

Metered savings and pay-for-performance – how to ensure the Energy Efficiency Directive is Fit for 55

The proposals to reinforce the Energy Efficiency Directive (EED) are currently being discussed by the EU Council and the European Parliament. This is the chance for the EED to drive energy efficiency policy into the 21st century, by using meter data to estimate energy savings and the piloting of pay-for-performance (P4P) support schemes. This briefing explores how legislators could reinforce the EED proposals.

The buildings sector needs to deliver

The EU has set itself ambitious climate goals and is currently negotiating the package of measures to deliver the agreed net 55% carbon emissions reduction target by 2030. The European Commission has identified buildings as the sector that should reduce its emissions the fastest during the 2020s. The Commission's [Climate Target Plan](#) foresees a doubling of the building renovation rate (the energy savings delivered by building fabric improvements), driven by a combination of energy pricing, regulation and supporting policy measures.

The proposed recast of the EED is a key part of this framework. From 2024, it would require Member States to almost double the annual energy savings delivered through national policy measures. If this requirement – the energy savings obligation (Article 8) – is successfully implemented, the EU will go a long way towards achieving its energy efficiency and emissions reduction targets.

The energy savings obligation

Under the EED, Member States must trigger a certain amount of energy savings among energy end users. For the forthcoming 10-year period (2021-2030), this amount corresponds to new annual energy savings of 0.8% calculated on the basis of annual final energy consumption. The Commission proposes to increase this savings rate to 1.5% from 2024 onward.

These savings must be the result of national policy measures, which complement and go beyond EU measures such as product standards. They can be achieved across all sectors and are not limited to buildings. The savings reported by Member States need to be additional to what would have happened in the absence of the policy measure.

Measuring success: a prerequisite to effective energy efficiency policies

Successful energy efficiency outcomes are not automatically assured nor easily measured. **Energy savings**, the key performance indicator for the EED, are notoriously difficult to calculate accurately, as they are the absence of energy use compared to a baseline.

Energy consumption, on the other hand, is much easier to measure, and as digital metering technologies and data management processes become more advanced, it is now possible to calculate energy consumption as often as required at very low cost. These developments make it possible for energy efficiency programmes to use metered data to calculate the energy savings from an energy efficiency intervention. Leading energy efficiency service companies are already marketing their own metered savings offerings, but policy has yet to catch up.

Benefits of using metered savings approaches and pay-for-performance schemes

Transferring the performance risk

Most traditional energy efficiency programmes provide subsidies for the installation of measures, as a one-off payment. Where subsidies are linked to the energy saved, the amount of energy savings is usually “deemed”, meaning that a fixed amount of savings is associated with the delivery of the measure. This provides an incentive for the private sector to install as many measures as cheaply as possible, without necessarily ensuring high quality installation and with no concern over the use and maintenance of equipment. The use of metered data allows redirecting the incentives to obtaining as many real energy savings as possible. In principle, this should result in a higher quality of installation and maintenance and a more targeted deployment of measures where they can deliver the largest savings amounts. The performance risk is shifted from those who fund the programmes (taxpayers or ratepayers) to the aggregators or programme implementers (who are closer to the implementation/installation of measures).

Recognising the value of energy efficiency for the energy system

As the electrification of end uses accelerates, with mass adoption of heat pumps and electric vehicles, and as renewable energy sources come to dominate electricity generation, the value of demand-side resources to energy systems will increase substantially. The resources required to ensure electricity system adequacy will be different, depending on the time of day, the weather, seasonal factors and location.

In this environment, energy efficient buildings can play a significant role in reducing electricity system cost (e.g., by deferring costly investments for increasing grid capacity). Programmes building on advanced monitoring & verification methodologies can reward energy efficiency for the services it provides to the energy system and distinguish between time- and location- specific savings.

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Aligning incentives with the Fit for 55 goals

Despite the proliferation of meter data, EU Member States are not currently using them to calculate their energy savings in the buildings sector. The EED does not provide a premium for certainty in energy savings delivery, while this has been a focus in other parts of the world. In the U.S. for example, a number of pay-for-performance pilot programmes based on metered data have been set up in the buildings sector, aggregating energy savings from household energy efficiency actions. In California, the State Legislature requires that real-time energy usage data be made available to consumers and that weather-normalised, meter-based savings be prioritised; and the California Public Utilities Commission requires that energy utilities procure third-party designed and implemented energy efficiency programmes.

With no EU legislative incentive to improve certainty, Member States find themselves in a quandary. Improving measurement and verification would help them to provide better value for the public money spent on energy efficiency programmes; at the same time, it would reveal the extent of under-delivery, putting increased pressure to comply with the EED energy savings obligation. The current system embeds a misalignment of incentives, from the EU to Member States and on to the energy efficiency supply chain.

The good news is that the EED can be amended to address this problem. The European Parliament is currently considering [amendments](#) which address the lack of incentives for Member States to use metered savings approaches and roll out P4P schemes by:

1. Incentivising metered savings methods

Amendment 622 in the Committee on Industry, Research and Energy in the European Parliament proposes to "double count savings, up to a maximum of a third of the total savings commitment for any given period, where the results of such savings take place in housing and are based on digital energy efficiency metering technologies that have been certified at the EU or national level." While the Parliament's position needs to maintain or reinforce the overall ambition of Article 8, such a bonus system is interesting as it encourages the use of metered savings and recognize the value of robust energy savings estimates.

Another option would be for legislators to oblige Member States to pilot pay-for-performance using metered savings in the buildings sector. The EED could mandate that a small proportion of Member States' EED energy savings obligations be delivered this way. This would safeguard the ambition of the provision while providing a boost to metered savings approaches.

2. Strengthening evaluation requirements

Amendments 667, 677, 806, 1158 in the Committee on Industry, Research and Energy aim at reinforcing the requirement on Member States to run proper evaluations of their energy efficiency programmes.

Evaluation evidence is needed to help understand how energy efficiency policy measures are contributing to policy goals including meeting carbon targets, managing the energy transition, alleviating energy poverty and improving health outcomes. An independent evaluation of energy savings reported under the EED energy savings obligation would increase the certainty over energy savings estimates and encourage the use of metered savings methods.

To help policy makers take advantage of the availability of meter data and reduce the uncertainty of energy savings estimates, the H2020 SENSEI project has developed the [eensight tool](#), which contributes to the advancement of the automated measurement and verification (M&V) methods for energy efficiency. Additionally, the proposed SENSEI model* (combining Energy Performance Contracting and Pay-for-Performance) aims at linking metered energy savings performance to subsidy payments. Decision makers should consider how these approaches could increase confidence in the roll out of metered savings methodologies.

* See [Guidelines for the design of P4P schemes](#) and [Proposal on the specifications for P4P project data](#).

ABOUT

P4P is the key concept behind SENSEI business models. In a Pay-for-Performance scheme, financial flows between the involved parties are transparent and linked to metered energy savings through [advanced Monitoring and Verification \(MRV\)](#). This approach incentivizes the high quality and reliability of the energy efficiency measures, and encourages long-term stable investment returns by securing cash-flows from these interventions.



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