



**SEDC**  
Smart Energy Demand Coalition

## SEDC Position Paper

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### Price Signals in Electricity Markets

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*The views expressed in this document represent the views of the SEDC as an organisation, but not necessarily the position of a specific SEDC member*

## Summary of key recommendations

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- 1. Market prices should reflect the real value of electricity at any moment. Scarcity prices must be possible, and the full value of balancing costs should be reflected in electricity prices. Where competition conditions allow it, regulated end-user prices should be removed.*
- 2. Any customer should have the right to a smart meter and to choose market pricing on an hourly basis (or shorter, where applicable); the retailer/BRP should be settled accordingly. Also, consumers should be enabled to self-generate their own electricity.*
- 3. Network tariffs should support, rather than hamper, the use of demand-side flexibility, and perverse incentives must be removed.*
- 4. Adjustments should be considered to mitigate the blunting effect of charges and taxes on electricity price signals.*
- 5. Traditional Generation Adequacy Assessments should be replaced by System Adequacy Assessments, taking into consideration the full potential of demand-side flexibility.*
- 6. In case a capacity mechanism is introduced, it should recognise the value of both capacity and flexibility in the system. Any mechanism should reflect the structural advantages provided by demand-side resources. It is important that any capacity mechanism does not undermine the functioning of the Internal Energy Market, including price signals on the wholesale electricity markets.*

## 1. Introduction

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Demand-side flexibility has different capabilities to balance the system. Certain consumer groups can deliver highly reliable emergency response, others provide flexibility to complement variability on a daily and even minute-to-minute basis. It is important that electricity markets allow for the best use of all the flexibility options to cover the system needs in the most efficient manner.

## 2. Price signals in electricity wholesale and balancing markets

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### Wholesale Markets

In the traditional centralised power systems, where competition was limited and information flows were scarce, wholesale price caps were important to prevent potential gaming.

However, in competitive and increasingly decentralised markets with adequate information flows and the full participation of demand-side flexibility, such caps are no longer justified. On the contrary, price variability – both upward and downward, including scarcity prices – is a positive sign of an efficient competitive market. This variability is essential to give market signals for flexibility in the electricity system.

It is important to note that scarcity prices do not necessarily translate into price peaks for consumers. Energy users should be able to make their own choices regarding the level of risk management provided to them by the electricity retailer or by another service provider.

### Balancing Markets

In a cost-reflective market, wholesale intraday prices should naturally be lower than imbalance prices on reserves markets. In order to ensure the appropriate signals on day-ahead and intraday markets, the full costs of balancing actions by TSOs should be reflected in imbalance prices. Within this context, the following principles should be maintained:

- Balancing prices should be allowed to rise up to the value of lost load when involuntary load shedding occurs
- Balancing prices should be symmetrical. The same price should apply for parties that are out of balance in the same direction as the system, as is paid to parties that are out of balance in the opposite direction than the system.

### 3. Linking wholesale and retail markets

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Where competitive conditions allow for it, regulated end-user prices should be removed.

Consumers are likely to align their consumption with the availability of electricity, if the prices they pay reflect this. Wholesale prices are generally lower in situations with significant production of weather-dependent renewable electricity, while they can be higher when variable electricity production is low and total demand is high. Electricity retailers, including default providers, should offer price plans that allow consumers to choose hourly, or where applicable shorter time-interval pricing, that reflect the actual market conditions and create incentives for consumers to align their demand with system conditions.

As a pre-condition for market-reflective pricing schemes, it is necessary to measure when the consumption of individual consumers takes place during a day. This requires that the consumer is equipped with a smart meter with registration of the consumption at an hourly, or where applicable half- or quarter-hourly, basis.

Additionally, the balance responsibility of the energy retailer should be set up in a way that is aligned with the actual load profile of the consumer. This requires an adaptation of the settlement processes, which should be enabled also by the involved DSOs and TSOs.

### 4. Network tariffs

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To incentivise consumers to use electricity in the most economically efficient way, network tariffs should allow them to actively respond to market signals and/or participate in balancing and ancillary service programmes. As a first step – and in accordance with the Energy Efficiency Directive, Art. 15.4 – distribution tariffs should certainly not hamper Demand Response.

Alternative pricing options should be explored to reflect the impact a consumer has on the system. A theoretically efficient but technically and practically challenging solution in this respect could be critical peak pricing that reflects local system constraints in real time. However, dynamic network pricing approaches should be treated with caution if they fail to reflect the actual requirements and the new dynamics of a decentralised energy system.

System operators often argue in favour of a proportion of capacity-based tariffs or “capacity bands” where consumers are grouped in different categories. These have the value of being simple. However, they can limit the availability of flexibility, because they cap the size of the connection even at times when high consumption or injection would be desirable for grid management. A capacity limit that only applies during times of system constraints, and where the maximum capacity can be exceeded when this is beneficial for the local system, could be a more conducive to flexibility.

In all circumstances, and especially when only basic network tariffs are in place, the Distribution System Operator should be encouraged to procure additional flexibility for system support from market actors through a transparent process, ideally on a local market.

## 5. Taxes and levies

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The high share of fixed taxes, charges and levies on end-user electricity prices in European countries have a significant blunting effect on energy price signals. This creates a counter-incentive to flexibility and instead only incentivises general reductions in consumption, regardless of timing.

To reduce this effect, different options could be explored, for example:

- Dynamic levies (e.g. for the currently fixed renewables/CHP/efficiency support instruments) could be considered, taking into account the full impact on consumers and the power system.
- Policy-driven taxes and levies could be assessed at the point of fuel consumption, rather than final electricity. Electrification of transport and heating is an important climate policy objective, but is counteracted if taxes and charges on electricity outweigh the dues on e.g. on fuel-based heating.

## 6. Hedging products and capacity mechanisms

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Demand Response can provide highly competitive emergency capacity. It is fast to develop, even at high volumes.

These Demand Response volumes can be activated through hedging products that are expected to evolve in electricity markets, or through regulated capacity mechanisms.

In liberalised markets, hedging products have evolved in different forms. Long-term contracts are the most commonly used approach today. New derivatives, such as the intraday cap futures recently introduced by EEX, indicate the possibilities for products that allow retailers to insure their supply while providing investment signals for flexibility options. In a market with growing price fluctuations, such products can be expected to grow in their attractiveness.

The advantage of these market-based hedging products is their full complementarity with a competitive electricity wholesale market. Provided there is an appropriate regulatory framework that enables the full market participation of Demand-Side Flexibility, hedging solutions can be exploited within short time-frames, as soon as system constraints are starting to become more visible in the price signals.

Where the evolution of fully market-based capacity products is hindered by specific circumstances, different types of capacity mechanisms have been introduced or are being discussed.

Before such specific mechanisms are introduced, a state-of-the-art system adequacy assessment should take into consideration the full potential not only of power generation capacity, but also of demand-side flexibility, storage, interconnections and flexibility potentials in neighbouring countries. If this assessment leads to the conclusion that a capacity remuneration mechanism is justified, the following criteria should be incorporated:

- Any capacity mechanism should be transparent and monitored in order to ensure the establishment of a clear capacity price signal.
- Product requirements should be based on the system's needs, rather than the capabilities of the traditional supply-side technologies.
- The capacity mechanism should be market-wide and reward the contribution of all the resources in the same manner, including the demand-side.
- The market should reflect the structural advantages provided by demand-side resources, such as reduced need for transmission capacity times of peak.
- Independent aggregators should be able to participate directly in the market, without the need to access the market through suppliers, or the need to get the agreement from suppliers.
- A pay-as-cleared market is preferable to a pay-as-bid market.
- The market should also include secondary trading to allow resources to trade out of their capacity obligations.
- The performance of Demand Response should be measured during the certification process using the same methodology as for the delivered service.
- Capacity products should be defined with a time-horizon of no more than 3 years to allow for a reflection of evolving market conditions, competition and avoid contractual lock-ins.
- The same contract durations should be made available to all participants.
- Stringent penalties for non-compliance with delivery obligations are preferable to onerous qualification criteria.

The introduction of capacity mechanisms can be expected to interact with the price signals on the wholesale market. It is crucial to minimise such effects so as to safeguard the functioning of the Internal Energy Market. Depending on the design, approaches based on reliability options may interfere less with the market than other capacity mechanisms.

It is important to note that the interference with market prices will be lower, the more Demand Response is included in a capacity mechanism.