



The Flexible Demand Management Industry: a crucial business community for Europe's cost-effective decarbonisation

smartEn Position Paper

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

info@smarten.eu
www.smarten.eu

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For the decarbonisation pathway to be efficient, **electrification must be smart**. This means that the electrification of end-use sectors such as buildings, industries and vehicles, must be coupled with the activation of their flexibility to adapt their own energy consumption and generation in a time-dependent way, reacting to price fluctuations and the needs of the energy system¹.

If nothing is done, the grid congestion challenge, that would result from a rapid growth in variable renewable generation and electricity consumption, as already faced by The Netherlands, will soon become an urgent issue across Europe. This will drastically hinder further electrification and the integration of renewables, resulting in more costs for citizens, businesses, industries and the society at large to meet the decarbonisation objective.

With 100 member companies, smartEn represents a growing, dynamic business sector: **the Flexible Demand Management Industry**.

The Flexible Demand Management Industry provides solutions to all consumers - citizens, businesses, buildings, electric vehicles (EVs) and industries - to become flexible and be rewarded for playing an active role in the clean energy transition. As such, it needs to be fully recognised as a crucial clean-tech industry in Europe.

As the Flexible Demand Management Industry is very heterogeneous, it is often not easy for it to be identified as a specific industrial base and its significant contribution tends to be overlooked. For instance, the Net-Zero Industrial Act, which aims to increase the competitiveness of the net-zero technology industrial base in Europe, does not explicitly identify flexible demand management solutions. Consequently, insufficient attention is given by Member States and investors to this sector, despite its significant contribution to achieving the clean energy transition in an efficient and cost-effective manner.

This is a major gap to fill. This requires policy-makers to first and foremost grasp what the Flexible Demand Management Industry is and its substantial contribution to achieving decarbonisation in a cost-effective way. This paper intends to inform this effort by answering these 3 questions:

- What is the Flexible Demand Management Industry and what are the solutions offered?
- Why the Flexible Demand Management Industry matters ?
- What is needed in the next EU legislature for the Flexible Demand Management Industry to rightfully become a solid pillar of Europe's decarbonised economy?

WHAT IS THE FLEXIBLE DEMAND MANAGEMENT INDUSTRY?

The Flexible Demand Management Industry offers a broad range of technologies and services to unlock the demand-side flexibility potential of all connected end-users, from buildings, EVs and industries such as energy intensive industries.

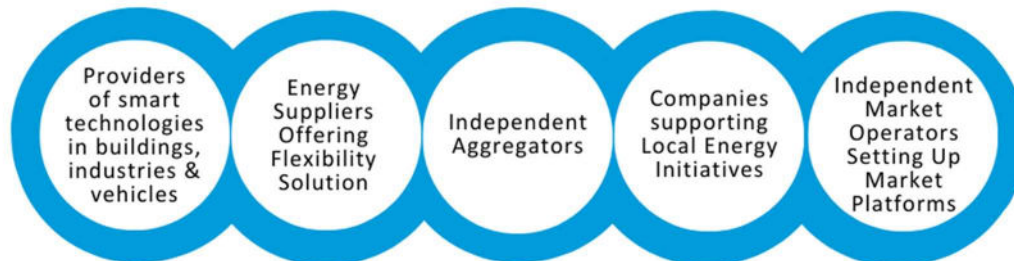
These technologies and services are ready, proven and scalable and ensure smart energy management from behind-the-meter thanks to demand-side flexibility.

Smart energy management can be delivered by various companies and is necessary to optimise the energy consumption, generation and storage of consumers in an efficient, reliable and sustainable manner, by responding in a time-dependent way to energy price fluctuations and the needs of the energy system.

¹ Daily flexibility needs of the energy system will increase by 133% by 2030. From 2030 to 2050, a further increase by 250% on average is required in the EU as estimated by the European Commission.

The actors of the Flexible Demand Management Industry are diverse and can be grouped under the following categories, although some market players commonly fit in more than a single group, thus providing a larger offer:

The Flexible Demand Management Industry



Providers of smart technologies in buildings, industries and vehicles

These companies specialise in the offer of Decentralised Energy Resources (DERs) or flexible assets and devices. Without them, consumers cannot activate their flexibility. These technologies are a distributed capacity in buildings (residential and commercial), industries, and vehicles that can embrace solutions like:

- smart heat pumps used for heating and cooling
- smart fridges and washing machines
- smart and bidirectional charging of electrical vehicles
- home batteries and large energy storage assets for industries
- flexible industrial cooling and freezing systems
- grid-interacting energy management systems
- photovoltaics installed behind-the-meter
- smart inverters
- smart meters, sub-meters and dedicated measurement devices

Energy Suppliers Offering Flexibility Solutions

An energy supplier that delivers flexibility solutions is a company that not only provides energy to consumers but also offers solutions to activate the flexibility potential of consumers. These solutions can be provided in two ways:

- Through Dynamic electricity price contracts where consumers have the possibility to choose daily, hourly or shorter-term market pricing, that reflect the price variation based on market and network conditions. This enables consumers to adapt their energy consumption, including through automation, to reduce their energy bills, while supporting the needs of the energy system. Such dynamic electricity prices can apply to the consumer's entire consumption or to specific assets, such as electric vehicles.
- Through flexibility services where suppliers engage in aggregation service, pooling the flexibility of their different customers to trade it onto electricity markets, generating additional revenue streams for rewarding consumers' flexibility. Suppliers acting as aggregators can deploy load management system that enable automated control of energy-consuming devices or equipment at the consumer's premises, such as the heating system.

Independent Aggregators

Introduced by 2019 Electricity Market Design, independent aggregator foster competition between service providers, by allowing them to subscribe flexibility services independently from their energy supplier.

Independent aggregators pool the energy consumption or generation capacity of multiple individual consumers' distributed energy resources (DERs) into a single virtual entity. This aggregated capacity can then be traded or bid into wholesale electricity markets, ancillary services by TSOs and local flexibility markets by DSOs.

Companies supporting Local Energy Initiatives

Local energy initiatives such as renewable energy communities and energy sharing schemes require the support of specialised companies or market parties that provide products and services to optimise the local energy consumption and self-balance the use of behind the meter loads, distributed generation and storage assets that are participating in these local energy initiatives. Specifically, they support consumers in the setting up, financing and operation of the local schemes they are part of.

Independent Market Operators Setting Up Market Platforms

Independent market operators create market platforms enabling the trading of flexibility services through competitive bidding process between flexibility service providers and system operators. These platforms are also used to streamline the access for sellers of flexibility generated by distributed energy resources to all electricity markets. Such platforms are necessary to balance supply and demand in real-time, and ensure the reliable operation of the electricity grid.

When developing market platforms, independent market operators are establishing the necessary infrastructure and systems to conduct trading activities. This includes digitally-enabled trading platforms, that can be supported by a cloud environment and application programming interface (API) for flexibility pre-qualification, procurements, operations and settlement. Such APIs simplify participation for flexibility providers and maximise interoperability with other market platforms.

WHY THE FLEXIBLE DEMAND MANAGEMENT INDUSTRY MATTERS?

Although heterogeneous, the Flexible Demand Management Industry integrates several solution providers that can supports the cost-effective achievement of the EU decarbonisation objective by addressing inherent systemic changes that the energy system is experiencing in this transition.

The following values² can be provided by the Flexible Demand Management Industry is all barriers to demand-side flexibility are removed:

- **Smooth integration of variable renewables**

15.5 TWh could be avoided in renewable energy curtailment in 2030 thanks to demand-side flexibility.

- **Solutions to the increasing grid congestion challenge**

In 2030, between €11.1 and 29.1 billion can be saved annually in distribution grid reinforcements through a smart and active management of grid-edge, flexible consumers.

² Demand-side flexibility in the EU: Quantification of benefits in 2030, September 2022 - https://smarten.eu/wp-content/uploads/2022/09/SmartEN-DSF-benefits-2030-Report_DIGITAL.pdf

- **More affordable energy benefitting all consumers and Europe's competitiveness**

Residential consumers with flexible heating systems could save more than €71 billion on their electricity bills every year by 2030

Industries can save around €5.4 billion per year on electricity consumption by 2030. These savings can fund the switch from gas to electricity in industrial processes, while supporting Europe industry's competitiveness³.

Driving costs of an electric vehicle can be halved with smart charging and down to zero with bidirectional charging⁴.

The positive impact of all flexible consumers could unlock approximately €300 billion in annual indirect benefits to all Europeans, communities and businesses by 2030, thanks to reductions in energy prices, generation capacity costs, investment needs for grid infrastructure, system balancing costs, and carbon emissions.

- **Energy security**

60 GW of peak generation capacity could be avoided in 2030, equivalent to 137 gas peaking plants, resulting in €2.7 billion savings annually.

WHAT IS NEEDED TO SUPPORT THE FLEXIBLE DEMAND MANAGEMENT INDUSTRY IN EUROPE?

As a strategic sector for a competitive and decarbonised Europe, the Flexible Demand Management Industry should be specifically supported. There is a need to increase market offers, ensure the development of viable business models for demand-side flexibility and allow all consumers – from households to large companies - to be remunerated for increasing the efficiency of the overall energy system, directly or through the support of suppliers and aggregators.

We urge for the Flexible Demand Management Industry to be given particular attention in the continuation of the Clean Transition Dialogues and into legislative proposals put forth by the next Commission for the post-2030 policy framework.

smartEn calls for:

- **Accelerated implementation of EU legislation:** The Electricity Market Design and the Fit for 55 Regulation can help tackle the immediate challenges facing Europe's energy system by removing the barriers to demand-side flexibility. Their swift implementation at national level is a prerequisite to support the Flexible Demand Management Industry's business case by allowing revenues generation on electricity markets, providing companies with certainty and visibility.
- **A dedicated Strategy to the Flexible Demand Management Industry:** this strategy should be established as part of the Industrial Decarbonisation Deal, to address the needs of the Industry and recognise it as a strategic clean tech sector capable of addressing the short and long-term challenges of the clean energy transition such as grid congestions and price volatility. This strategy

³ [For further information, see smartEn position paper 'Why flexible consumers matter: A contribution to EU elections 2024'](#)

⁴ Driving cost can go down from 816€ for an EV on flat retail tariff, to 406€ per year for an EV with smart charging. Driving costs are down to zero for an EV with bidirectional charging. [See smartEn position paper 'Why flexible consumers matter: A contribution to EU elections 2024'](#)

should aim to address skills shortages experienced by the industry and incentivize the adoption of flexible demand management solutions in all end-use sectors, including local energy initiatives, particularly through de-risking schemes for private investments.

- An **EU Clean Investment Plan with a particular focus on the Flexible Demand Management Industry**, geared towards clean tech manufacturing and data-driven services developed in Europe, supported by the next EU Multi-Annual Financial Framework and financing opportunities from the European Investment Bank.
- The application of the **Single Market’s principles of mutual recognition and standardised quality assurance to the Flexible Demand Management Industry**, as already applied in other sectors (e.g. food and pharmaceutical industry). These principles should be applied to *both flexibility services and flexible assets* to boost their economic attractiveness and ensure a harmonised European market for the activation of flexible demand, without hindering innovation in the sector.

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.

For further information about smartEn, please visit www.smarten.eu