The Future of our Grids: a smart, efficient and flexible network of electrified consumers

smartEn Position Paper

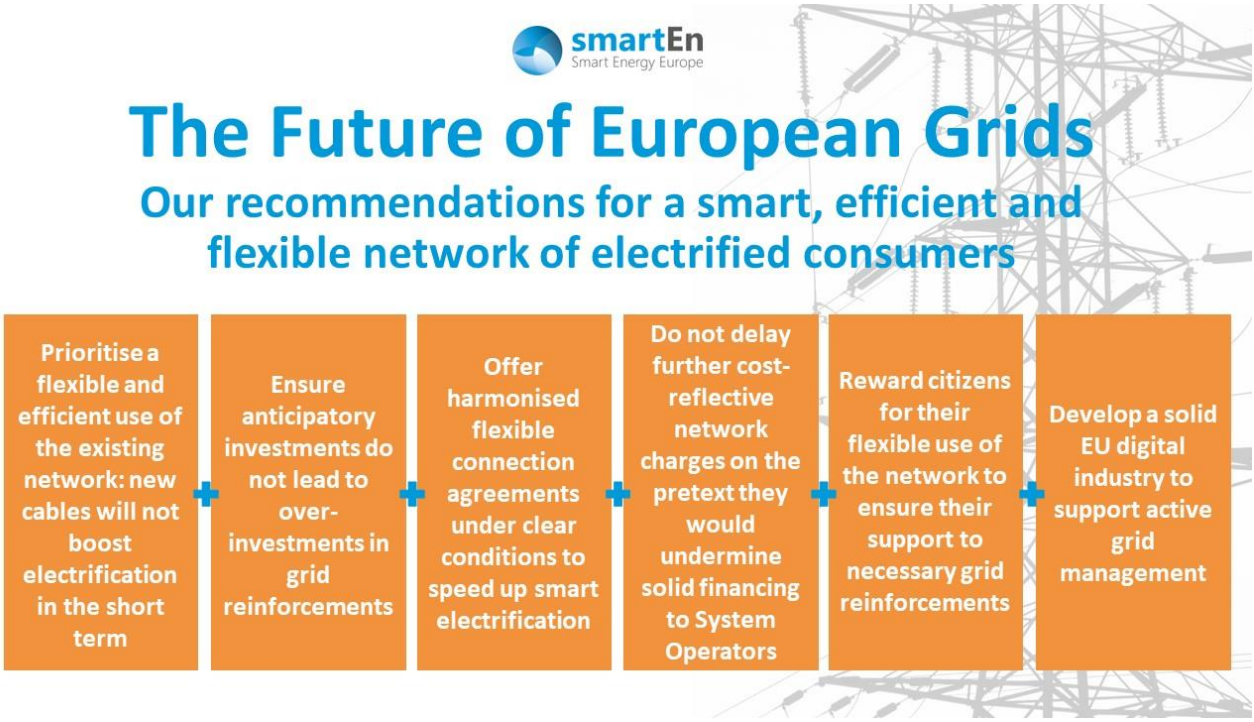
Smart Energy Europe
Rue d'Arlon 63-67,
BE-1040 Brussels

info@smarten.eu
www.smarten.eu

October 2023

The clean electrification of our EU energy system is slowly advancing and should accelerate if Europe wants to increase its energy security and efforts towards climate neutrality. Grids shall facilitate this transition by connecting and cooperating in a market-based way with all electrified end-users actively contributing to the stability of the European network. The digitally enabled flexibility offered by consumers and prosumers to both DSOs and TSOs represents a significant lever that must be grasped without further delays.

smartEn welcomes the launch of a strategic, inclusive reflection on European grids at the High-level Grid Forum on 7 September 2023. In light of the written conclusions of the Forum[1] and in view of the definition of an EU Action Plan for the Future of our Grids, smartEn urges to take in due account the following 6 recommendations described in this Position paper.



1. **Prioritize a flexible and efficient use of the existing network: new cables will not boost electrification in the short term**

Experience shows that new cables are long to deploy, taking typically between 5 to 10 years. Existing grids should be used better, at their maximum capacity, in an efficient, smart and flexible way, before investing in grid reinforcements. The development of technology-inclusive, market-based ancillary services and local congestion management as well as cost-reflective network charges would reduce some of the unnecessary CAPEX investments due to a flexible use of the network by connected consumers and prosumers and their behind-the-meter assets. The development of district self-balancing schemes[2] would also contribute to the achievement of this goal.

[1] Conclusion of the High-Level Conference on the Future of our Grids: Accelerating Europe's energy transition 7 September 2023

[2] smartEn White Paper on District Self-Balancing, July 2023

Between 11.1bn and 29.1bn of Euros can be saved annually in distribution grid reinforcements, through a smart and active management. These savings are significant considering that with a transition towards a decentralised, consumer-centric energy system, the investments required in local grids compared to TSO grids will be three to four times higher.[3]

The Electricity Market Design already set a clear EU regulatory framework to optimise the use of the network. A swift implementation is of paramount importance, to be supported by a solid Network Code on Demand Response shaped around harmonised pan-European rules.

Investments in digital infrastructures, flexibility market platforms and seamless data exchange between system operators, flexibility service providers, consumers and prosumers, notably in a standardised or harmonised way across the EU, should not be delayed further, in line with the implementation of the European Commission's EU Digitalisation in Energy Action Plan[4].

2. Ensure anticipatory investments do not lead to overinvestments in grid reinforcements

The prioritisation of an efficient and flexible use of the network should extend beyond existing and short-term infrastructure considerations. It should also be part of a long-term integrated system planning to optimise the dimension and use of the future grid, notably in the context of anticipatory investments.

For that, a clear understanding of what is meant by anticipatory investments and the timeframe considered is necessary.

In particular, the need for anticipatory investments should not be used as an excuse or blank check by system operators to overinvest in grid reinforcements. Such resources should be allocated also to operational investments that can provide more cost-effective solutions than new cables.

System operators often see the risk of underinvestment as a major one, leaving the risk of overinvestment unaddressed. The latter is significant from a societal and economic perspective, since costs are borne by all consumers. The approach towards anticipatory investments must therefore strike a balance between these two risks in order to reach an optimum for society and the systemic transition to clean and smart electrification.

In this light, both NRA oversight and stakeholders engagement shall always be guaranteed, including for anticipatory investments.

3. Offer harmonised flexible connection agreements under clear conditions to speed up smart electrification

Strong delays in connecting distributed renewable energies, newly electrified households, transports and industries are not acceptable. They hinder the market-based move towards smart electrification and decarbonisation of our European energy system.

New forms of non-firm connections should be explored as alternatives to firm connection agreements, but only when conditions allowing non-market based flexibility procurement are met[5] or cost-reflective network charges do not provide sufficient volumes to offer firm connection. This would reduce short-term CAPEX investments while allowing new connections of flexible consumers and prosumers.

---

[3] smartEn-DNV study: Demand-side flexibility in the EU: Quantification of benefits in 2030, September 2022

[4] smartEn Position paper: Data exchanges for the system integration of consumers: assessment of available standards and protocols, May 2023

[5] As prescribed in Article 32 of the Electricity Directive 2019/944, including when an NRA assessment has led to not applying market based solutions.

The introduction of non-firm connection agreements should not bar nor delay the connecting System Operator from introducing the improvements in their grid, both in the form of market-based procurement of flexibility and grid reinforcement, that would allow consumers to upgrade to fully firm connections.

To ensure a consumer-centric energy system, consumers and prosumers with non-firm connection agreements should:

- continue to be able to provide their flexibility to all markets and have a right to participate in aggregate flexibility offers facilitated by new digital services. The design of such agreements should guarantee that they do not undermine the potential of local flexibility markets, but that they are rather implemented as a solution of last resort,
- have the right to upgrade to a firm connection agreement once grid capacity issues are solved,
- have a guaranteed minimum grid capacity offered to allow connection of decentralised energy resources, and have transparency on the duration and timing for limiting the use of the network.

The ongoing revision of the Electricity Market Design should already include these principles. European harmonised features and eventual limitations should be further defined.

4. Do not delay further cost-reflective network charges on the pretext they would undermine solid financing to System Operators

Grid investments will require a considerable amount of public and private resources. Although it might prove to be challenging in contexts of high interest rates, untapping and effectively leveraging capital and financial markets provides a new, additional source of financing for market actors, including DSOs.

This should not be an excuse for not developing or delaying further cost-reflective network charges that would provide sufficient resources to necessary investments while sending efficient signals to consumers and prosumers on grid usage to foster local flexibility.

The development and implementation of a harmonised methodology for cost-reflective network charges should be a top priority for the short-term, in line with the principle set in the Electricity Market Design.

5. Reward citizens for their flexible use of the network to ensure their support to necessary grid reinforcements

When necessary, renovation of existing grids will require excavations and public works in our streets. Construction of new, necessary lines will require deployment of new installations which might modify the current landscape. These are often perceived negatively by citizens, as impediments to their comfort and well-being, or simply harmful to nature.

Communication activities, engagement with citizens and inclusive dialogues with local communities are important to increase public acceptance of essential works. However, this approach might result in a new imposition that relies on a top-down relation between System Operators and passive citizens.

Most of citizens might have a more positive attitude towards necessary grid reinforcements if additional incentives are in place, allowing citizens to receive direct rewards, notably in monetary terms, either savings or new revenues. This is possible if they are allowed to activate the flexibility of their connected DERs and are rewarded for making an optimal and efficient use of existing and future grids, or would benefit from new investments which would increase their returns. For this to happen, the development of cost-reflective network charges, local flexibility markets and ancillary services, especially in the area of peer-to-peer trading and in flexibility offer aggregation open to all consumers should be accelerated.

6. Develop a solid EU digital industry to support active grid management

The European industrial base to ensure secure and efficient investments in grids must be strengthened. This should encompass both manufacturers of grid technologies and software providers for smart, efficient and flexible management of networks, including market players that can support both active consumers and System Operators in addressing ancillary services and local congestion management issues in a secure market-based way. This is the opportunity for a new EU smart industrialisation catalysed by digitalisation.

The definition of a common European data space should be strongly related to the European grid development strategy and grid flexibility platforms. The benefits of a solid energy service economy based on seamless, interoperable access and sharing of data is a critical enabler for consumer participation and would benefit both System Operators and consumers and prosumers as they would be enabled to offer their flexibility to markets set up by T/DSOs and any other (wholesale) markets by stacking any available revenue opportunity.

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