Assessing the European Union's Energy Efficiency Policy: Will the Winter Package deliver on 'Efficiency First'?

Working paper

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ABSTRACT

The European Commission's so-called 'Winter Package of energy legislation will provide the framework for energy policy in the European Union for many years to come. It contains proposals for a whole range of energy-related issues including energy markets, energy infrastructure, renewable energy, climate policy and also energy demand. In this paper, we carry out a preliminary review of the proposals and what they mean for energy efficiency. The European Union has adopted the principle of 'Efficiency First' through the launch of the Energy Union Communication in February 2015. We assess the extent to which the Winter Package keeps the promise of putting energy efficiency first. More specifically, we analyse the revised Energy Efficiency Directive (EED), the Energy Performance of Buildings Directive (EPBD) the Directive on common rules for the Internal Energy Market for electricity (IEM), the Regulation on the electricity market, and the Regulation on Governance of the Energy Union. We conclude that, while there are many improvements across the different pieces of legislation, the Winter Package falls short of comprehensively reflecting the Efficiency First principle. The paper provides a number of concrete policy recommendations in order to incorporate the Efficiency First principle more fully into the proposed set of European energy legislation.

Keywords: energy efficiency policy; EU; Winter Package; Efficiency First

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INTRODUCTION

2017 will be a big year for European energy policy. The legislative proposals in the European Commission's recently released and long-awaited 'Winter Package' (also branded as 'Clean Energy for All' proposals) (EC 2016a) will be negotiated in the European Council and European Parliament. Those negotiations will be of critical importance as the Winter Package addresses all areas of the energy system and will shape the policy framework for many years post-2020. Energy efficiency is one of the key elements of the Winter Package and features in the various legislative proposals.

In this paper, we examine some of the key elements of five of the proposed legislative instruments that directly affect the Energy Union's goals to deliver greater energy efficiency to European energy economies: the revised Energy Efficiency Directive (EED), the Energy Performance of Buildings Directive (EPBD) the Directive on common rules for the Internal Energy Market for electricity (IEM), the Regulation on the electricity market, and the Regulation on Governance of the Energy Union.

Our assessment is carried out against the commitment of the European Union to make 'Efficiency First' a guiding policy principle in future energy policy making (EC 2015). Efficiency First is a principle applied to policymaking, planning and investment in the energy sector. Put simply, it prioritizes investments in customer-side efficiency resources (including end-use energy efficiency and demand response) whenever they would cost less, or deliver more value, than investing in energy infrastructure, fuels, and supply alone (Bayer 2015; Cowart 2014; Rosenow et al. 2016). At a first look, this is purely a common-sense policy – surely public policy should promote end-use efficiency whenever saving energy or shifting its use in time costs less or delivers greater value than conventional supply-side options. However, through long experience we know that this does not happen by itself. On the demand side, investments in efficient solutions are impeded by numerous market barriers to individual action; and on the supply side, industry traditions, business models and regulatory practices have always favoured, and continue to favour, fossil fuel based energy infrastructure and sales over lower sales and energy saving technologies.

Implementing Efficiency First comprehensively is a big task for the European Union and the Winter Package takes first steps towards making this a reality. Below, we analyse each of the policy proposals made in the Winter Package in turn and assess them against the ambition that the Efficiency First principle represents. We then summarise the main policy recommendations and conclude.

The Winter Package consists of around 4,500 pages of legislation and associated documents. It would be impossible to analyse all of the planned energy efficiency provisions in one paper. Instead, we focus on key elements of the Winter Package providing a critical view on whether or not the proposals are likely to deliver on energy efficiency. Our assessment is informed by previous analyses of European energy efficiency policy (Bayer 2015; BPIE 2016a; Cowart 2014; Cowart et al 2015; European Climate Foundation 2016; Fawcett and Rosenow 2016; Forster et al. 2016; Rosenow et al. 2016).

ENERGY EFFICIENCY DIRECTIVE

The EED (2012/27/EU) was designed to achieve a 20% energy consumption reduction target across the EU. The Energy Efficiency Directive puts in place a number of important provisions to be implemented by Member States including the requirement to establish binding national energy efficiency targets (Article 3), national building energy efficiency strategies (Article 4), a requirement to renovate 3% of public sector buildings each year (Articles 5 and 6), the need to establish energy efficiency obligation schemes (Article 7), and provisions for auditing and metering (Articles 8-12). The most important Article of the Directive (Article 7) requires Member States to implement Energy Efficiency Obligations and/or alternative policy instruments in order to reach a reduction in final energy use of 1.5% per year (Rosenow et al. 2016). Article 7 is expected to deliver more than half of the required energy savings of the 20% reduction target and is therefore the most important component of the EED in terms of its contribution (EC 2011).

The proposed revisions in the Winter Package primarily concern the headline target and Article 7. Some revisions are proposed for other articles of the EED but we focus on the headline target and Article 7 as those are the key elements under revision.

Headline target

The Winter Package proposes a 30% energy savings target by 2030, instead of the 27% initially discussed in the 2030 Energy Strategy (EC 2014). The target relates to a reduction of primary energy compared to a 2007 baseline. The Commission's analysis suggests that a 30% target represents a drop in final energy consumption of 17% by 2030 compared to 2005 (EC 2016b).

Previous analysis has demonstrated that the cost-effective potential for energy efficiency exceeds 30% of primary energy compared to a 2007 baseline significantly (Braungardt et al. 2014) and this is one of the reasons the European Parliament has called for a 40% target by 2030 (EP 2016). This means there is a case to be made for a more ambitious target for economic reasons alone. This is also illustrated by analysis in the Commission's impact assessment of the EED which shows substantial economic benefits from a more ambitious target (EC 2016c).

The other main change regarding the headline target is the nature of the target. Previously, the 20% target was non-binding and Member States were required to indicate their individual contributions to that target to the European Commission.

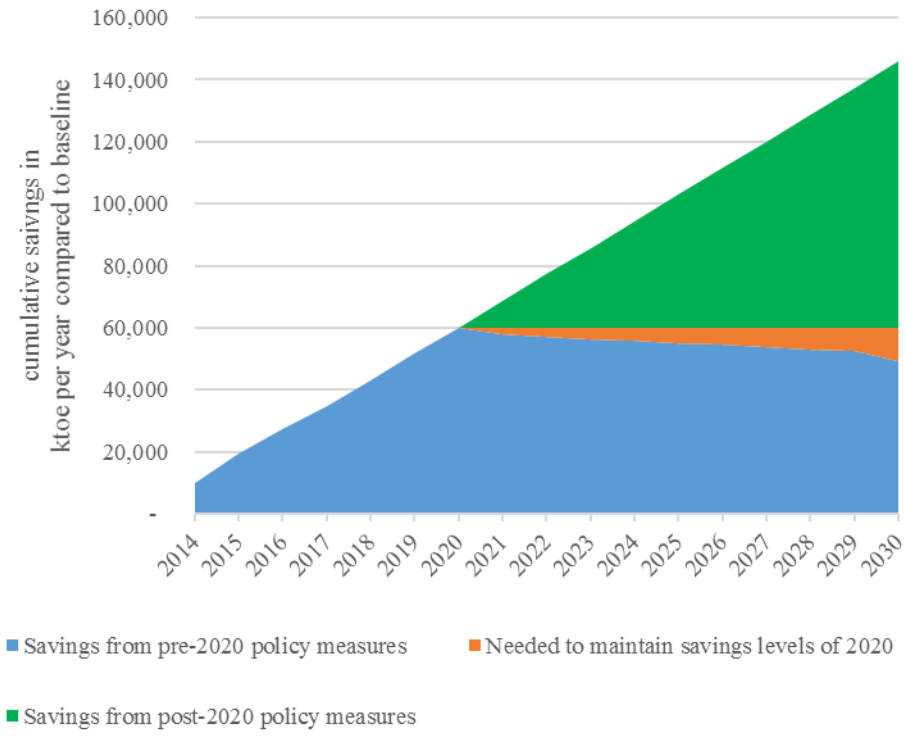
Sunset clause

As outlined above, the EED previously required Member States to set targets for 2020. This potentially provided a disincentive to Member States regarding the promotion of technologies with long lifetimes and longer payback periods. The 1.5% target now extends to 2030 and for 10 years beyond unless it is concluded that this is no longer necessary in order to meet the EU's energy targets. This change will provide investor certainty over a time horizon of 20 years and is an improvement of the current version of Article 7.

However, by creating a new "starting point" in 2021, the EED creates a new opportunity for slippage in attainment. The revised Article 7 introduces a new savings period (2021-2030) in addition to the existing period (2014-2020). For each period, cumulative savings equivalent to 1.5% added each year (minus exemptions and exclusions) must be reached by the end of the period.

In a process that requires sustained, growing savings over time, claimed measures that are no longer delivering savings must be replaced either in situ, or with new measures. Under the EED today, savings by technologies installed before 2020 with lifetimes coming to an end before 2030 would need to be replaced in order to keep the same level of energy efficiency improvements. Using data from Forster et al. (2016) we estimate that by 2030 about 18% of all measures implemented before 2020 will no longer deliver savings in 2030 and beyond, and those currently do not need to be replaced. This is equivalent to 7% of the sum of the cumulative savings delivered over both periods. In other words, resolving the issue of short lifetimes and replenishing 'old' savings would lead to 7% more energy savings over the period 2014-2030.

Figure 1 - Cumulative energy savings from policy measures and required replacement compared to baseline [ktoe]



This matter becomes more severe over time and by 2040 only about ¼ of all savings resulting from measures implemented before 2020 are still 'alive'. The most straightforward answer to this problem is to require Member States to account for savings erosion from earlier measures as they leave the system and to compensate for them with additional savings in the relevant time frame (2020-2030).

Treatment of old savings

As described before, Article 7 requires Member States to implement measures that achieve 1.5% annual incremental savings of final energy sales in the period 2014-2020. The new period in which 1.5% savings have to be achieved is 2021-2030.

In a previous leaked version of the proposed EED the wording was unclear, implying that Member States could potentially count against future years' incremental savings requirements (in the period 2021-2030), savings from measures that were delivered before 2020, provided their lifetimes extend beyond 2020. Based on data provided by Forster et all. (2016), we estimate that this effect could have reduced the level of ambition under the EED between 2020 and 2030 by 84%.

Article 7 now clearly says that new savings from new measures are required. Under the more recent proposal, Article 7 will continue to deliver new savings at the same rate as before 2020.

Exclusions and exemptions

A number of exclusions and exemptions currently allow Member States to reduce the 1.5% target - this has resulted in planned savings of just ~0.75% per year (Rosenow et al. 2016). In the proposed EED the same exclusions from the baseline can be made (transport, non-energy use). The exemptions remain the same but now include renewable energy produced and consumed on site. To include renewables within the exemptions has little impact for now on the level of energy savings required given that almost all Member States fully use the exemptions up to the 25% maximum already (Forster et al. 2016).

Additionality

As a general rule, efficiency performance that merely complies with broadly-applicable standards does not qualify as "additional" to business as usual, and thus can't be counted towards compliance with the mandate for additional savings under an efficiency obligation. New buildings, which must comply with the EPBD, thus should not qualify as delivering additional savings unless they are delivering even better performance than is required by the EPBD. Building renovations, on the other hand, can in many instances be triggered or improved by efficiency programs.

The revised EED is clear with respect to renovations - there is a firm commitment that they can count fully whereas before it was not explicitly stated in the Directive. However, there is still a lack of clarity regarding new buildings and whether savings from building codes implemented in order to comply with the EPBD can fully count towards Article 7. If that was to be the case it would undermine the efficacy of the EED as those savings are required already under the EPBD and no additional energy efficiency improvements would be delivered because of the inclusion of EPBD-compliant building codes in Article 7. The only case where additional savings can be delivered from building codes is where those go beyond the minimum requirements in the EPBD (cost-optimal levels).

ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE

The EPBD is the proposed legislative instrument in the Winter Package directly related to buildings. The package however includes other instruments (e.g. the Communication Accelerating Clean Energy in Buildings), as well as other directives (EED, Renewable Energy Directive, IEM) that will have an impact on the performance of the EU building stock and the speed at which it will be renovated. This section will cover the main changes proposed in the EPBD.

The EPBD (2012/31/EU) was designed to lay out concrete actions to achieve energy savings in buildings and reduce the differences among Member States in this sector. The Directive foresees measures to improve the energy performance of buildings while taking into account climatic and local conditions, indoor-conditions and cost-effectiveness (EC 2010). The Directive put in place a number of important provisions to be implemented by Member States including setting minimum energy performance requirements for new buildings (Article 4), for major renovations (Article 7) and for the installation, replacement or retrofit of technical building systems (Article 8). It also established the requirement for all new buildings to be nearly zero energy by 2021 and public buildings by 2019 (Article 9) and created the obligation to include energy performance certificates in all advertisements for the sale or rental of buildings (Article 12).

With the proposed revisions for the EPBD in the Winter Package, the Commission aims at streamlining existing provisions and ensuring consistency with other policies (i.e. EED) rather than introducing new requirements and substantial changes that would strengthen the Directive. The limited number of proposed revisions concern a focus on long term renovation strategies (previously Article 4 of the EED, now moved to the EPBD), a vision for a decarbonised building stock by 2050, the introduction of a smartness indicator for buildings, and the mobilisation of finance.

While there are some interesting new elements, such as the introduction of a smartness indicator (Article 8), the proposal fails to introduce new provisions to trigger a more efficient, healthier, more comfortable and affordable building stock. The role of buildings in the transition to a sustainable, decarbonised and secure energy system, which should also be supported across the Package, is hardly recognized.

Long-term vision for 2050

The proposed directive confirms the continuation of national renovation strategies after 2020. The strategies should deliver a long-term roadmap with clear and specific milestones and measures for 2050 and 2030 (Article 2a). The proposal also states that the EU building stock should be decarbonised by 2050, but omits to provide a definition of decarbonised building stock or to require Member States to adopt a long-term renovation target in line with the ambition for all new buildings to be nearly zero energy.

While national building renovation strategies for Member States have been moved from the EED to the EPBD, in an attempt to increase consistency between all building related provisions, provisions obligating Member States to achieve 3% renovations for public buildings per year (Article 5 of EED), usually paired with Article 4, remains under the EED breaking the link between national renovation

strategy and public buildings. Considering the general poor quality of the first renovation strategies (BPIE 2014), Member States would benefit from stringent guidelines, but specific requirements to follow existing guidelines on the content of national renovation strategies as well as a clear methodology on how to measure progress in implementing them are also missing.

Stimulating deep renovation

Increasing the current EU renovation rate from about 1% per annum to 2-3% is necessary to meet both the EU targets and the commitment undertaken in Paris in December 2015. About 75% of the EU's 210 million buildings are not energy efficient, and 75% to 85% will still be in use in 2050. Ensuring that the rate and quality of energy renovations is of utmost importance to achieve EU's 2030 and 2050 targets.

However, the long-term vision for 2050 established in Article 2a is not supported by provisions that could stimulate the realisation of deep renovation strategies across the EU, like the introduction of minimum energy performance levels for the renovation of specific building typologies such as commercial and public buildings, the extension of the requirement to renovate central government buildings (Article 5 EED) to cover all public buildings or the identification of "trigger points" to accelerate energy renovation and capitalize on existing renovation plans (and reduce the number of interventions and manage renovation costs at the same time).

Despite the proven economic and technical feasibility and the societal and environmental benefits that building renovation could bring presented in the impact assessment (EC 2016d) (the EC estimates that 1.5 million to 8.3 million households would be taken out from fuel poverty if the most ambitious measures would be applied and more than 500 thousand additional jobs would be retained or created), the proposed amendments to the EPBD do not address market and regulatory failures. The Directive should be updated to create the right conditions for a direct action on the market and harmonising specific elements of the directive (e.g. targets for buildings in 2030, harmonisation of EPCs, inclusion of multiple benefits in the cost-optimal calculation framework).

The majority of expected activities would stem from decisions taken by national, regional and local authorities, with little guidance regarding the approach that would best to deliver results and the risk of delivering modest outcomes.

Ensuring future proof buildings

The introduction of the concept of a smartness indicator to "assess the technological readiness of the building to interact with their occupants and the grid and to manage themselves efficiently" (Article 8) is one of the most interesting novelties of the proposal. Ensuring that buildings are ready to connect and interact with the occupants and the grid is essential to bridge their transition towards a more efficient, decentralized and interdependent energy system (BPIE 2016a). However, the proposal does not provide a definition of smart building or of smart indicators and covers only electromobility requirements for residential and non-residential buildings.

The European Commission has the power to adopt delegated acts later to define the concept of smartness indicator (Article 23) and the conditions under which it would be provided to prospective new tenants or buyers (Article 8.6).

Planning and reporting

In terms of planning and reporting, all reporting requirements related to national renovation strategies are now part of the new regulation on the Governance of the Energy Union. This means all reporting requirements are integrated under National Energy and Climate Plans. According to the regulation, the European Commission will review the renovation plans every two years, but there is no requirement for Member States to regularly update national renovation strategies following these reviews as National Energy and Climate Plans are only updated every ten years. As a result, there is a risk that national renovation strategies may only be updated every ten years, instead of three years as in the current legislation.

IEM DIRECTIVE AND REGULATION

The Directive (2009/72/EC) and Regulation (714/2009) on the internal market for electricity (Electricity Directive and Regulation) provide the framework for integrating electricity markets across Europe and for framing the roles and responsibilities of system operators and of national, regional and European regulatory bodies[1]. They include rules to ensure security of supply, maintain affordable energy prices, and to facilitate the transition to a decarbonized energy system in line with European climate objectives.

Energy efficiency plays an important role in achieving these objectives. Widespread deployment of energy efficiency is essential to decarbonize the energy system and to maintain energy bills at reasonable levels (Hood 2011). Experience demonstrates the ability of energy efficiency to support security of supply at lower cost than relying on supply-side resources alone. (Rosenow, Bayer 2016). This includes the role of energy efficiency in reducing the volume of energy production, lowering the amount of capacity needed on a power system, and as a transmission and distribution resource.

Energy efficiency as a reliability resource

One of the biggest concerns raised throughout Europe today is that of reliability. Are there enough resources – and do we have the right kind of resources – to ensure reliability of the electricity system? The revised Electricity Directive and Regulation (EC 2016 e, f) both aim to ensure security of supply by removing price distortions in the energy markets and ensuring proper market functioning through revised rules and market integration. The proposed amendments further provide guidelines for capacity mechanisms, allowing for them under certain circumstances when there is a resource adequacy concern.

One of the general principles set forth in the revised Electricity Regulation is that market rules must deliver appropriate investment incentives for generation, storage, energy efficiency and demand response to ensure security of supply. All generation, storage and demand resources must participate on equal footing in the market. (EC 2016i, Article 3(1)(f)) And Member States must consider several pathways to addressing resource adequacy concerns, including demand side measures and energy efficiency. (EC 2016i, Article 18(3)) The emphasis on the role of customers in ensuring security of supply through energy efficiency and demand response is a positive step towards recognizing the value of these resource to the power system.

Still, the Electricity Regulation falls short of effectively integrating energy efficiency as a reliability resource. Energy efficiency tends to compete with supply-side resources in longer-term markets, and particularly in capacity markets. Yet energy efficiency is entirely absent from the guidelines for capacity mechanism design. That is, there is no requirement that energy efficiency (or demand response) compete on equal footing with generation in capacity markets. Even though they are seen as priority solutions to consider in addressing resource adequacy concerns!

[1] The framework also includes the ACER Regulation and proposal for a regulation on risk-preparedness in the electricity sector.

Experience with capacity mechanisms in the US demonstrates that energy efficiency plays a critical role in securing reliability of the power system, and in significantly reducing the cost to consumers of doing so. The table below demonstrates the savings resulting from the participation of demand response and energy efficiency in three consecutive forward capacity auctions in the PJM market[2] for delivery years 2015 – 2018. These years were selected due to the stability of the market – that is lack of regulatory changes that would lead to a period of adjustment for market participants. The data reflect that DR and EE were responsible for a 59%, 65% and 55.4% reduction in overall revenues earned in the capacity market due to lower clearing prices. That is, consumers would have paid more than twice as much to maintain the same level of reliability if DR and EE had not participated in the capacity auctions.

Table 1 – (Source: Own table, based on Monitoring Analytics, 2013, 2014a, 2014b.)

	Savings, all DR/EE, billion $ (USD)	**% reduction**	**Total auction revenues, billion $ (USD)**
2015/2016	$13.7	59%	$9.7
2016/2017	$10.1	65%	$5.5
2017/2018	$9.35	55.4%	$7.5

Energy efficiency as a transmission and distribution (T&D) resource

There is substantial evidence, particularly from the United States, that end-use energy efficiency is a cost-effective alternative to traditional investment in electricity transmission and distribution infrastructure (Neme and Grevatt 2015). To deliver on this, there must be rules in place requiring DSOs and TSOs to plan for and invest in the most cost-effective portfolio of demand and supply-side resources, and providing national regulators with an active role for monitoring and enforcement.

The Electricity Regulation and Directive fall short of incorporating energy efficiency (and demand response) into transmission and distribution planning and investment. The proposed amendments introduce some new provisions that, taken together, are a step in the right direction. But without more, they are not enough.

Under the proposed amendments, Member States must design regulatory frameworks for distribution system operation that, among other things, consider energy efficiency measures that may supplant the need to upgrade or replace electricity capacity, and that support the efficient and secure operation of the distribution system (EC 2016e, Article 32). Regulatory Authorities "shall" provide incentives to DSOs for innovative solutions in distribution systems. They shall further introduce performance targets, and recognize innovative measures to raise efficiencies, including energy efficiency, of their networks as fully eligible for cost recovery (EC 2016f, Article 16.8). Together, these provisions introduce a framework for incentive-based regulation, which can be a strong driver for investment in unconventional resources, including energy efficiency (Lazar 2014).

It is not entirely clear, however, what the intended scope is of investments in energy efficiency "of networks." A reasonable interpretation could include investments in both network infrastructure and

[2] PJM operates a forward capacity market, the Reliability Pricing Model. www.pjm.com/markets-and-operations/rpm.aspx

demand-side resources, given the general support throughout the proposals for innovation, energy efficiency first, and “smart” technologies and solutions. However, clarification is needed to ensure that end-use energy efficiency is explicitly included. It would also be logical to make a clear link with the requirement that NRA’s measure the performance of TSOs and DSOs on development of a smart grid that promotes energy efficiency and the integration of renewable energy (EC 2016e, Article 59). Supporting the technology (smart grid) with policies that steer investment towards cost effective energy efficiency and demand-side programs as a network resource can strengthen recognition and deployment of energy efficiency as part of the overall portfolio of resources in the electricity sector.

The roles and responsibilities of network companies are also important in delivering energy efficiency as a T&D resource. DSOs are expected to perform their functions with “due regard” for the environment and energy efficiency. Under the proposed Electricity Regulation distribution network development plans, which reflect planned investments for the next five to ten years, must demonstrate the use of alternatives to avoid system expansion, including energy efficiency. There is also a mandate for NRAs to consult system users on the network development plan, providing for an additional level of transparency and accountability (EC 2016f, Article 32(2)). While these are positive developments, without more there only is enabling language to undertake demand-side investments, but no mandate to do so.

Finally, the drafts dedicate significant attention to the role of consumers in the energy system. These include rules relating to tariff design, smart metering, billing information and information security, and enabling aggregators to contract freely with consumers and participate in energy markets. While these rules are likely to have some impact on energy efficiency (for example, more accurate and frequent information on consumption can lead to some behavioural change), they are unlikely to lead to a dramatic increase in energy efficiency investments without broader incorporation of energy efficiency into markets and regulation.

REGULATION ON THE GOVERNANCE OF THE ENERGY UNION

The proposed Regulation on Governance of the Energy Union (Governance Regulation) focuses on the contents of, and processes for, Member States to create and implement integrated national energy and climate plans that will each address all five dimensions of the Energy Union: energy security, the internal energy market, energy efficiency (also termed "moderation of demand"), decarbonisation including renewable energy, and innovation and competitiveness. The Regulation is built on the essential premise that Member States must create plans that are (a) integrated across these five areas, (b) individually and collectively comply with the Union's goals for efficiency, renewables, and carbon reduction, and (c) satisfy additional goals, including energy security and cooperation, transparency, regional coordination, and energy innovation and economic competitiveness. The proposal also implements EU commitments under the Paris Agreement by setting up national systems of planning and reporting on the implementation of national determined contributions to carbon reduction.

Under the Regulation, Member State energy and climate plans will be reviewed by the Commission, which may, in various ways request or perhaps require Member States to take actions to ensure compliance with Europe's top-level energy goals. There remains considerable uncertainty in the existing text as to how Member States can be obliged to participate in actually meeting the commonly-set goals, but the Regulation states that the Commission may take action by Delegated Acts (under TFEU Article 290) to address underperformance in various ways. At this point, we cannot tell how that authority will be exercised, or if exercised, whether it would survive challenges from the Parliament or Council.

Energy efficiency has a central role in the energy and climate plans, and in the Commission's review of them. There is also useful emphasis on empowering consumers, and on affordable energy. However, the governance structure remains indefinite and possibly compromised when it comes to the means of ensuring that the Union's efficiency goals will be met, either in individual Member States, or collectively across the Union.

Efficiency First is called out in the opening recitals, which include the statement that the parallel initiatives in renewable energy, energy efficiency and market design "form a package under the overarching theme of energy efficiency first, the EU's global leadership in renewables, and a fair deal for energy consumers".

Integrated national energy and climate plans

Article 3 of the Governance Regulation sets out the required contents of national 10-year climate and energy plans, beginning in 2019, which must include:

- a description of national targets for each of the five dimensions of the Energy Union, including energy efficiency;
- a statement of baseline conditions and projections in the energy system;
- a description of policies and measures to achieve the targets; and

- the Member State's "methodologies and policy measures for achieving the energy savings requirement in accordance with" Article 7 and Annex IV of the EED as well as the "long-term strategy for the renovation of the national stock of residential and commercial buildings (both public and private)" in accordance with the EPBD.

In broad terms, this approach to energy and climate planning is straightforward, logical, and should yield plans that would, if implemented, meet their goals. The cross-references to the EED and the EPBD are important here, as a means to link those plans and measures into the Governance structure, and vice-versa.

National objectives and targets

Article 4 covers, mainly by cross-reference and repetition, the substantive targets to be attained in the Energy Union package. With respect to energy efficiency, the language essentially repeats the language on targets set out in the EED and EPBD. These include the targets for the absolute level of both primary and final energy in 2020 and 2030, "with a linear trajectory for that contribution from 2020 to 2030." The linear trajectory requirement will serve as a means to track progress across time instead of just waiting until the final year to see if Member States are "on track" to meet their efficiency obligations. This approach does not line up fully with the approach taken in Article 7 of the EED, which requires annual reporting on efficiency delivery, but does not require a "linear" rate of delivery, at least in theory allowing uneven delivery rates and delays that could require an expensive surge in delivery just at the end of each decade-long compliance period.

This section also references tracking of progress under the EPBD, and "other national energy efficiency objectives, including long term targets or strategies and sectorial targets in areas such as transport, heating and cooling." It does not appear to be obligatory to plan for or report on these other areas, but they can be included in the efficiency element in national plans.

Energy efficiency is noticeably missing from discussion under the targets and plan elements for both the dimension of Energy Security and the Internal Energy Market. These omissions are not at all consistent with the principle of Efficiency First. The Energy Security section mentions national objectives with regard to the "diversification of energy sources," "readiness to cope with constrained or interrupted supply," and the "deployment of alternative domestic energy sources" without any mention of energy efficiency. An effective Efficiency First policy would require planners to examine at the outset, how end use efficiency could contribute to improving national conditions with respect to each of these energy issues.

The omission of efficiency arises also with respect to the dimension of the Internal Energy Market. Plans must contain "key national objectives for electricity and gas transmission infrastructure that are necessary for the achievement of objectives and targets under any of the five dimensions of the Energy Union Strategy" but there is no requirement that those plans must first examine whether end-use demand management could be used as a strategy in place of supply-side and wires and pipes options. Efficiency could be in the planning mix – it's not forbidden – but there is no requirement to examine it as a possible alternative.

The Markets section concludes with a reference to national objectives for electricity system adequacy and flexibility, but without any reference either to efficiency or demand response as resources that could address those needs. Again, there is simply no mandate here for planners to take a "hard look" at the demand-side before planning for system expansion and supply-side resources.

A major challenge – setting Member States' contributions for renewables and efficiency

In Articles 4a and 4b, the Commission begins to grapple with the challenge it will face in implementing mandates for efficiency and renewables that are set at the EU level without direct requirements on Member States. There is a useful cross-reference between renewables and efficiency in Article 4a: Member States are required to take into account the "measures adopted to reach the energy efficiency target" as they consider how to meet their renewables obligations (and presumably, to consider how efficiency achievement or under-achievement might complement, or lead to higher or lower requirements for renewables to be delivered). There is a reciprocal reference in the efficiency section.

With respect to efficiency directly, Article 4b sets out the requirements for Member States setting their indicative national energy efficiency contributions for 2030. These include, again, a cross reference to the Union's 2020 and 2030 primary and final energy total consumption levels, and the Union's "binding target for 2030" in the EED, other measures provided for in the EED, as well as a number of other factors including the remaining cost-effective energy-saving potential and general economic conditions and forecasts.

This is a reasonable list of factors that planners would want to consider when setting national energy-saving goals, but it does not necessarily yield a set of national plans that would in fact add up to meeting the Union's energy-savings goals.

National policies - methodology

Articles 5 and 6 determine that national climate and energy plans must specify, in accordance with a template that will be in Annex I, the policies and measures to achieve "in particular the objectives set out in the national plan, including measures to ensure regional cooperation and appropriate financing…" This provision at least creates an opportunity to call out efficiency projections that are not supported by adequate financial sources when plans are being developed or reviewed. Techniques for setting baselines and projections will be in accordance with uniform standards to be set. Here again, whether this is meaningful in planning for demand-side resources, depends entirely on the planning requirements and the transparency and rigor of the Commission's review.

There is not much here in particular for energy efficiency, much less Efficiency First – although this could be remedied in the Annex. However, one result of recent fights over modelling did make it into the text: "Projections concerning security of supply, infrastructure and market integration shall be linked to robust energy efficiency scenarios." That's isn't a mandate to acquire "all cost-effective efficiency," nor a mandate to deliver Efficiency First, but "robust efficiency scenarios" at least tends in the right direction. The same idea should be embedded in the planning for compliance with the

Renewable Energy Directive, when that link is mentioned in Article 4a, but this is not stated in the current text.

Reporting and Assessment

Much of the text of the Regulation deals with the process of reporting on the planning progress, and how the Commission would evaluate their compliance with planning requirements, and more importantly, how the Commission could ensure that Member State actions, taken as a whole would meet top-level European objectives.

Article 16 sets out the integrated reporting process for energy efficiency. Reporting must be done every two years, and must cover an appropriate range of topics including consumption trends, a wide range of planned EE policies and measures, specific measures to promote ESCOs, and specifically measures to implement the EPBD and the EEOs or alternative measures under Article 7 of the EED.

Efficiency is simply not mentioned as a part of the picture in the sections on reporting for Energy Security and the Internal Energy Market. Once again, efficiency seems to be considered by the drafters as a specific energy policy pursued on its own footing, not an energy resource that should be deployed alongside supply and delivery options on an integrated basis.

Even where long-term efficiency plans are appropriately structured, overall attainment towards any of the main objectives is not assured. This is especially the case where the goals are Union-wide, and the plans are prepared by individual Member States. To improve the odds of ultimate success, Articles 23 and 24 of the Governance Regulation contains a process for frequent reporting by Member States, Commission review of those reports, and then the Commission has an obligation to "issue recommendations to a Member State pursuant to Article 25 if its assessment demonstrates insufficient progress in implementing the integrated national energy and climate plans…." These recommendations could be triggered either by a failure of a single Member State to adequately implement its plan, or by an assessment that the Union as a whole will be missing its overall targets.

The language on energy efficiency in Article 24 states, "In the area of energy efficiency, in case the Commission finds during its assessment [in 2023] that the sum of the indicative national energy efficiency contributions [is inadequate], the Commission shall take additional measures in order to ensure that the Union's binding 2030 energy efficiency targets are met."

What might "those measures" include? Frequent reporting and assessments are useful, but by themselves will not deliver energy savings across the EU. The Regulation does not say, but a look at the renewables sections yields some possibilities.

There is a striking difference between the language on resolving emerging attainment gaps for renewables and for energy efficiency. The section on renewables contains a list of eligible actions that the Commission can take to ensure achievement, including adjusting the shares of renewables to be delivered in different Member States, and "making a financial contribution to a fund managed by the Commission which shall launch competitive bidding procedures for renewable energy projects." The Commission is empowered to adopt delegated acts to set out any necessary provisions for the

establishment and functioning of the fund…Member States may use their revenues from annual emission allocations under the ETS. It is unclear from this formulation whether the Commission is being empowered to require under-performing Member States to contribute to a fund for renewables delivery, but the idea to create a fund, and to use carbon revenues to finance it, is a sound one.

No such fund is enabled for the delivery of efficiency, even though it could be an effective way to ensure delivery of the obligations intended under the EED and across the entire Winter Package in Member States that are struggling to meet efficiency delivery targets. Rather than ignoring under-performance in meeting efficiency goals, and rather than imposing fines or penalties for under-performance, a program to redirect a portion of a Member State's carbon revenues to investments in efficiency would serve multiple purposes. It would have the positive effect of delivering the financial benefits of efficiency investments to the citizens and businesses who are missing out on them due to inadequate implementation of efficiency programs at the Member State level. It also supports the purpose of the ETS program by directly investing in energy-savings both inside and outside of the capped sectors. (Cowart et al 2015). And, by ensuring that the Union's efficiency targets are met, a viable enforcement mechanism to deliver energy savings will also make it easier to meet all the other goals of the Energy Union, from improving energy security to reducing energy poverty and improving economic competitiveness.

CONCLUSIONS AND POLICY RECOMMENDATIONS

The Winter Package is an important and, in many parts, ambitious proposal for an energy policy framework going forward. The importance of energy efficiency and Efficiency First are highlighted, especially in the EED and Governance Regulation. However, beyond the high-level commitment there are many areas where the Winter Package falls short of comprehensively adopting the 'Efficiency First' principle.

The level of ambition for end-use energy efficiency determined by the EED is maintained until 2030 and beyond. However, some of the EED's main weaknesses (exclusions and exemptions, lack of clarity on additionality requirements) remain and further complications have been added through the introduction of a new period that does not build on the previous period in terms of cumulative savings. This could be compensated by a higher than the 1.5% target. However, politically it may be difficult to achieve this in the upcoming negotiations. Rectifying the lack of clarity regarding additionality of building codes applying to new buildings and linking the current period with the new period are just two options for strengthening the EED.

The proposed reforms to the EPBD are unambitious and consist mainly of streamlining existing legislation, albeit leaving a number of gaps such as not directly aligning the obligation to renovate public buildings with the building renovation strategy. The main innovative change is the introduction of a smartness indicator, which is supposed to ensure that buildings are ready to connect and interact with the occupants and the grid. In principle, this is a promising approach but the EPBD does not yet specify what exactly this will mean in practical terms. In order to make the Directive more effective, fundamental revisions are required harmonising the targets for buildings set out in the EPBD with the new 2030 framework.

New provisions introduced into the Electricity Directive and Regulation strengthen the recognition of energy efficiency as a resource to the electricity system, but fall short of delivering a policy framework to stimulate planning and investment in energy efficiency on a level with supply side resources. Energy efficiency is recognized as a reliability resource, yet there is no requirement that capacity remuneration mechanisms allow energy efficiency to compete on comparable footing with supply side resources. Regulators must provide incentive frameworks and cost recovery for innovative measures to raise the energy efficiency of their networks. This could be a strong stimulus for investment in energy efficiency; however, clarification is needed to ensure that the framing includes end use energy efficiency. DSOs are enabled to invest in energy efficiency, but not required to do so. Simply creating an enabling framework is unlikely to stimulate investment in energy efficiency, beyond any required under energy efficiency obligations.

The Governance Regulation recognizes the crucial role that energy efficiency must play in meeting the Union's 2030 and 2050 climate and energy goals, and sets out a planning process that would chart a path to meeting energy efficiency goals in each Member State. However, the Regulation reveals a striking gap between assessment and enforcement. It does not chart governance rules that would cause Member States, utilities, and system operators to invest in efficiency where it is less expensive

or more valuable than supply-side options; nor does it contain specific enforcement tools to pay for and deliver energy savings if Member State efficiency programs were to underperform.

Since a failure to deliver cost-effective energy savings will make every other element of the Energy Union more expensive and harder to reach, the enforcement gap for efficiency is a serious problem that requires considerable attention as the Winter Package proceeds through the adoption process.

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