating to decarbonization, namely renewable energy, emissions trading and energy efficiency, the implementation of measures on energy efficiency has proven to be the most difficult. Over the years it was considered very difficult, if not impossible, for the EU to hit the 2020 targets. However, the latest data shows that the 2020 target for energy efficiency was ultimately met thanks to the COVID-19 crisis, such was the significance of its impact on energy demand. However, as this result cannot be attributed to structural changes, it is likely that consumption will rise again in tandem with economic recovery and therefore rebound effects are expected.²¹ In this respect, it has been emphasized that in order to ensure the effective implementation of new policies and tackle the expected rebound in energy demand it is crucial that (new) energy efficiency measures are strictly rooted in Member States’ post-pandemic recovery plans. In this respect, the making of insufficient progress towards the achievement of the 2020 targets will also impact on achievement of the 2030 targets: in order to achieve the 32.5% reduction target (with future

¹⁷ Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285, 31.10.2009, p. 10–35; Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU, OJ L 198, 28.7.2017, p. 1–23. See also Penttinen, Sirja-Leena: ‘Ecodesign’ in O. Woolley (ed.), *Encyclopedia of European Union Law, Energy Law Volume* (Oxford University Press 2021, forthcoming, in press).

¹⁸ Xavier Labandeira and others, ‘The impacts of energy efficiency policies: Meta-analysis’ (2020) 147 *Energy Policy*.

¹⁹ Jan Rosenow and others, ‘Energy efficiency and the policy mix’ in Richard Lorch and others (eds), *Building Governance and Climate Change: Regulation and Related Policies* (Routledge 2018) 89-101; Florian Kern, Paula Kivimaa and Mari Martiskainen, ‘Policy packaging or policy patching? The development of complex energy efficiency policy mixes’ (2017) 23 *Energy Research & Social Science* 11-25.

²⁰ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (‘Climate Law’), OJ L 243/1, art 2(1).

²¹ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘2020 report on the State of the Energy Union pursuant to Regulation (EU) 2018/1999 on Governance of the Energy Union and Climate Action’, Brussels 14.10.2020, COM(2020) 950 final 5.

upward revision possible), the governance frameworks must be strengthened, new policy tools introduced, and their effective implementation ensured.

In this regard, one of the most important tools is the EU Governance Regulation,²² which obliges Member States to draft and publish integrated National Energy and Climate Plans (NECPs). The Governance Regulation draws to a great extent on existing planning and reporting obligations in the context of the 2020 targets, in particular national energy efficiency action plans (NEEAPs) as well as national renewable energy action plans (NREAPs). In addition to the NECPs, the Governance Regulation requires Member States to submit national energy and climate reports biannually. Both the NECPs and the reports must follow relatively strict reporting guidelines enshrined in the Governance Regulation.²³ These reporting obligations include energy efficiency as one separate dimension of the Energy Union framework.²⁴ Under the NECPs, Member States outlined how they intended to contribute, inter alia, to the 2030 target for energy efficiency.

The NECPs submitted for review by the end of 2019 to the Commission revealed a serious ambition gap. While the EU's target ambition level for 2030 is a 32.5% reduction in final energy consumption, the NECPs only paved the way to achieve a collective reduction of 29.4% in final energy consumption and 29.7% in primary energy consumption compared to the projections from the 2007 reference scenario for 2030.²⁵

Against this background, the Commission considers that the agreed 32.5% energy efficiency target is not ambitious enough to achieve the target of 55% by 2030. A higher ambition level requires more robust promotion of energy efficiency in all areas of the energy system and in all relevant sectors where activity affects energy demand.²⁶ To that effect, the Commission proposes a set of measures for energy efficiency that range from cross-sectoral to sector-specific measures. These are discussed below.

New Targets and Stricter Reporting Obligations and Monitoring for Energy Efficiency

Articles 1 and 4 of the Proposal sets an increased energy efficiency target for final and primary energy consumption, binding at EU level. Further, it sets out indicative national energy efficiency contributions towards the collective targets, and – similarly to the Renewable Energy Directive 2018 and the Governance Regulation – provides Member States with a formula to calculate their contributions. The new targets reflect the additional efforts required when mirrored to those efforts currently in place as enshrined in the NECPs. However, the Commission emphasizes that the national targets are of *indicative nature* only, due to strong opposition by the majority of the Member States towards the idea of mandatory, binding national targets. In a move towards the use of harder governance mechanisms similar to those

²² Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action [2018] OJ L 328/1.

²³ Annex I.

²⁴ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, *A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*, COM(2015)080 final.

²⁵ Proposal, p. 2.

²⁶ *ibid*

used in the field of renewable energy, benchmarks and delivery gap mechanisms are also proposed to complement those measures that already form part of the Governance Regulation.

In this respect, the Proposal provides that in the event that the Commission concludes, on the basis of its assessment of the biannual progress reports, that insufficient progress has been made towards meeting the energy efficiency contributions, Member States that are above their indicative trajectories referred to are required to undertake ‘additional measures’ that must be implemented within one year following the date of reception of the Commission's assessment. Such additional measures include, for example, (i) national measures that deliver additional energy savings, including stronger project development assistance for the implementation of energy efficiency investment measures; (ii) increasing the energy savings obligation; (iii) adjusting the energy efficiency obligations to be met by the public sector; and (iv) making a voluntary financial contribution to the National Energy Efficiency Fund or another financing instrument dedicated to energy efficiency. In this respect, the annual financial contributions are to be equal to the investments required to reach the indicative trajectory. Furthermore, in order to ensure contingent monitoring, the respective Member State is required to include in its NECP progress report an explanation as to how it will cover the gap to ensure that it makes the required national energy efficiency contributions. Similarly to the existing provisions of the Governance Regulation, if the Commission deems the measures insufficient to reach the collective energy efficiency target, it ‘shall, as appropriate, propose measures and exercise its power at Union level’ to ensure the realization of the 2030 targets.

In addition to the energy efficiency target, the Proposal introduces several new sub-targets. First, for all Member States the annual energy savings obligation that applies from 2024 onwards is increased to 1.5% of the average annual energy consumption over the three-year period prior to 1 January 2020.²⁷ This obligation is increased from the 0.8% for the current period from 2021 to 2023 and thus almost doubled. Second, Article 6 requires each Member State to ensure that at least 3% of the total floor area owned by public bodies is renovated each year. This is discussed in greater detail below together with other rules underlining the exemplary role to be played by the public sector.

The ‘Energy Efficiency First’ Principle as a Legally Binding Rule

The ‘energy efficiency first’ principle was originally launched in the Energy Union framework. The definition of the principle was included in the Governance Regulation but has thus far not been specifically addressed in the context of the legislative instruments on energy efficiency.²⁸ Energy efficiency first has nevertheless been identified as the core element in the low-carbon energy transition in the Green Deal²⁹ as well as in the EU Strategy for Energy System Integration³⁰ that especially emphasizes prioritizing demand-side solutions, particularly over

²⁷ Proposal, art 8.

²⁸ The Commission also notes that the Energy Efficiency Directive currently in force ‘contributes to the implementation of the principle, but it does not contain any specific requirements [as to] how the principle should be applied’, see Commission Recommendation of 28.9.2021 on Energy Efficiency First: from principles to practice. Guidelines and examples for its implementation in decision-making in the energy sector and beyond, Brussels, 28.9.2021, C(2021) 7014 final, para. 4.

²⁹ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The European Green Deal’. COM(2019) 640 final.

³⁰ Communication from the Commission to the European Parliament, the Council, the European and Social Committee and the Committee of the Regions – Powering a climate-neutral economy: An EU Strategy for Energy System Integration, COM(2020) 299 final.

those investments in energy infrastructure that have the potential to become stranded assets. In this respect, the Commission recognizes that demand-side resources and other flexibility assets embody the energy efficiency first principle. Similarly, within the building sector, the energy efficiency first principle is considered as the key principle in the Renovation Wave Strategy,³¹ in addition to which it should be taken into consideration in the national Long Term Renovation Strategies Member States are obliged to draw up. Besides the energy aspects of the ‘energy efficiency first’ principle, the Commission has acknowledged other possible benefits resulting from it, such as improvements to health and wellbeing. In this respect, the Commission has emphasized that human health is one of the most important co-benefits of energy efficiency. Thus, healthier buildings and better indoor conditions have a major role in the application of the principle despite being traditionally the preserve of the regulation of the built environment.³² Finally, the Proposal for the TEN-E Regulation also seeks to further ensure policy consistency and reinforce efficient infrastructure development by integrating the energy efficiency first principle in the planning and project assessment process.³³

The Proposal for the Energy Efficiency Directive now lays down the energy efficiency first principle as a legally binding rule, thus underlining its overall importance in today’s policy discourse. Article 3 provides that Member States are to ensure that energy efficiency solutions are taken into account in planning, policy and major investment decisions related to energy systems as well as to non-energy sectors, where those sectors have an impact on energy consumption and energy efficiency. In order to ensure the robust application and therefore impact of the principle, Article 3(2) seeks to ensure the principle does not remain simply rhetorical in nature and obliges Member States to ensure that the relevant entities verify the application of the principle where policy, planning and investment decisions are subject to approval and monitoring requirements. In this regard, Member States must identify and define the competences of the relevant entities and establish the modalities for monitoring the impacts of policy and investment decisions in relation to energy consumption. In addition, Member States are required to report to the Commission in the NECP progress reports on how the principle was taken into account in national and regional planning and in policy and major investment decisions related to national and regional energy systems.

The application of the principle requires analysis of the costs and benefits. In particular, the Commission emphasizes taking into consideration societal perspectives on the assessment of various alternatives when analysing cost-effectiveness and the wider benefits of energy saved. The Commission notes that at operational and subnational levels implementation decisions should consider the cost-effectiveness of energy efficiency from investor and end-user perspectives, thus prioritizing these perspectives.³⁴

Despite the strengthened rules on the application of the principle and verification of such application, the principle does not mean that energy efficiency is always the key aim. Its main objective is simply to consider and evaluate actions in respect of energy efficiency and energy

³¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives, COM(2020) 662 final.

³² Christos N. Maxoulis, ‘The challenges of implementing the EPBD recast (2010/31/EC) effectively, in order to untap its true potential’ (2012) 6(2) *Advances in Building Energy Research*.

³³ Proposal for a Regulation of the European Parliament and of the Council on guidelines for trans-European energy infrastructure and repealing Regulation (EU) No 347/2013, Brussels, 15.12.2020, COM(2020) 824 final.

³⁴ Commission Recommendation of 28.9.2021 on Energy Efficiency First: from principles to practice. Guidelines and examples for its implementation in decision-making in the energy sector and beyond, Brussels, 28.9.2021, C(2021) 7014 final, para 10.

demand management on an equal footing with alternative actions to respond to a specific need or objective, particularly when energy supply or energy infrastructure investments are at stake.³⁵

Furthermore, Article 25 of the Proposal is designed to clarify and enhance the role of national regulatory authorities (NRAs) in implementing the ‘energy efficiency first’ principle in the planning and operation of energy networks. This article also requires Member States to ensure that transmission system operators (TSOs) and distribution system operators (DSOs) in the electricity and gas sectors apply the energy efficiency first principle in their network planning, network development and investment decisions. TSOs and DSOs should avoid investments in stranded assets in their climate change mitigation efforts. NRAs should develop methodologies and provide guidance on how to assess alternatives and take into account wider benefits. Furthermore, in line with Article 3, NRAs are tasked with verifying the implementation of the energy efficiency first principle by the TSOs and DSOs when approving, verifying or monitoring the projects submitted by them. Finally, the NRAs are required to apply the principle more generally when carrying out their tasks. Perhaps most interestingly, this also includes the approval and application of network tariffs. As a result, it will be more difficult in the future for network companies to recover network losses from consumers by adopting tariffs.

The energy efficiency first principle is elevated to the status of a binding legal rule with the introduction of Article 3. This makes it subject to enforcement and judicial review, for example in the event that a Member State is held to have breached an obligation to ensure verification of the application of the principle. It will be very interesting to see what wider implications this provision may have in the future if this article is adopted in its current form.

Even though the ‘energy efficiency first’ principle has the potential to decrease greenhouse gas emissions,³⁶ it may not lead to optimal emission reductions. In Finland energy saving renovation of building structures has been done mainly when they are damaged or outdated. If the energy renovation is done before the lifespan of structures has ended, the energy use of new material production will come too early.³⁷ One of the challenges in this context is that the calculation of energy savings is based on a period of one year and the profile, timing or duration of the consumption is not taken into account. Greenhouse gas emissions produced from energy production vary and it is important to emphasize, that emissions produced and consumed in the day or night, summer or winter or during the high or low consumption are not comparable. To put it simply, energy and power are two different things in the energy system and both should be designed, optimized and reflected in the context of energy production emissions in the same timeframe. From an energy system perspective it does not matter if there is a high level of demand only for a few days of the year. Reserves (investments) are nonetheless needed in respect of production and delivery to meet that demand, and TSOs and DSOs have limited scope to influence decisions made on the consumption side. In the future, demand response may offer an effective means of managing power consumption behaviour, but remains a secondary function in the big picture and has limitations.

The implementation of heat pump solutions in the northern latitude offers a concrete example of a challenging power demand development path. In Finland, for example, district heating is

³⁵ *ibid*, para 11.

³⁶ Annex to the Commission recommendation on Energy Efficiency First: from principles to practice. Guidelines and examples for its implementation in decision-making in the energy sector and beyond.

³⁷ Satu Huuhka and others, ‘Purkaa vai korjata?: Hiilijalanjälkivaikutukset, elinkaarikustannukset ja ohjauskeinot’, Ympäristöministeriö julkaisu 9:2021, Helsinki, 2021.

being replaced by ground-sourced heat pumps in respect of blocks of flats. Heat pumps significantly reduce buildings' annual energy consumption and are very cost-efficient for building owners, but the most cost-efficient solution for the building owner is not the best for the energy system. The problem is that heat pumps' capacities are usually inadequate to meet the heating demand of the buildings where they are in use and, during the coldest days, additional heating is produced by some other heat source – usually electric heating elements. Therefore, from the energy system perspective, the building is energy efficient before the coldest days arrive, when consumption spikes. This kind of peak behaviour in respect of ground-source heat pump systems could be avoided by utilizing a different system design (a full capacity heat pump), but that is not the most cost-efficient option for building owners and consequently not used. In the future, demand response might be a partial solution to manage power demand in respect of these heating systems, but the priority is always to keep the building's indoor conditions at an adequate level. Clarifying the meaning of the 'energy efficiency first' principle and of 'cost-effective end-use energy savings' with a view to prioritizing policy steps, or implementing emissions-based measures as part of 'energy efficiency first' principle, would provide impetus to avoid these kinds of energy system design flaws in the future.³⁸

The Exemplary Role of the Public Aector, and the 'Renovation Wave'

The idea of 'the public sector leading by example' is an established theme in the EU energy efficiency framework, which the Proposal continues while introducing more stringent obligations for Member States.

Article 5 introduces an obligation for the public sector to reduce its energy consumption for public services and installations of public bodies. Member States are required to ensure that the total final energy consumption of all public bodies combined is reduced by at least 1.7% each year. This can be met in any subsector of the public sector, including transport, public buildings, spatial planning and water and waste management amongst others. In a similar manner to other obligations, Member States' NECP reporting duties under the Governance Regulation constitutes the key tool facilitating continuous monitoring.

Furthermore, as mentioned above, Article 6 broadens the scope of the renovation obligation while the renovation rate target remains the same (3%). Contrary to the earlier requirement, which only related to central buildings owned and occupied by Member States' national governments, the obligation is extended to cover all public bodies at all administrative levels and in all sectors of public bodies' activities where the buildings are owned by public bodies. The Commission envisages that this considerable extension will bring the benefits of public building renovation closer to all people in all Member States, in addition to which it will vastly increase renovations in the public sector.

Article 6 further states that where public bodies occupy a building that they do not own, they should encourage the building owner to renovate the building so that it becomes a nearly zero-energy building.³⁹ Similarly, when Member State public bodies conclude new contracts to occupy buildings they do not own, they must endeavour to ensure that that building falls within

³⁸ Sirja-Leena Penttinen, Kari Kallioharju and others, 'Building Electrification: policy implications and interactions' in Pami Aalto (ed), *Electrification: Accelerated Transition to Climate Neutrality* (Elsevier 2021), pp. 175-196.

³⁹ The concept of nearly zero-energy buildings was introduced in the EPBD. See Article 9 and definition in Article 2(2).

the top two energy efficiency classes on the energy performance certificate. Finally, the alternatives that are currently allowed under the existing EED framework to achieve similar energy savings through other measures than renovations are deleted.⁴⁰

The notion of the public sector leading by example is in general a good principle by which to promote energy efficiency in the Member States. Strengthening the exemplary role of public sector is also in line with the Renovation Wave, published in 2020.⁴¹ However, the 3% annual renovation obligation covering all the public buildings may prove problematic for some countries. The annual renovation obligation for public buildings should be ambitious, but should give an option for public authorities to consider the need for renovation of public building stock based, for example, on the building type and use-rate, location, value and previous renovations. This would enable systematic future-proof development of required public building stock in an urbanizing EU and avoid a shortsighted and unmanaged renovation wave and overheated renovation market of public buildings.

More detailed rules on the implementation of the policies adopted in the Renovation Wave are to be expected in the upcoming proposal revising the EBPD. For example, the Long-Term Renovation Strategies Member States were obliged to submit in 2020 (that now fall within the reporting obligations included in the NECPs) revealed that the majority of the strategies are not compliant with the EPBD objectives towards achieving a highly energy efficient and decarbonized building stock by mid-century. This essentially means that the objectives of the long-term renovation strategies (described in EPBD Article 2a) are misaligned with the EU's strengthened 2030 Climate Target and 2050 climate-neutrality objective. The substantial increase in renovation activity that is required (a deep renovation rate of 3% annually by 2030) is unlikely to be achieved.

As the long-term renovation strategies have revealed, even meeting the current targets is challenging, especially in areas with declining populations. In such areas, funding is not available because the value of the buildings will be insufficient to cover the collateral for the investment loan. Therefore, financial support in such areas is critically needed if energy efficiency targets are to be met.⁴² Furthermore, the payback periods for renovations targeting energy savings vary greatly as between different parts of Europe. It appears that it is easiest to achieve deep renovation targets in several Eastern European countries⁴³ (Picture 1 below), where buildings are not energy efficient, energy is relatively expensive and construction costs

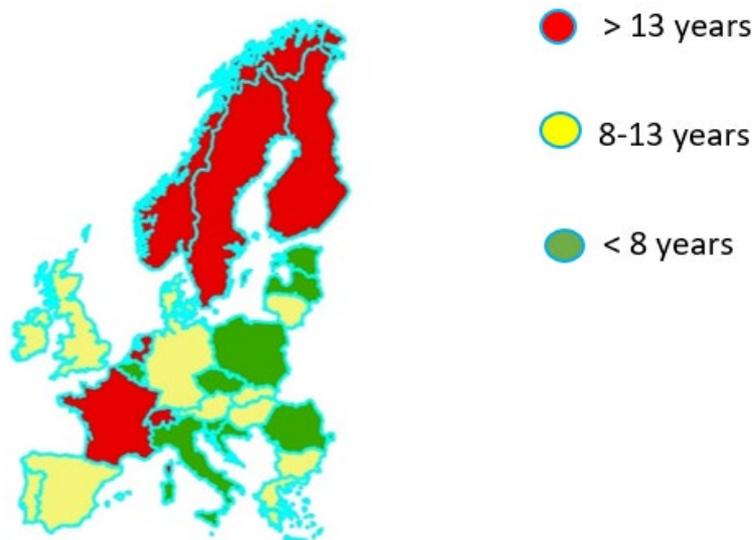
⁴⁰ Under Article 5(6) of the EED Member States can opt for an alternative approach to renovations. They can take other cost-effective measures, including deep renovations and measures aimed at bringing about behavioural change among occupants, to achieve an amount of energy savings in eligible buildings owned and occupied by their central government that is at least equivalent to that required, reported on an annual basis.

⁴¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 'A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives' Brussels, 14.10.2020, COM(2020) 662 final.

⁴² Eero Nippala and Terttu Vainio, 'Location is crucial in retrofit – upgrade or replace old building in different geographical areas', CREON, CEO 2019, Tallinn. Conference paper.

⁴³ EU-GUGLE (2018), "EU-GUGLE pilot city Tampere", available at <http://eu-gugle.eu/pilot-cities/tampere/>. The case study compared the renovation and improvement in energy efficiency (deep renovation) of a typical residential block representative of the 1970s. Energy savings, residual value and rental income were recognized as offsets to the above costs. The content and costs of the renovation were based on real, market-based renovations. The package of measures consisted of additional facade insulation and rendering, new windows, re-plumbing, an exhaust air heat pump and building energy management system.

are low.⁴⁴ It is significantly more difficult to achieve the target in Northern Europe where cold winters from time immemorial have forced investments in energy efficiency, energy is relatively cheap and construction costs are high.



Picture 1. Deep renovation payback period in different countries (Nippala, Vainio, 2019)

In most European countries it is difficult and costly to achieve structural renovations targets. The goal is almost achievable in cases where the initial energy consumption is very high. The second question is whether it is worth repairing such weak buildings. This question is particularly relevant in areas of depopulation, as highlighted above, and in growth centres. The goal can more easily be achieved if savings can be generated by replacing bought energy with domestic energy production or by replacing fossil fuels with renewable energy sources.⁴⁵ In view of the increasingly ambitious targets, it will be interesting to see what the Commission proposal for the EPBD will include.

Finally, in addition to the public sector's role in building renovation, Article 7 strengthens the public procurement provisions by extending the obligation to take into account the energy efficiency requirements to all public administration levels, and by removing conditionalities with regard to cost-effectiveness, technical and economic feasibility. Article 7(6) provides that Member States may require that public bodies consider circular economy aspects and green public procurement criteria in public procurement practices. Member States will be required to support public bodies by providing guidelines and methodologies on the assessment of lifecycle costs, and by putting in place competence support centres and encouraging the use of aggregated procurement and digital procurement approaches. Member States are also required to publish information on winning tenders to increase transparency. In addition, contracting authorities are empowered to require, should they wish to do so, that tenderers disclose information on the lifecycle global warming potential of a new building.

⁴⁴ Eero Nippala and Terttu Vainio, 'Deep renovation in different business environments' in Stephen Gruneberg (ed), *Global Construction Data* (Routledge 2019), pp. 88-95.

⁴⁵ Huuhka and others (n 37).

Heating and Cooling

Articles 23 and 24 of the Proposal lay down stricter requirements as to the planning and follow up of comprehensive assessments on heating and cooling, including the promotion of local and regional levels. Article 23 obliges Member States to include in the NECPs and NECP progress reports to the Commission a comprehensive heating and cooling assessment that must follow the information requirements laid down in the Directive. To increase transparency, the public must be given the opportunity to participate. Member States are also required to adopt policies and measures to ensure that the potential identified in the assessments is taken advantage of. Again, adopted measures should be notified as part of the NECPs and NECP progress reports.

Article 24 provides progressively tightening criteria for an efficient district heating and cooling system through to 2050. According to the Proposal, an efficient district heating and cooling system is one that meets the following criteria: (i) **until 31 December 2025**, it uses at least 50% renewable energy, 50% waste heat, 75% cogenerated heat or 50% of a combination of such energy and heat; (ii) **from 1 January 2026**, it uses at least 50% renewable energy, 50% waste heat, 80% of high-efficiency cogenerated heat or at least a combination of such thermal energy going into the network where the share of renewable energy is at least 5% and the total share of renewable energy, waste heat or high-efficiency cogenerated heat is at least 50%; (iii) **from 1 January 2035**, it uses at least 50% renewable energy and waste heat, where the share of renewable energy is at least 20%; (iv) **from 1 January 2045**, it uses at least 75% renewable energy and waste heat, where the share of renewable energy is at least 40%; (v) **from 1 January 2050**, it uses only renewable energy and waste heat, where the share of renewable energy is at least 60%.

Empowering and Protecting Consumers

In addition to setting more ambitious targets, strengthening the reporting obligations and ensuring that they conform with the Governance Regulation, the Proposal includes many provisions that seek to enhance the provisions on consumer protection and provide further tools for consumer empowerment.

Article 20 strengthens the protection of consumers, introducing basic contractual rights in respect of district heating, cooling and domestic hot water, in line with those recently introduced in respect of electricity.⁴⁶

Article 21 strengthens the obligations towards consumers, in particular the availability and provision of information, awareness-raising measures and technical and financial advice and assistance offered. The creation of one-stop shops, single points of contact and out-of-court dispute settlement mechanisms will significantly help empower customers and final users. The Proposal makes participation of undertakings in out-of-court dispute settlement mechanisms for household consumers mandatory, unless the Member State concerned is able to demonstrate to the Commission that equally effective mechanisms exist. Article 21 also includes obligations to identify and lift barriers relevant to the split incentives between tenants and owners or among owners. This is an area that has been recognized as problematic in the context of the energy performance of buildings.

⁴⁶ Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, OJ L 158, 14.6.2019, p. 125–199

Article 22 refers to the concept of vulnerable customers, which Member States should establish pursuant to Articles 28 and 29 of Directive (EU) 2019/944 and Article 3(3) of Directive 2009/73/EC. Article 22 requires Member States to establish that concept also by taking into account final users, who have no direct or individual contract with energy suppliers.

The empowerment and protection of vulnerable customers as well as the alleviation of energy poverty are the focal points of Article 22. It introduces an obligation for Member States to implement energy efficiency improvement measures as a priority among vulnerable customers, people affected by energy poverty and, where applicable, people living in social housing, to alleviate energy poverty. Member States are required to implement energy efficiency improvement measures to mitigate the distributional effects of other policies and measures, such as taxation measures, or the application of emissions trading under the EU ETS Directive,⁴⁷ and to foster the roll-out of enabling funding and financial tools such as on-bill schemes, local loan-loss reserve, guarantee funds, funds targeting deep renovations and renovations with minimum energy gains. Member States are also required to foster technical assistance for social actors to promote vulnerable consumers' active engagement in the energy market, and positive changes in their consumption behaviour. Article 22(4) strengthens the role of expert networks, which means that taking into consideration the wide (systemic) implications of energy efficiency, Member States are required to establish a network of experts covering various areas, such as health, social and building sectors, to develop strategies the implementation of which would enable the alleviation and mitigation of energy poverty and the development of technical and financial assistance to that end.

Concluding thoughts

The Commission's Proposal is very ambitious, particularly in terms of target-setting, extended sub-sectoral targets, and laying down a more robust governance framework to ensure the realization of the set targets. Furthermore, the Proposal includes many provisions that are aligned with, for example, the Electricity Market Directive adopted in 2019.

Perhaps the most interesting developments are those related to Articles 3 and 4. First, energy efficiency first is now embedded into binding legislation, and thus subject to judicial review and enforcement. This underlines the importance of the principle, in addition to which the Commission was very innovative in proposing extension of the obligation to public entities to ensure the verification of the application of energy efficiency principle. Much of the success of the provision clearly depends on how Member States transpose the obligation into their national legislation as no further details are provided in the Proposal as to, for example, how strict the requirements governing verification that are being introduced should be (e.g. what kind of documentation is needed to prove that an assessment has been made upon which the verification can be based). Concretizing the principle of energy efficiency first in this way would ensure that it amounts to more than impressive words and requires action.

In addition to the energy efficiency first principle, the Commission proposes more ambitious targets by which to achieve collective EU level energy efficiency. Instead of the previously agreed 32.5% target by 2030, the Commission suggests increasing the target levels to 39% and 36% of energy efficiency savings in primary and final energy consumption respectively

⁴⁷ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC [2003] OJ L275/32.

(representing a 9% reduction by 2030 compared to the 2020 baseline scenario). The revised targets reflect the relative success of the governance framework as established by the Governance Regulation: the NECPs revealed the existing ambition gap in Member States' national plans, and under the powers granted to the Commission in the Governance Regulation, more ambitious targets, new measures and improvements to existing measures are proposed to meet the set target and ensure that the 2050 climate neutrality objective is met.

In this respect, energy efficiency is subjected to similar process as renewable energy currently is under the Governance Regulation. This means, in particular, that indicative national energy efficiency contributions and trajectories are proposed, as well as a formula by which to calculate Member States' contributions. Furthermore, the introduction of additional measures by Member States that are not below their savings trajectory is required. In addition to these requirements and other reporting related obligations enshrined in the Proposal, increasing transparency clearly underline the Commission's use of harder governance elements in order to ensure the achievement of the ambitious targets. In this respect, the Proposal is a coherent instrument, extending its reach – as required by the principle of energy efficiency – outside the energy efficiency silo.

Naturally, it should be emphasized that what has been published is at this stage only a proposal. It is subject to negotiations, change and ultimately adoption by the European Parliament and the Council as the EU co-legislators.