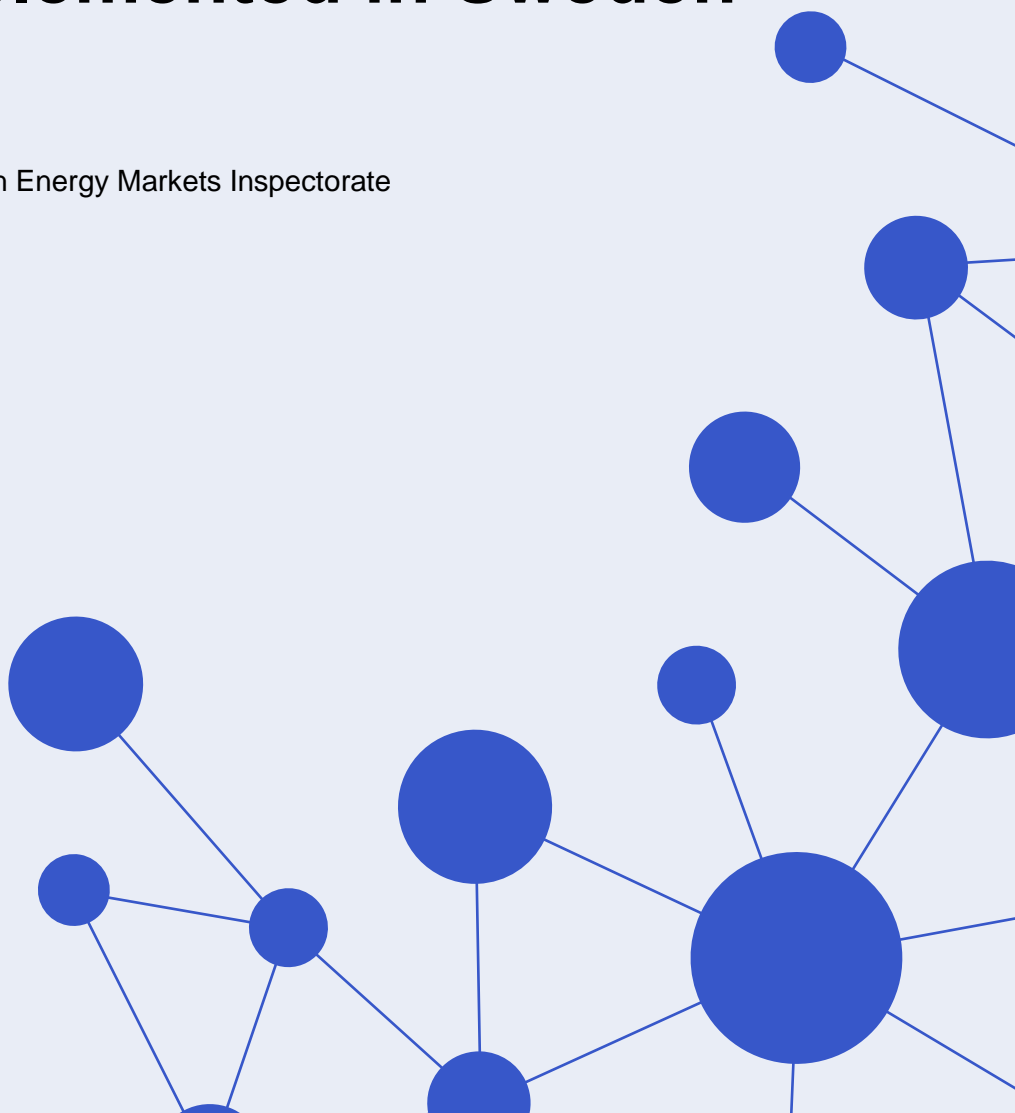


# How Independent Aggregators can be Implemented in Sweden

## Factsheet

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# How Independent Aggregators can be Implemented in Sweden

In spring 2021, the Swedish Energy Markets Inspectorate submitted a report to the Government with recommendations on how to facilitate the concept of independent aggregators in Swedish legislation. This fact sheet aims to summarise the main analysis and recommendations of the report.

## Significance of independent aggregators

Flexible demand and distributed generation are important parts of the EU energy transition. It might be a bit challenging for a single small consumer to offer flexibility services on the current electricity markets, and such small flexible resources are rare in the Swedish energy system today. An *aggregator* is an actor that gathers flexible loads and flexible generation from several customers or prosumers into a larger portfolio, which can then in turn be traded on the market. A customer's ability to shift its demand away from peak and constrained periods can, in this way, via aggregators, bring new benefits to customers and help TSOs and DSOs to manage the energy system more efficiently.

In support of the new opportunities and benefits that aggregation can bring, the Electricity Directive<sup>1</sup> (the Directive) of the Clean Energy Package requires Members States to develop the role of aggregators. The Directive stipulates that a customer must be able to choose an aggregator that can operate independently of, and concurrently with, the customer's existing supplier, defining the concept of an *independent aggregator*. The Directive also requires that an aggregator should be financially responsible for its imbalances, in other words, for the imbalances that the aggregation may cause other actors in the market.

## The situation in Sweden

The Swedish legislation does not, as it stands today, facilitate the concept of an independent aggregator and therefore needs to be reviewed in order to fulfil the requirements of the Directive.

In a report to the government<sup>2</sup>, the Swedish Energy Markets Inspectorate presents two alternatives for aggregators where they are financially responsible for their imbalances, while at the same time the customer's right to an independent choice of aggregator is ensured. The report suggests changes to the Swedish energy legislation in order to facilitate these alternatives and thereby fulfil the EU legislation on independent aggregators.

## Challenges for the implementation of independent aggregators in Sweden

Today, aggregators are not addressed explicitly in the Swedish legislation and for an aggregator to take financial responsibility for the imbalances that the aggregation may cause, the aggregator must set up agreements with each of its customers' electricity suppliers or their *balance responsible parties* (BRP).<sup>3</sup> Such agreements do not fulfil the independence criteria, as they require the approval of the customers' current energy suppliers.

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<sup>1</sup> DIRECTIVE (EU) 2019/944 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU

<sup>2</sup> Ei R2021:03 *Oberoende aggregatorer: Förslag till nya regler för att genomföra elmarknadsdirektivet*. Only available in Swedish.

<sup>3</sup> Balancing responsible parties are market participants with the economic responsibility to make sure that the energy taken out from the system is also covered by corresponding procurement of electricity production. In this way, the physical balance in the electricity system is reflected by the balance responsibility in the energy market.

## EU Regulatory Framework: Independence and financial responsibility

The Directive defines the concept of an *independent aggregator*, in other words an aggregator should have access to all markets, without needing consent from the customers' existing suppliers. In addition, the EU regulation stipulates that an aggregator needs to be financially responsible for the imbalances that it causes.

The Directive requires Member States to make sure that their relevant regulations stipulate that market participants that conduct aggregation are responsible for any imbalances that they cause to the electricity system. They should either be the balance responsible party or delegate the responsibility to another party in line with Article 5 of regulation (EU) 2019/943 on the internal market for electricity.

## The Swedish regulatory framework needs to be adapted

The Electricity Act (1997:857) and regulation (1994:1806) on system responsibility for electricity establish the current framework in Sweden for system and balance responsibility.

Balance responsibility is defined, in the Electricity Act, as that an electricity supplier may only deliver electricity to a connection point where a party has accepted the economic responsibility to make sure that the same amount of energy that is consumed and removed from the national electricity system is also replaced in the system.

The balance responsibility is fulfilled by agreements between the system responsible authority and with the party that handles the settlements between the balance responsible parties.<sup>4</sup> An energy supplier may only enter into agreements regarding the delivery of electricity to a specific connection point with a consumer that has the right to withdraw energy from the connection point, according to agreements with the network owner.

In practice, a customer in Sweden can only have one energy supplier for each connection point. An aggregator would therefore, in order to take the financial responsibility for the flexible resource that is activated, have to take responsibility the entire electricity supply to the connection point. This is not in line with the Directive's requirement that customers should be able to sell aggregation services independently of their energy supply contract. The alternative is for the aggregator to set up a contract with the balance responsible party for the connection point. This alternative, however, needs the consent from other market participants and can therefore not be considered independent.

## Proposed changes in the Swedish regulatory framework

In this fact sheet we present a proposal for how the Swedish legislation can be adapted to:

- Enable a consumer to choose an aggregator without approval from the current energy supplier or any other market participant.
- Ensure that the aggregator takes economic responsibility for any imbalances that the aggregation might cause to the system when a flexible resource is activated. The aggregator should choose to either become a balance responsible party itself or delegate the responsibility to a balance responsible party of its own choice.

The Swedish Energy Markets Inspectorate has identified two viable alternatives for aggregators to be able to take financial responsibility for the imbalances that they cause while at the same time keeping their independence from other actors in the electricity market. It has been important to find alternatives that contribute to Nordic harmonisation and the

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<sup>4</sup> In Sweden, the system responsible party is the transmission system operator (TSO) Svenska kraftnät, and the party that handles the settlements in the Nordics is eSett Oy.

alternatives are based on the results of a Nordic study<sup>5</sup> performed in collaboration with the other national energy regulators in NordREG<sup>6</sup>.

### **Alternative 1: More than one BRP per connection point**

The first alternative is to make it possible to have more than one BRP for the same connection point. In this model, both the energy supply and the balance responsibility for the connection point are split in two, where one part consists of the flexible asset, controlled by the aggregator, and the other part for the remaining load. For example, an aggregator could be responsible for the supply for and operation of an electric vehicle, while the customer's existing energy supplier is responsible for the rest of the household load. Through a clear division of the responsibility for each part, the aggregator's activation of the flexible resource would not cause imbalances for any other BRP, other than the one it itself has a contract with.

This type of split-responsibility model is recommended in the DNV GL report *Impact Assessment of Different Models of Independent Aggregator Financial Responsibility and Compensation in Sweden* as a suitable alternative, especially for flexible resources that are activated with high frequency and have low marginal costs. The model also has several advantages: it is suitable for all markets and products, and for all segments, it does not directly impact the original supplier, and it does not lead to any market distortions.

To make this alternative possible, the Electricity Act (1997:857) would have to be adapted to allow more than one balance responsible party for each connection point. There would also be a need to be able to distinguish between the electricity supplied by the aggregator's energy supplier and each customer's energy supplier. One way to do so would be to use energy meters behind the main meter. A pilot project in Denmark has shown that a solution with separate meters for, e.g., electric vehicles, can provide data that are of sufficient quality to be used for the settlement of separate consumption units.<sup>7</sup>

Another way would be to estimate the supply and consumption of the part that is managed by the aggregator and the aggregator's energy supplier. The Swedish Energy Markets Inspectorate recommends using energy meters, as the risk for errors with estimations is more prominent than with measuring. The additional metering and other changes to the IT systems in use today, that would be required for this alternative, would, in the short run, be likely to increase costs for the customers. These costs will diminish once the system has been established.

### **Alternative 2: Model for financial compensation**

The second alternative is a settlements model for financial compensation between affected parties. With this alternative, the initial BRP would remain as the only balancing party in the connection point. The aggregator's activation of flexible resources might, in some cases, result in imbalances for the BRP. One way for the aggregator to take financial responsibility for these imbalances is to pay compensation to the affected parties through a compensation mechanism.

The Directive gives the Member States the possibility to put in place a compensation mechanism, provided that it does not raise undue barriers to market entry, does not overcompensate, and is non-discriminatory. A basis for such a model could be either full or partial compensation. For example, full compensation could be set at the spot price for the

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<sup>5</sup> See the NordREG report *Nordic Regulatory Framework for Independent Aggregation*.

<sup>6</sup> Nordic Energy Regulators, NordREG, is an organisation for cooperation between the Nordic regulatory authorities in the energy sector.

<sup>7</sup> Dansk Energi and Energinet, *Af rapportering af pilot-projekt om nyttiggørelse af serielle operatørmålinger*, 2021. Report of result from pilot project on utilisation of serial energy meters in Denmark. The report is in Danish.

relevant unmatched energy. There are several ways to organise a model for financial compensation, and there are examples from other countries where this has already been implemented. One way could be through a central actor organising the compensation, as has, for example, been implemented for small connections in France for both balancing and wholesale, as well as in Belgium for balancing.

A model for financial compensation between affected parties would fulfil the Directive's requirement for aggregators to be financially responsible for the imbalances they cause while allowing the aggregator to stay independent. If requirements are to be set for the aggregator to compensate other market actors, rules on this must be introduced in Swedish legislation.

## Insights for other countries

The Directive requires the outcome to be beneficial to end-users. Keeping this in mind, and considering the total effect that the regulatory changes will have on the market and its end-users, has been important when considering how to implement independent aggregators in the Swedish legislation. Enabling independent aggregators using schemes which do not bring benefits, only for the sake of enabling aggregation, seems counterproductive and not in line with the intentions of the EU regulation.

Due to the nature of the common Nordic electricity markets, it has also been important to find alternatives for implementation that contribute to Nordic harmonisation. To unlock the benefits of aggregation, the market structure needs to be sufficiently coherent over the entire market. None of the Nordic countries have defined or are planning on defining a specific model for aggregation in the legislation but instead plan to keep the legislation general and give the task of developing a more detailed model to the system operators. This will also require that the Nordic system operators to work closely together in order to facilitate a more harmonised approach.

## Concluding remarks and looking forward

The Swedish Energy Markets Inspectorate has found that the Swedish regulation needs to be adapted to meet the requirements stated in the Energy Directive regarding independent aggregation with financial responsibility for imbalances. This can be achieved by introducing a balancing model where several balance responsible parties can be connected to the same connection point, and a model where the aggregator is able to take financial responsibility for imbalances caused by the aggregation through a system of financial compensation between the parties affected.

The Swedish Energy Markets Inspectorate believes that both alternatives are complementary and suitable for aggregating different types of flexible resources and should be introduced into the Swedish legislation. Furthermore, allowing for both models will facilitate harmonisation with the Nordic and other European countries.

The report with recommendations on how to facilitate the concept of independent aggregators in Swedish legislation was submitted to the Government in March 2021. It has since been subject to public consultation. Currently, the Swedish Energy Markets Inspectorate is awaiting the response and a proposal on changes to the legislation from the Government. Moving forward, the suggestion from the Swedish Energy Markets Inspectorate is for the system operator, and other relevant authorities, to be commissioned with the task of implementing the necessary changes to the current balancing model, as well as the changes to the IT infrastructure and the quality requirements for metering that are needed to facilitate the alternatives for independent aggregation presented in the report.