



**smartEn**  
Smart Energy Europe

# 5% electricity peak demand reduction target: how to implement it?

smartEn Guideline

Smart Energy Europe  
Rue d'Arlon 63-67,  
BE-1040 Brussels

[info@smarten.eu](mailto:info@smarten.eu)  
[www.smarten.eu](http://www.smarten.eu)

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## Introduction

In the current context of an energy crisis and the uncertainties that the winter 2022/23 will bring, consumers of all types (from households to large industries) will play a vital role in managing price spikes and reducing overall gas demand.

EU27 Energy Ministers agreed in September 2022 on a proposal for a Council Regulation to address high energy prices. This proposal stands out for its inclusion of a mandatory 5% reduction target of electricity consumption in peak hours. Member States are responsible for identifying peak hours corresponding to 10% of the overall hours of the period between 1 December 2022 and 31 March 2023. The demand reduction target will apply to the identified peak hours. Member States are free to choose the appropriate measures to reduce consumption.

This paper is a smartEn contribution to guide Member States through the implementation of the Council Regulation.

It is crucial to avoid limiting peak demand reductions to just through bilateral contracts involving only large industrial consumers. This would be an old-fashioned and inefficient approach which would fail to engage most customers. Member States have now the opportunity to establish relatively simple, fair and impactful schemes that can engage consumers of all types in this effort, following a market-based approach and by leveraging the contribution of flexibility service providers and manufacturers of decentralised energy resources.

We are hereby proposing **4 implementation methods** for Member States to meet the demand reduction target of 5% cost-effectively, sustainably and in a timely manner, involving all consumers, through market-based schemes that could be maintained even after March 2023.

## Methodology

smartEn identified 4 complementary implementation methods that comply with the obligation foreseen in the Council Regulation.

Each of them is described by replying to the following questions:

- Who should be the obligated party accountable for the achievement of the target? Should the obligated party be Member States, TSOs, DSOs, NRAs, suppliers or aggregators?
- How will participating consumers receive signals to change (automatically) their consumption patterns? What would be required to allow them to receive this implicit or explicit signal?
- Are financial compensations contemplated? If yes, who are the recipients (end-users, market players, etc) and what type of compensations are foreseen?
- How is the peak demand reduction measured and verified?
- Is this scheme already existing/in development? If yes, where?

smartEn considers that these implementation methods or complementary options on how to implement the 5% national obligation should not be envisioned as an emergency programme, ending in March 2023, but become long-term solutions to address sustained peaks or high prices.

The description of these options on how to implement the 5% national obligation is not country-specific and could be applied in any EU27 Member State.

However, some of them are already contemplated in some countries, as outlined below.

We encourage Member States to adopt these implementing methods, which are coherent with the existing EU Electricity Market Design to empower European consumers in reducing consumption in a

dynamic, time-dependent way, and transparently publish the amount of flexibility being used during peak times following the implementation of these methods.

	A fit-for-purpose TSO service	A fit-for-purpose DSO product	Day-ahead wholesale market access to all consumers	Peak demand reduction obligation scheme
<b>Obligated party</b>	TSO	DSO	NRA	Third party
<b>How do consumers receive signals?</b>	Through aggregator/supplier, 1 day before activation, via direct comm (app/e-mail) and/or automated devices	Through aggregator/supplier, 1 day before activation, via direct comm (app/e-mail) and/or automated devices	Through aggregator/supplier, 1 day before activation, via direct comm (app/e-mail) and/or automated devices	Through aggregator/supplier, 1 day before activation, via direct comm (app/e-mail) and/or automated devices
<b>Financial compensation? For whom? What for?</b>	Activation payments from TSO to aggregators/suppl during dispatch	Activation payments from DSO to aggregators/suppliers during dispatch	Market compensation to aggregator/supplier operating as an aggregator	White certificate for the obligated party and market compensation for delivery for the aggregator/supplier
	Capacity availability payment is an option			
<b>Measurement/Verification</b>	- Through smart meter or sub-meter for ex-post verification - Baseline proposed by agg/suppl	- Through smart meter or sub-meter for ex-post verification - Baseline proposed by agg/suppl	- Through smart meter or sub-meter - Baseline proposed by agg/suppl	- Through smart meter or sub-meter - Baseline proposed by agg/suppl
<b>Reference</b>	In development in UK	In development in Ireland	In development in Luxembourg	Expansion of existing Energy Savings Obligation Schemes

## OPTION 1: TSO Service

### Who should be the obligated party accountable for the achievement of the target?

Transmission System Operators (TSOs). They could shape a new, fit-for-purpose, market-based service, that could complement already existing products that are helping to manage the electricity grid. The TSO would be responsible to identify the peak events where a minimum of 5% demand reduction has to be achieved and notify the aggregators or suppliers a day before the peak event.

These market players would then submit their offers to the TSO depending on the consumer base they plan to reach. This programme has the potential to engage as many participants as possible: households, industrial and commercial consumers, both individually or through suppliers and independent aggregators.

### How do consumers receive signals?

The supplier or independent aggregator is responsible for sending an activation notification by text message, email, app or machine-readable API to their clients one day before the due activation, based on the identification of peak hours performed by the TSO. This notification would include information on the specific times and duration of the event, and the specific action expected from the consumer (e.g., turning down or off the heating). The day-ahead signal of the TSO works as the dispatch instruction for the service providers.

### Are financial compensations contemplated?

A financial compensation should be made by the TSO to the service provider (i.e. independent aggregator or supplier) on the basis of the MWh delivered during dispatches. Service providers get paid for the actual MWh delivered. Payments to participating consumers can be defined by the aggregator or supplier.

An availability payment could be considered to provide further incentives to consumers to deploy flexible assets that could adapt in peak times, and to mitigate any investments (e.g. metering systems) required.

### How is the peak demand reduction measured and verified?

The supplier or aggregator are responsible for defining the consumer's baseline based on data from the boundary smart meter or any other certified sub-meter that the supplier or aggregator can provide. An ex-post verification of delivery is performed by comparing actual consumption to the baseline. The baseline methodology proposed by market parties should be approved by the NRA and measurements can be independently audited. This verification can attest the activation during the relevant peak periods.

### Is this scheme already existing/in development?

Yes, in Great Britain. National Grid ESO, the British TSO, is developing a new Demand Flexibility Service<sup>1</sup> to access the additional flexibility and deal with the high energy prices and peaks expected this winter. The goal is to engage flexibilities that are not already remunerated through the wholesale market or the balancing mechanisms. This service results from a successful trial<sup>2</sup> that was conducted in February 2022 and it involves both suppliers and independent aggregators.

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<sup>1</sup> <https://www.nationalgrideso.com/industry-information/balancing-services/demand-flexibility>

<sup>2</sup> <https://www.nationalgrideso.com/news/national-grid-eso-and-octopus-energy-launch-trial-unleash-demand-flexibility-winter>

## OPTION 2: DSO Product

### Who should be the obligated party accountable for the achievement of the target?

Distribution System Operators (DSOs). They could introduce a specific, fit-for-purpose product to exploit flexibility from all consumers through aggregators or suppliers. The TSO would be responsible to identify the number and duration of peak events based on historical data and in consultation with potential participants. The DSO would be the obligated party in charge of defining the target at distribution grid level, procure the service (availability to reduce consumption) from connected units/aggregators when the peak event is taking place, defining the rules for service activation and remunerating participants based on their delivery. The differentiating aspect of this model comes from allowing the DSO, with their knowledge of their grid and local congestions, to more effectively reach out to potential participants.

### How do consumers receive signals?

Aggregators or suppliers should be the main point of contact for participants, and they will receive signals for activation by the DSO.

The DSO will give notice 10-24 hours in advance to aggregators or suppliers, which must participate in all or some of the peak events. It is up to them to transfer the notice to the final consumers as they deem appropriate.

### Are financial compensations contemplated?

Aggregators or suppliers should be engaged by the DSO for flexibility service in all or some of the peak events and compensated for delivering the service to the DSO based on the measured performance of their portfolio.

An additional, fixed, guaranteed availability payment per MW of peak demand reduction recruited could be introduced.

The customer shall not be penalised for failure to participate in a given peak event. Full and consistent participation in all activation requests could be (further) rewarded with additional payments.

Payments should be established by aggregators/suppliers to ensure a fair benefit distribution with consumers.

### How is the peak demand reduction measured and verified?

The supplier or aggregator are responsible for defining the consumer's baseline based on data from the boundary smart meter or any other certified sub-meter that the supplier or aggregator can provide. An ex-post verification of delivery is performed by comparing actual consumption to the baseline. The baseline methodology proposed by market parties should be approved by the NRA and measurements can be independently audited. This verification can attest the activation during the relevant peak periods.

### Is this scheme already existing/in development?

Yes, in Ireland. The Irish NRA, the Commission for Regulation Utilities' (CRU), has published its Electricity Network Tariffs 2022/23 – National Energy Security Framework Response Proposals consultation. This document highlights several initiatives including “Beat the Peak” led by the ESB Networks (the Irish DSO)<sup>3</sup>. It is limited to exploit flexibility of larger commercial consumers from 250kVA through aggregators. These initiatives aim at filling the gap in generation during peak hours of winter 2022/23 as well as for winter seasons until 2025.

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<sup>3</sup> <https://www.cru.ie/wp-content/uploads/2022/08/CRU202281a-ESBN-Recommendation-Paper-NNLC-Demand-Reduction-Schemes-1.pdf>

### OPTION 3: Day-ahead Wholesale Market Access for DSF

#### Who should be the obligated party accountable for the achievement of the target?

National Regulatory Authorities and Energy Ministries should ensure access to demand-side resources to day-ahead wholesale markets, alone or through aggregators.

#### How do consumers receive signals?

Once aggregators are allowed to participate in the market, it is up to them to decide how consumers in their portfolio can receive signals to adjust their loads. Many different options can be contemplated: text messages or e-mails can be first options that are simple to implement, but a certain level of automation will be helpful to ensure that consumers are activated and dispatched when needed. A metering device is required, this can be through a smart meter or through sub-metering systems deployed by market parties.

#### Are financial compensations contemplated?

Access to the wholesale market guarantees that aggregators receive compensation based on their allocated volumes (MWh).

Availability capacity payments can also be introduced for the ones that commit in advance to deliver given modules during peak periods or to further support flexibility service providers in the (rapid) deployment of digital and decentralised assets.

Consumers would be remunerated by their aggregator or supplier based on their activations or through other offerings (e.g., a credit on consumption or free energy management services reducing their energy bill).

#### How is the peak demand reduction measured and verified?

The supplier or aggregator are responsible for defining the consumer's baseline based on data from the boundary smart meter or any other certified sub-meter that the supplier or aggregator can provide. An ex-post verification of delivery is performed by comparing actual consumption to the baseline. The baseline methodology proposed by market parties should be approved by the NRA and measurements can be independently audited. This verification can attest the activation during the relevant peak periods.

#### Is this scheme already existing/in development?

Luxembourg is currently discussing a legislation to allow the participation of active consumers to all electricity markets<sup>4</sup>. The draft law sets high level principles, while the NRA will develop further detailed modalities for aggregators' participation. Each aggregator must submit an annual report on its activities in Luxembourg to the regulator.

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<sup>4</sup> <https://www.chd.lu/fr/dossier/7876>

## **OPTION 4: Peak Demand Reduction Obligation Scheme**

### **Who should be the obligated party accountable for the achievement of the target?**

Obligated parties can be either stakeholders that have direct interactions with consumers (independent aggregators, suppliers, social housing authorities or energy community managers) or large consumers themselves. This proposal follows the logic of the Energy Savings Obligation Schemes introduced by the Energy Efficiency Directive: the obligated party should be responsible to achieve peak demand reductions among their clients either directly or with the support of flexibility service providers.

### **How do consumers receive signals?**

The TSO is in charge of communicating to the obligated party the times of the expected peak events where their activation is required. Consumers could then receive signals from their obligated party through different methods depending on how they participate:

- price signals (if smart meters or sub-meters are deployed)
- automated through an aggregator that would react to day-ahead timeframes
- through e-mails, sms, app or machine-readable API communications

### **Are financial compensations contemplated?**

The obligated party should be rewarded with a White Certificate following the demonstration of a reduction in demand during the peak event.

The obligated party could pass the remuneration directly on to their clients or through their intermediaries (flexibility service providers) that helped them reduce demand in peak times. This is on top of the market compensation for delivery for the aggregator/supplier.

### **How is the peak demand reduction measured and verified?**

The supplier or aggregator are responsible for defining the consumer's baseline based on data from the boundary smart meter or any other certified sub-meter that the supplier or aggregator can provide. An ex-post verification of delivery is performed by comparing actual consumption to the baseline. The baseline methodology proposed by market parties should be approved by the NRA and measurements can be independently audited. This verification can attest the activation during the relevant peak periods.

### **Is this scheme already existing/in development?**

In Member States with an existing Energy Savings Obligation Scheme, an easier implementation of this method would be to enlarge the scope to also account for flexible, time-dependent electricity demand reductions, in addition to static savings resulting from energy efficiency measures.

## About smartEn - Smart Energy Europe

smartEn is the European business association integrating the consumer-driven solutions of the clean energy transition. We create opportunities for every company, building and car to support an increasingly renewable energy system. Our membership consists of the following companies:



The positions expressed in this document represent the views of smartEn as an association, but not necessarily the opinion of each specific smartEn member.

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