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Energy sharing: A new activity for active customers and energy communities

Different models for implementing energy sharing

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ICT, Strategy & Policy
www.tno.nl
+31 88 866 00 00
info@tno.nl

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Different models for implementing energy sharing

Author(s)	E. (Eva) Winters, N.A. (Aliene) van der Veen
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Contents

1 Introduction

In 2018 and 2019, the Electricity Market Directive (2019/944) and the Renewable Energy Directive (2018/2001) introduced the concept of energy sharing. Specifically, Jointly Acting Renewable Self-Consumers (JAESCs), self-consumers within the same building or multi-apartment block, and energy communities should be able to share energy.

In the Clean Energy Package, energy sharing was mentioned but not clearly defined within the directives. As a result, some Member States did not treat energy sharing as a distinct activity, while others implemented various models. Due to the lack of a clear definition and shared understanding of what energy sharing entails, the approaches to its implementation have varied significantly across Member States.[1]

To clarify and provide a more comprehensive understanding of energy sharing, a new definition and description of energy sharing were incorporated into the reform of the Electricity Market Design. This reform has been adopted in April 2024 and published in June 2024.[2]

The new rules introduce two additional articles: one providing a definition of energy sharing, and another outlining the conditions and operational framework for its implementation. Additionally, other articles have been revised, including those governing the free choice of supplier, to ensure that energy sharing is allowed regardless of any existing agreements between connected customers and other suppliers.

Member States will have 24 months to incorporate these articles into their national legislation, meaning that energy sharing should be operational across all Member States within two years.

This report looks into the concept of energy sharing as outlined in the new articles and explores various models for implementing it as a new activity. In conclusion, we will discuss the proposal for the Dutch implementation of energy sharing.

[1] European Commission: Directorate-General for Energy, Veen, A., Winters, E., Fumagalli, E., Klobasa, M. et al., Multi-supplier models and decentralized energy systems – Energy sharing approaches, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2833/730792

[2] DIRECTIVE (EU) 2024/1711 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, of 13 June 2024 amending Directives (EU) 2018/2001 and (EU) 2019/944 as regards improving the Union's electricity market design, art. 10a and 15a (and amending art. 4)

2 Energy sharing in the electricity market design

2.1 Objectives

Energy sharing has been introduced as a new activity designed to encourage customers to use the energy they generate at the time of renewable production. Customers can share the energy they produce amongst themselves or with others who do not have their own energy systems, thereby granting them access to sustainable production resources, or in other words, allowing them to participate in renewable energy projects and benefit from them.

Energy sharing is part of a broader trend empowering smaller customers, including households and small businesses, to play a more active role in the energy sector. The European legislator believes that energy sharing contributes to making households more resilient to high and fluctuating energy prices. By facilitating energy sharing, the legislator believes households will gain greater control over their energy bills and reduce their dependence on the wholesale market. This, in turn, could lead to more stable and potentially lower energy prices.[3]

Energy sharing is also a means to empower a wider group of people, not only the ones that do own an installation, but also vulnerable households, as well as households with spatial constraints, to get access to energy sharing schemes. Making energy sharing accessible for more vulnerable customers is one of the requirements.

Energy sharing should also contribute to demand response from small, connected customers. The EU legislator says that '*energy sharing operationalises the collective consumption of self-generated or stored electricity* (...)' Moreover, with the appropriate price signals energy sharing could also leverage the flexibility potential of small connected customers.[4]

In summary, the main objectives of the EU legislator in enabling energy sharing are to provide opportunities for small connected customers, including vulnerable households; activate them, stabilize (and potentially lower) energy bills, and unlock the flexibility potential of small connected customers.

[3] Recital 22
[4] Recital 22

2.2 Definition

Directive 2024/ 1711, article 2, sub 10a, defines energy sharing as:

"Energy sharing" means the self-consumption by active customers of renewable energy either:

a) generated or stored offsite or on sites between them by a facility they own, lease or rent in whole or in part; or
b) the right to which has been transferred to them by another active customer for a price or free of charge.

The directive defines energy sharing as self-consumption of renewable energy by an active customer. This excludes electricity sharing from non-renewable sources.[5] The definition further specifies the location where the energy is generated (which can be either onsite or offsite), as well as the relationship between the active customer and the energy facility (owned, leased, rented, or partially owned). Lastly, self-consumption can also take place if the right has been transferred to them by another active customer. The active customer may either charge a price for this or provide it free of charge.

2.3 Energy sharing

The requirements and the organisational aspects of energy sharing are outlined in article 15a of the directive. The article begins by specifying "who" is allowed to share energy. Member States need to make sure that all households, small enterprises[6] and medium-sized enterprises[7] and public bodies have the right to participate in energy sharing as active customers. In addition to these categories, Member States could give other categories of final customers the right to share energy. So, Member States could for example also allow larger companies to participate in energy sharing.[8] It is required that energy sharing not be the primary commercial or professional activity for any of its participants.

2.3.1 Energy sharing agreement

Article 15a also specifies *how* energy can be shared. This can be done based on private agreements or through a legal entity. For example, via an energy cooperative.

The article further outlines the tasks and responsibilities assigned to the energy sharing partners. They involve communication about the energy sharing arrangement with other relevant entities, for example the DSO or suppliers involved. The communication can include aspects like tariffs, other charges, taxes and levies. To optimally share energy, this could also require managing flexible loads, RES installations and storage. Besides the contracting, participants in energy sharing should also be billed. Finally, the directive mentions the responsibility for installation and operation, including metering and maintenance of the RES facilities and storages.[9]

[5] The directive and the EMD package primarily focus on electricity
[6] Article 2 sub 7 of Directive 2019/944: means an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million
[7] Article 2 of Recommendation 2003/361/EC
[8] Article 15a sub 1 Directive 2024/1711
[9] Article 15 a sub 3a-d Directive 2024/1711

2.3.2 Energy sharing organiser

For all the above tasks and responsibilities, active customers may appoint a third party as an *energy sharing organiser* (ESO), who can assist or take over these responsibilities.[10] The ESO or another third party may even own and manage the facility up to 6 MW, without being considered the active customer. Unless the ESO or third party also participates in the sharing. The ESO must meet several requirements. For example, the services must be provided in a non-discriminatory manner, offering transparent prices, tariffs, and terms for the services. There are specific requirements for the contracts between the ESO and the active customer participating in energy sharing. These include, among others, the obligations related to the supply agreement outlined in Article 10, the right to switch suppliers as stated in Article 12, and the rules governing billing under Article 18 of directive 2019/944. Consequently, the ESO must comply with many of the same obligations that apply to the supplier.

2.3.3 Sharing period

In addition to the previously mentioned conditions defining what energy sharing is and how energy can be shared, there are several other important requirements. First of all, there is a time limit in which customers can share. Active customers *are entitled to have electricity injected into the grid deducted from their total metered consumption within a time interval no longer than the imbalance settlement period (...)* article 15a sub 4a. Which is 15 minutes in most countries.[11] The deduction should be '*without prejudice to applicable non-discriminatory taxes, levies, and cost-reflective network charges*'. The principle is that taxes and network charges must also be paid on the electricity acquired through a sharing arrangement. This is an important condition and will limit Member States to exempt sharing parties from paying taxes and network costs without proper justification.

Furthermore, participating in a 'sharing activity' should not impact the consumer rights and obligations of the active customer as final customer. The customer will get a derogation from the suppliers' obligations where renewable energy is shared between households with an installed capacity up to 10,8 kW for single households and up to 50 kW for multi-apartment blocks. If the threshold is too low/high, Member States are allowed to adjust these limits to 30 kW for single households and 40 to 100 kW for multi-apartment blocks.[12]

To lower the threshold to become active and engage in energy sharing agreements, Member States need to provide voluntary template contracts, with fair and transparent terms and conditions. Also, out-of-court dispute settlement needs to be available, in case any conflicts arise between the sharing parties.

2.3.4 Effects of energy sharing on other parties

Energy sharing has an effect, whether direct or indirect, on the other parties active on the connection (this is further discussed in this report. Given that the actions of one party can affect another, it could be important to make sure that new activities such as energy sharing have minimal negative effect on other market parties. to ensure that no unnecessary barriers are created by parties who may be negatively impacted by participation in energy sharing. Therefore, the negative effects on other parties at the connection should be

[10] Article 15a sub 3 Directive 2024/1711
[11] Article 53 of Regulation (EU) 2017/2195 on establishing a guideline on electricity balancing.
[12] Article 15 a sub 4c and a/b, recital point 24 Directive 2024/1711

minimized as much as possible, to avoid unnecessary costs. To achieve this, it is beneficial that all parties are well-informed about the intentions of others regarding the connection. Additionally, it may be necessary for a market participant to receive compensation for any lost profits resulting from the sharing.

To regulate the relationship between the sharing parties and other parties affected by the sharing, several conditions have been included. Firstly, other market participants and their balance responsible parties are prohibited from treating them unfairly or discriminating against them. Secondly, active customers have the obligation to notify the energy sharing to the relevant system operators and market participants (suppliers, BRP's) directly or through the ESO. Moreover, Member States have the obligation to notify the active customer of the possibility of changes in bidding zones (a very rare event) or a geographical restrictions to share energy (more likely to happen due to increasing congestion).[13] Finally the relation between the supplier and the active customer is also addressed in article 4 that regulates the free choice of supplier. Active customers have the right to have more than one supply or energy sharing agreement at the same time and energy sharing should not compromise the ability to choose a supplier.[14] Article 6 then stipulates that customers with a contract of fixed duration and price must not be excluded from participation in energy sharing and demand response.

2.3.5 Involvement of larger enterprises

Member States have the option to appoint other categories of final customers to participate in energy sharing. If Member States choose to allow categories larger than medium-sized enterprises to participate, a few additional restrictions will apply. If a participant larger than a small or medium-sized enterprise is involved in an energy sharing scheme, the installed capacity of the generation facility should not exceed 6 MW, and the sharing must take place within a local or geographically defined area, as determined by the Member States.[15]

2.3.6 Role of system operators or other designated bodies

Alongside the ESO, which assists individual customers or groups in energy sharing, certain aspects must also be facilitated at the national level. This is outlined in paragraph 6 of article 15a. The Directive says that Member States shall ensure that either transmission system operators (TSO'S), distribution system operators (DSO'S) or other *designated bodies* get a couple of responsibilities in facilitating energy sharing. Member states have to appoint a body (for example the TSO or DSO) that is responsible for monitoring, collecting, validating and communicating metering data that is related to the shared electricity, with the relevant final customers and market participants. This must be communicated at least once a month but may also be shared more frequently. To enable this, the appropriate IT systems must also be put in place. This must be in accordance with the rules around data management (art. 23 of directive 2019/944).

Next to that the Member States need to make sure that there is a contact point to register the energy sharing agreement. The registration of the agreement is needed so that all relevant market participants know that the connection participates in sharing. The contact point should also make available practical information for energy sharing. The Directive does not specify what practical information should be made available. The party providing the contact point should also receive relevant information from the metering points, including

[13] Article 15a par. 4g jo par. 1 Directive 2024/1711
[14] Article 15a par. 11 Directive 2024/1711
[15] Article 15a par. 5, Recital 23 Directive 2024/1711

changes in location or participation. Finally, the contact point should be able if applicable to validate the calculation method in a clear, transparent and timely manner. [16]

2.3.7 Inclusiveness

Engaging vulnerable households is a key objective for the legislator. Therefor Member States have the obligation to take measures to ensure that vulnerable customers and customers affected by energy poverty can access energy sharing schemes. These measures may include financial support or a production allocation quota. If a public authority owns an energy sharing project, the electricity should be made accessible to vulnerable or energy-poor customers and citizens. Member States should do an effort that the accessibility covers at least 10 % of the energy that is shared.[17]

Finally, Article 15a mandates the Commission to establish guidelines for a standardized approach to implementing energy sharing, while encouraging Member States to promote the use of small plug-in mini solar energy systems (up to 800 W) in the built environment.[18]

2.4 Conclusions

Energy sharing has been given a prominent role in the European Union's Electricity Directive. It is a new activity being developed with a level of detail similar to that of aggregation.

The implementation outlines several key phases involved in energy sharing. For instance, it specifies who can enter into agreements with each other, as well as the conditions under which a party (ESO) may support the 'sharing' participants. Additionally, Member States are required to designate a party responsible for facilitating various parts of the process. This includes registering the agreement, collecting relevant data, calculating the outcomes, and, finally, communicating with the involved parties. Furthermore, the objective of energy sharing, as outlined in the recitals of the directive, has been translated into a commitment for Member States to ensure that energy sharing is accessible to vulnerable and energy-poor households, particularly when governments are involved.

The next chapter discusses how energy sharing can be implemented in the Member States.

[16] Article 15a par. 6b Directive 2024/1711
[17] Article 15a par.7 Directive 2024/1711
[18] Article 15a par. 9 and 10 Directive 2024/1711

3 Implementation

3.1 Process of energy sharing

To be able to implement energy sharing, a process for energy sharing should be in place. Such a process exists of several phases. Some of the phases are partly defined in the directive, which regulates several key aspects of the process. 5 phases can be determined in the process of energy sharing:

1. contracting;
2. validation;
3. calculation;
4. registration;
5. settlement.

Each phase consists of several tasks. Some tasks require the involvement of external parties, like a system operator, and others can be done with the sharing partners/ group. Below, the phases are briefly explained.

The first phase is to establish an energy sharing arrangement, either through a private agreement or within an energy community. This phase, known as 'contracting,' involves the parties determining with whom they will share energy, what will be shared, and at what price. In this phase, the sharing parties also decide who will represent them. This can be one of the active customers, the energy community, or a third party that supports the sharing partners, referred to as the 'energy sharing organiser' in the directive. This representative will also manage contract modifications, such as when parties exit, or new sharing partners join, register the contract, and will be the point of contact for the other market parties and system operators involved.

The second phase in the process is validation. The validator ensures that the sharing arrangement meets all the necessary requirements, such as whether the partners are allowed to share, if there are any locational constraints, and more. Contracts may be subject to random checks. The regulator, system operator or another facilitator of energy sharing could take this role. This phase also involves the registration of the contract, ensuring that all relevant parties can be informed that the specific connection is participating in an energy sharing arrangement. The directive also requires that the agreement will be registered and active customers participating in energy sharing to notify the relevant system operators and market participants, either directly or through the ESO.[19]

Once the contract is validated and registered, the actual sharing must be calculated. This involves determining the amount of energy shared, and naturally, the party responsible for this calculation should have access to the relevant data. This third phase is called 'calculation'.

[19] art. 15a par. 4h Directive 2024/1711

The results of the shared energy calculation must be administrated and registered in the fourth phase, known as registration. This phase results in a change to the volume or rate on your energy bill. Depending on the registration model (see section 3.2), the effect may or may not be immediately reflected in the bill you receive from your energy supplier. Additionally, it is necessary to inform all other stakeholders affected by the sharing. Making the results available is also regulated in the Directive. The appointed body or system operator should at least once a month share the metered data concerning shared electricity with relevant customers and market parties.

The final phase, phase five, in the energy sharing process is the settlement phase. During this phase, financial settlements are made between the sharing participants, along with compensation for affected stakeholders and fees for the parties that facilitated or represented the energy sharing. If the energy sharing impacts taxes or grid charges, these adjustments are also addressed in this phase.

3.2 Registration models

Sharing energy is an administrative process and the administration of the sharing needs to be registered. There are different ways to register the shared administration. In this chapter, we discuss the different ways that this can be done.[20] There are four different models.

1. Cashback-model: The registration of shared energy can be separate from the energy supplied to the connection; there is a separate settlement procedure. The connected customer receives all the energy supplied by a supplier, and at the end of the month, the customer will receive a separate fee (cash- back) for the shared energy. However, this will not affect the energy bill.
2. Adjusted energy bill-model: The result of the shared energy can be integrated into the energy bill as part of the supply settlement process. Although it remains a separate process from supply, the participant will receive a single energy bill that includes both the supplied and shared energy.
3. Sub-supply-model: In this model, energy sharing is a sub category of supply. In this case energy sharing is a sub category of supply: sub-supply This type of sharing requires a multi-supply/service model, which allows the connected customer to contract multiple suppliers or service providers on one connection. It is also called the allocation model.
4. Behind the meter-model: Finally, energy sharing can be registered at the consuming customer's connection. In this case, the shared energy is treated as if it were produced behind the customer's meter, categorized as self-consumption.

The directive explains in the recital that: 'Member States should put in place the appropriate IT infrastructure to allow for the administrative matching (...) of the customer's total metered consumption with self-generated or stored renewable energy which is deducted from the total consumption for the purpose of calculating the energy component of the *energy bill issued by the supplier* and thereby reducing the customer's bill.' In recitals 24. In article 15a paragraph 4a it says: '(...) *are entitled to have the shared electricity injected into the grid deducted from their total metered consumption within a time interval no longer than the imbalance settlement period* (...)' Since energy sharing must lead to a deduction from the total metered consumption as explained in the recitals in the 'energy component

[20] This chapter is based on chapter 5 European Commission: European Commission: Directorate-General for Energy, Veen, A., Winters, E., Fumagalli, E., Klobasa, M. et al., Multi-supplier models and decentralized energy systems – Energy sharing approaches, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2833/730792

of the energy bill by the supplier,' the Cash back-model in which a separate settlement is made for the shared energy does not seem to align with the directive. However, a model where the shared volume is accounted for during the settlement phase would comply with the directive's requirements; the Adjusted energy bill-model and the Sub-supply model.

For the behind-the-meter model such an alignment is less straightforward. In this model the production is deducted from the consumption before the consumption is registered. This model does not seem to align well with the explanation of how energy sharing should be organised in the recitals. Although the provisions in the directive do not explicitly prohibit it, the recitals suggest that this model may not align with the intentions of the European legislator. The model may encounter another challenge, Particularly with regard to network charges. If the generation is registered as behind-the-meter generation—specifically, as 'virtual behind-the-meter generation'—it appears, on paper, that the network is not being used. However, in practice, the network is still utilized. The directive specifies that network charges should be based on actual costs and that these charges shall be 'without prejudice to applicable non-discriminatory (....) cost-reflective network charges. This could potentially be addressed through a separate corrective measure, making the model feasible after all. But it can be concluded that registration models 2 and 3 seem to fit best with the directive.

3.3 Effects on BRP, sourcing, taxes and network charges

The way the sharing is registered has several consequences. The way the sharing is registered determines if there is an exchange of energy or if the connected customer responds to an incentive for flexibility, which could then be considered as implicit flexibility.

When sharing is registered as part of the supply settlement process: *Adjusted energy bill-model*, this means that in the settlement phase the shared energy is deducted from the total energy delivered by the energy supplier which results in an adjustment of the energy bill. Energy customers participating in such an energy sharing model will often be incentivised to use the shared energy. In this model the shared energy is not supplied, but the participating customers will steer their consumption towards self-consumption or consumption of shared energy, which can be qualified as an implicit flex activation. This is called 'implicit flexibility'.

Energy sharing can also be registered as supply (the sub-supply model). The shared energy is than supplied to the connected customer. As stated above, for this model a multi-supply model should be implemented. Contracting multiple suppliers (and service providers) is already a requirement under the current directive 2019/944. The recent amendment to the EMD further specifies that parties must also be able to enter into an energy-sharing agreement in addition to their agreement with a (main) supplier. When this energy sharing is structured according to the sub-supply model, the connected customer will have an agreement not only with the (main) supplier but also with an energy sharing supplier.

There are a couple of actors that are affected by the energy sharing activity on the connection (see table below). This is first of all the main supplier on the connection. The supplier has bought electricity and might not supply all the electricity, due to the sharing activities on the connection. So, the suppliers might invoice less electricity than anticipated. The second actor that can be impacted is the balance responsible party on the connection. Often the supplier is also the BRP, but this can be separate entities. The BRP might be

impacted by energy sharing because the predicted volumes might be impacted as a result of the energy shared.

	Sharing is registered as part of	Balance responsibility	Collection of grid charges and taxes
Behind the meter model:	Metering process	Yes, the energy sharing leads to a change in volumes that fall under a certain Energy Supplier and so a certain BRP.	If a reduction on grid charges or taxes applies for energy sharing, the Energy Supplier has to take this into account when he invoices his customers involved in sharing arrangements.
Sup-supply model:	Allocation process	Idem.	Idem.
Adjustment of the bill-model:	Supply settlement process	No, volumes on the perimeter of the BRP do not change under influence of energy sharing.	Idem. Furthermore, the Energy Supplier might change his procedure to calculate the volumes that apply to grid charges and taxes, since he should also take into account the energy sharing: he cannot take the values registered at the Accounting Points.
Cash back-model:	Dedicated settlement process	No impact.	No impact. If a reduction of grid charges or taxes applies, this is taken care of in the dedicated settlement process.

Source: Veen, A., Winters, E., Fumagalli, E., Klobasa, M. et al., *Multi-supplier models and decentralized energy systems – Energy sharing approaches*, Publications Office of the European Union, 2023, p. 28

If energy sharing is designed as an implicit flex activity (adjustment of the energy bill-model, cash back-model), energy sharing has officially no impact on the BRP. There is no change in the official volume that is supplied. The same applies to the supplier, who provides the full volume, and then, during the settlement phase, an adjustment takes place. Although the sharing does not officially impact the BRP or the supplier, there might be indirect effects. An active customer engaging in energy sharing will schedule energy consumption toward particular hours. In the case of the supplier, the supplier may ultimately charge less energy than was actually delivered. A resettlement is needed to compensate the energy supplier.

If energy sharing is organised as a self-sub supply activity and part of the allocation process, the BRP and supplier are impacted by the activity. The shared energy leads to a change in the volumes. The balance position of the BRP changes as a result of the energy sharing. Renewable production does not only have a higher imbalance cost, also the sharing makes the connection less predictable.

In the sub-supply model, where energy sharing is structured as a form of sub-supply and the responsibilities for supply can be distributed among multiple suppliers, costs may still be incurred due to the energy sharing. This is partly due to the nature of the main supplier's responsibility. The main supplier effectively holds the responsibility to meet the remaining demand of the customer. The unpredictability of renewable energy sources not only affects balancing costs but also impacts the supplier's procurement strategy.

For both models it is important that the involved parties (BRP and Supplier (s)) are adequately informed about the sharing activities on the connection and the conditions under which these activities can occur. This helps them to improve their procurement strategy (supplier) and improves their balancing prognoses and so mitigate risks.

The directive also mandates the notification of the system operator and other relevant market participants. They must be informed about the sharing agreement.[21] Additionally, relevant metering data must be shared at least once a month with active customers and other relevant market parties.[22]

3.4 Costs and effects on the bill

3.4.1 Costs

Facilitating energy sharing also incurs costs. These include organizing the contract, validating, and calculating the energy shared (setting up an IT system to calculate), supporting from the ESO, as well as compensating market parties that bear the negative effects of energy sharing (such as the supplier and BRP).

Some of these costs are directly carried by the sharing partners, others by the supplier or a DSO that needs to put in place an IT system. The latter two parties can then either charge these costs to the sharing parties or 'socialize the costs' by distributing them across the entire portfolio.

The directive does not regulate the compensation of market parties affected by energy sharing activities, either through allocation model or an implicit flex activation. For demand response through aggregation the directive does explicitly state that compensation for market parties due to a demand response activation by an aggregator is possible.[23] In practice, suppliers may incur certain costs due to their involvement in energy sharing, which could be passed on to the active customer participating in the energy sharing process.

3.4.2 Effects on the energy bill

Energy sharing can impact the three components of the energy bill: electricity (kWh), sourcing, network costs, and taxes.[24] It is expected that energy sharing will only be appealing to the receiving party if the price paid for the shared electricity is lower than the cost of purchasing electricity from a supplier. To make energy sharing attractive, one or more of these components must be reduced. On the other hand, energy sharing also needs to be sufficiently rewarding for the energy sharing giver. Moreover, there can be other reasons, aside from financial considerations, to participate in energy sharing. For instance, the desire to maximize the use of self-generated energy, a sense of autonomy, and the intention to manage the consumption of (local) renewable resources may also be motivating factors.

Active customers are allowed to agree on a price for sharing energy, and this can even be done free of charge. They have a direct say in the kWh price. At the same time, sharing energy may lead to additional costs with the participant's own supplier, and these costs could be passed on to the participant in the energy-sharing arrangement. However, there are limits to this. If excessively high costs are imposed, it would violate, among other provisions, Article 15, paragraph 4(f), which states that active customers participating in energy sharing should not be *subject to unfair and discriminatory treatment by market*

[21] article 15a par. 4h 2024/1711
[22] article 15a par. 6a. 2024/1711
[23] Article 17 par. 4 2019/944
[24] In line with the Prices and costs of EU energy – Ecofys BV study, 2016, https://energy.ec.europa.eu/prices-and-costs-eu-energy-ecofys-bv-study_en

participants or their balance responsible parties. Moreover, charging unreasonably high costs could violate the right to energy sharing in general.

Regarding the other two components of the energy bill—network costs and taxes—the directive states that energy sharing should be '*without prejudice to applicable non-discriminatory taxes, levies and cost-reflective network charges*' This means that, in principle, energy sharing should not lead to active customers having to pay more or less than other customers in comparable situations. However, this does not mean that different rates cannot apply to specific groups. For instance, the legislator could grant energy-sharing customers a discount on the network fee if they reduce the strain on the grid; given that the network tariff should be cost reflect. This could for example apply if the sharing parties can demonstrate that they only use the local grid. From a non-discrimination standpoint, it would be preferable that other customers with a limited impact on the grid—such as those that can prove that they only use the local grid— also qualify for the same rate.

In the coming years, it will be up to real-world implementation to determine whether energy sharing becomes financially viable. This will largely depend on the costs involved and how they are allocated to the participants in energy sharing. Moreover, both Member States and active customers will need to assess how energy sharing will affect the three components of the energy bill.

3.5 Conclusions

To implement energy sharing, a structured process must be established. This process involves several stages, each of which offers flexibility for decision-making on various components. For example, decisions must be made regarding the point of contact, the parties responsible for specific actions, and the conditions under which these actions can take place. Key elements in designing the energy sharing process include determining how sharing will be registered, defining what can be shared (the sharing key), and establishing how the costs and benefits of sharing will be distributed. These are critical considerations that each Member State will need to address during the implementation phase.

The market for energy sharing is still in its early development, and in the coming years, it will become clearer to what extent this activity is supported by market. It remains uncertain whether new companies or energy communities will emerge to offer these services or if they will primarily be provided by existing suppliers. Additionally, it remains to be seen whether energy sharing will be an attractive option for active customers.

4 Going Dutch: energy sharing in the Netherlands

Energy sharing will be integrated into the new Energy Act (Energiewet); a new law governing the transmission and supply of electricity and gas. The Energy Act is a new Act replacing and integrating the current Electricity and Gas Act. Both the Electricity Market Directive (2019/944) and part of the Renewable Energy Directive (2018/2001) are implemented in this law. The Energy Act has been adopted in December 2024 and will come into effect from January 2026.[25]

This Energy Act now includes provisions for energy sharing. These provisions allow energy sharing within an energy community, provided that all participating customers have the same supplier. This energy sharing model is not yet in line with the updated electricity market directive (2024/1711)

A proposal amending the current energy sharing model in the Energy Act and that is based on the Electricity Market Directive (2024/1711) (EMD) has been published and consulted in November 2024. The analysis of the Dutch model for energy sharing in this report is based on that draft, [26] but first the current model that will be coming into effect from 2026 will be described.

4.1 Energy sharing in the current Energy Act

The current Energy Act defines energy sharing as:[27]

Energy sharing: self-consumption by one or more active customers of renewable energy;

a) that is generated or stored by an installation behind another connection that the active customers wholly or partially own, lease, or rent; or
b) to which the right has been transferred, with or without charge, by another active customer.

The definition shares many similarities with the one in the EMD. The EMD specifies that energy is generated offsite or at a common location. In the Dutch legal text, this translates to energy that is stored or generated by an installation *behind another connection*, which is wholly or partially owned, leased, or rented by the active customer. In accordance with the directive, this right can also be transferred to a customer by an active customer. The definition indicates that energy sharing always involves multiple connections. The definition will not be further modified with the implementation of the EMD.

[25] Stbl. 2025, 40
[26] Wijziging van de Energiewet ter implementatie van het EU-wetgevingspakket inzake het verbeteren van de opzet van de elektriciteitsmarkt van de Unie en de verbetering van de bescherming van de Unie tegen marktmanipulatie op de groothandelsmarkt voor energie, dd. 8 november 2024, Versie Internetconsultatie
[27] Analyses have been done on the approved text of 4.6.2024: Kmst I 36378, nr. A.

The activity of energy sharing is further described in a specific activity on energy sharing, article 2.30:

An active customer or a connected party within an energy community has the right to share energy if:

a) the active customer or energy community enters into an energy sharing agreement with a supplier that offers energy sharing;
b) each active customer or connected party within the energy community has a supply or feed-in agreement with the supplier referred to in point a;
c) each active customer or connected party within the energy community has a metering device with communication functionality in use; and
d) the electricity is shared per imbalance settlement period.

Rules regarding the locality where energy may be shared can be established by an implementing decree (AMvB).

The current text says that an active customer or connected customer, either small or larger connected customers , that are part of an energy community have the right to share energy under the following conditions:[28] There needs to be an energy sharing agreement with a supplier offering energy sharing. So energy sharing takes place via a supplier and not independently from the supplier. In addition, all participating customers need to have an agreement with the same supplier; the supplier that offers the energy sharing facilitation. To be able to share energy a metering device with communication functionality is required and the energy should be shared within the imbalance settlement period.

It is noteworthy that this form of sharing was explicitly included in the law, given that the activity could still occur without these legal provisions. Suppliers, after all, are free to offer such arrangements to their customers.

In the Netherlands, significant congestion exists across large sections of the electricity grid. Given the congestion challenges in the Netherlands, there has been a debate whether or not there should be a local constraint for energy sharing. So far, there are no locational constraints.

The current implementation of energy sharing does not meet the requirements of the EMD. The main objection to the current text is that energy sharing cannot occur with free supplier choice. Additionally, active customers cannot share energy directly with each other; this can only be done through a supplier who offers and facilitates energy sharing.

4.2 Implementing the EMD energy sharing

To comply with the new rules resulting from the Electricity Market Design reform, a new text was published at the end of 2024 to further facilitate energy sharing. The adjustments

[28] active customers are defined in the Energy Act in line with the definition from directive 2019/944 as: *A final customer, or a group of final customers acting collectively, who consumes or stores self-generated or shared electricity within their own or a joint installation, who sells or shares self-generated electricity, who consumes or stores shared electricity, or who makes use of flexibility or energy efficiency services, provided that these activities do not constitute their main commercial activity .* They can be small or large customers. The EMD narrows down the right to share energy to households, small and middle-sized companies and government authorities. Member states can appoint other categories of final customers that can participate in energy sharing. If they do, there should be a geographical limitation and they cannot participate with a production installation of more than 6 MW.

include several key elements: Firstly, energy sharing with free supplier choice is made possible. Additionally, the Netherlands has chosen to administer energy sharing as delivery, opting for a *sub-supply model*. Finally, the proposal includes several interesting choices regarding the sharing keys, distribution of costs and geographical limitations.

The main adjustments on energy sharing can be found in articles 2.30, 2.30a-c and 3.63a.[29] In this chapter we discuss the main choices that are made around the energy sharing model; who can share, under which conditions, how it is organised, what responsibilities follow from energy sharing, what is the effect on the bill? Etc.

4.2.1 Energy sharing independent from the energy supplier

Energy sharing independent from the energy supplier is regulated in article 2.3. This article states that market participants are forbidden to prohibit a final customer or active customer to participate in energy sharing.

4.2.2 Participation of larger companies

One of the first noticeable changes is that the revision explicitly allows companies larger than medium-sized enterprises to participate in energy sharing, art. 2.30 section 2. However, certain limitations apply to them. For instance, a production facility generating energy for sharing must not exceed 6 MW, and the energy can only be shared within a geographically defined area. This area will be determined through an implementing decree (AMvB) Due to congestion issues, businesses on industry are exploring cooperation on topics like congestion management, sharing transport capacity and renewable production. They do this in so called energy hubs. An activity like energy sharing could also be interesting for groups of businesses or a mix of small and larger consumers. Therefor the Dutch legislator choose to allow larger companies to participate in energy sharing schemes. Moreover, final customers connected to a closed distribution system also have the right to share energy, if they fulfil the requirements.[30]

4.2.3 Additional requirements for larger sharing schemes

Large companies are subject to limits on the amount of generation capacity they can bring in for this activity. In contrast, households, apartment buildings, and energy communities have no such limit, but must meet additional requirements when deploying a certain capacity, article 2.30a If an active customer sharing energy has an installed capacity greater than 17 kW for a household or greater than 55 kW for apartment buildings or energy communities, certain obligations that apply to energy supply will also apply to energy sharing. These include requirements related to the supply agreement, billing, informing participating parties, the complaints procedure, final settlement, switching, and the switching fee.[31]

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[29] For a complete overview see:
Wijziging van de Energiewet ter implementatie van het EU wetgevingspakket inzake het verbeteren van de opzet van de elektriciteitsmarkt van de Unie en de verbetering van de bescherming van de Unie tegen marktmanipulatie op de groothandelsmarkt voor energie, Voorstel van Wet, d.d. 8.11.2024

[30] article 3.104 section 1 and article 3.63a

[31] Article. 2.30a

4.2.4 One point of contact and registration of the agreement

Energy sharing is based on an agreement; between on the one hand the energy giver(s) and energy taker(s). This agreement may be facilitated by an energy sharing organiser, but this is not mandatory. Under the new proposal, energy sharing can therefore take place with and without the involvement of an energy sharing organiser (art. 2.30c section 2). However, there must be a designated contact person for each sharing agreement (art 2.30c, section2), and this person must officially register with the contact point of both the DSO or TSO of the 'energy giver' (art. 2.30c section 1)

The transmission- or distribution system operator provides a contact point for energy sharing that complies with rules to be specified by or pursuant to an implementing decree (AMvB).[32] The energy sharing agreement is registered by the DSO/TSO in accordance with art. 4.5. This article states that the DSO/TSO registers the different market participants that are active on the connection, such as; suppliers, BRPs, aggregators etc, the relevant contracts, connected installations etc. Energy sharing agreements will also be included in this register. The contact person must provide the following information: the involved active customers and energy communities, the share percentages, the installed capacity and type of production facility, and the contract period of the agreement. Additionally, 'energy takers' must grant consent for their data to be shared with their energy supplier and the BRP registered on the allocation point. This consent will also be registered.[33]

4.2.5 Calculation

The DSO/TSO is responsible not only for registering the agreement but also for monitoring, collecting, and validating the data for each imbalance settlement period concerning the shared electricity.[34] The transmission or distribution system operator calculates the amount of shared electricity and the shared electricity is allocated per 15 minutes to the BRP's and the DSO/TSO provides this calculation, along with the associated consumption and injection data, at least once a month to with the appointed contact person as well as with the relevant market participants and the balancing responsible parties for electricity active at the relevant allocation points.[35] The calculation is made per allocation point.
For delivery (supply), return delivery (feeding-in), each market participant must have a separate allocation point.[36] This does not appear to be the case for energy sharing and demand response, as the requirement for these activities is that there must be a metering device at the connection, with the communication functionality being used.[37] Aggregation and energy sharing happens on the same allocation point as supply and falls under the balance responsible party that is appointed by the supplier, or other market participant that is responsible for appointing a BRP (peer-to-peer trading, return delivery). With this, the Netherlands opts for the sub-supply model in which energy sharing is part of the allocation process and regular market process of supply.

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[32] Article 3.63a
[33] Article 4.8 section 8
[34] Article 3.63a section 3
[35] Article 3.63a section 4
[36] In the Netherlands, the legislator introduced a form of supply in the new Energy Act called 'facilitation of peer-to-peer trading.' It is a type of supply that can be facilitated by a market participant. If the supply qualifies as peer-to-peer trading, not all obligations typically applicable to supply will apply
[37] Article 2.2. Current Energy act and par. 2 proposed text (implementation EMD)

4.2.6 Sharing keys

The Dutch legislator opts for fixed sharing keys, article 2.30 section 4. More specifically, the percentage of the produced energy that is shared is determined in advance. That means that that no more energy can be shared than what has been generated. It is therefore not dependent on the actual consumption of the receiving parties, nor does it account for it.[38] The legislation does not require the percentage to remain the same throughout the day. It appears to be possible to set 'fixed' percentages for each imbalance settlement period. The article does not explicitly address the adjustment of percentages. However, the explanatory memorandum specifies that the 'energy giver' and 'energy taker' can adjust the percentages, provided that a reasonable notice period of at least one working day is given for processing in the DSO/TSO system. Although the legislator chooses fixed sharing keys, there seems to be flexibility to fix on a 15-minute bases and adjust them on short notice (within one working day). [39]
Furthermore, the legislator explicitly allows energy suppliers, as stated in the explanatory memorandum, to support alternative distribution keys, such as more flexible or dynamic ones. However, suppliers are not obligated to facilitate such agreements.[40] Also such agreements will not be facilitated by the DSO/TSO and are therefore only possible if both the energy givers and takers have an agreement with the same supplier. The calculation will than happen bilateral, based on the user data available to the energy supplier.

Energy suppliers and distribution system operators have voiced a preference for using fixed allocation keys. [41] They argue that this approach makes the activities at the connection more predictable and reduces the impact on imbalance costs. Additionally, this setup allows the connection to participate in other activities, such as aggregation.

4.2.7 Effects and costs

To manage the energy not consumed by the receiving party, it has been decided to classify it as a 'virtual return delivery', article 2.30 section 4. This approach ensures that the receiving party has not received an excessive amount of 'delivered' energy on paper, which could otherwise result in tax liabilities. Only the portion of energy actually consumed within the period is considered 'shared' and subject to taxes, while the remainder is classified as 'return delivery.' The receiving party retains the right to return any 'excess electricity' to their supplier.
The reason to choose for a fixed percentage is that the suppliers assume that they can more easily predict the impact of energy sharing on their portfolio, and by that minimizing additional balancing and sourcing costs as a result of the energy sharing (see also paragraph 3.3). The new provisions include that a market participant (read a BRP or supplier) might charge reasonable costs to an active customer with whom they have a supply agreement to recover the costs resulting the energy sharing activities. The explanatory memorandum provides examples such as the costs for adjusting the invoice, as well as additional profiling and imbalance costs.[42]

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[38] However, the producer's consumption behind the meter matters if the installation is connected to a point where there is also consumption.
[39] In the Netherlands, we choose a sharing key that is fixed before nomination; pre-nomination. In other countries, such as Portugal, they use dynamic sharing keys that are established post-nomination.
[40] Explanatory memorandum, Memorie van Toelichting bij Wijziging van de Energiewet ter implementatie van het EU-wetgevingspakket inzake het verbeteren van de opzet van de elektriciteitsmarkt van de Unie en de verbetering van de bescherming van de Unie tegen marktmanipulatie op de groothandelsmarkt voor energie, Versie internetconsultatie d.d. 8 november 2024, p. 19.
[41] NVDE-aanbevelingen energiedelen met vrije leverancierskeuze, 6.11.2024
[42] explanatory memorandum, p. 33

Finally, the provision mandates the ACM to provide a sample contract for energy sharing and requires governments participating in energy sharing to aim for making at least 10% of the shared electricity available to vulnerable or energy-poor consumers.

4.2.8 Taxes

The Dutch legislator chooses to tax energy sharing in a similar way as energy supply. With the implementation of energy sharing in the Energy Act, the regulations related to energy taxes will also be revised. The relevant provisions can be found in the Environmental Taxes Act.[43] The legislator wants parties involved in energy sharing, particularly the 'energy taker', to pay energy tax on the portion that is shared with them. At present, the law requires that a delivery take place. To enable tax levies on energy sharing, several amendments to the law are required. In Article 50, the taxable events for energy taxes are regulated. Article 50 stipulates that taxes will be levied on energy sharing, more specifically the energy sharing taker is taxed the electricity consumed within the imbalance settlement period. The remainder is not classified as taxable sharing and as mentioned earlier, is treated as a return delivery.[44] Additionally, several provisions have been included regarding how the tax will be invoiced.[45]

4.2.9 Bill

The Dutch legislator has adopted the sub-supply model. This means that an active customer participating in energy sharing effectively has two supply agreements: one with the main supplier and another with a "sub-supplier," namely the energy sharer. As a result, different components may be invoiced to the various participants, which in turn affects the energy bill.

In the explanatory memorandum accompanying the proposal, the legislator explicitly allows for the possibility that a supplier may issue a separate invoice for energy sharing. This can cover the reasonable costs (art. 2.30b) that need to be paid by the energy sharing taker for the electricity that is shared with them. This means that an active customer receiving electricity will receive an invoice for the *delivered electricity* from the supplier. Additionally, it is likely that the energy-sharing provider will issue an invoice for *shared electricity*. Furthermore, the supplier of the recipient may issue a separate invoice for the '*reasonable incurred cost*' due to the sharing arrangement. The energy taxes that need to be paid can be invoiced together with these costs or if these costs are not invoiced, the energy taxes will need to be included on the final invoice or lates 18 months after separately. The supplier could also integrate these reasonable costs and the energy taxes for sharing into the main invoice.[46]

4.3 Conclusions

Until now, if an active customer (or energy community) wanted to supply another customer, or share electricity, the active customer (or energy community) would need to comply with all the suppliers obligations. Sharing energy did not exist. In practice, this means that the supplying party is responsible for various obligations, such as collecting energy taxes and

[43] Wet belastingen op milieugrondslag
[44] Proposal EMD article 50 par. 2 Environmental Taxes Act
[45] Proposal EMD article 56 par. 3 Environmental Taxes Act
[46] Proposal EMD article 56 par. 3 Environmental Taxes Act

issuing invoices. Also, access to markets is another significant barrier for active customers who wish to supply electricity.
From 2026 the new Energy Act will allow energy sharing for energy communities as long as all participating connections have an agreement with the same supplier. This can still be a barrier for individual households to participate in energy sharing schemes. The next step is to allow all connected customers to share energy independent of the agreement they have with their energy supplier. In the new proposal many of the tasks that are typically supplier's responsibility, such as billing, market access, are distributed among the system operators, involved suppliers, and possibly a service provider; ESO, making energy sharing a much more accessible activity for active customers and energy communities to develop, then supply.

In the Netherlands, the sub- supply model is now proposed, in which energy sharing is incorporated into the allocation process. The agreement between energy giver and energy taker can be seen as a form of 'easy' power purchase agreement between connected customers or a group of connected customers. The advantage of this model is that participating parties actually 'exchange energy' with each other. With this, energy sharing effectively provides active customers with a form of "hassle-free supply."

The legislator proposes the use of a fixed allocation key, aligning with a request from the sector, as more dynamic allocation keys are considered too complex at the moment, but still allowed in bilateral agreements. An advantage of fixed allocation keys is that they are easier to combine with other activities, such as demand response agreements.[47]

For all system parties involved and affected by energy sharing it is important that relevant parties are informed about the energy sharing agreement. This is facilitated through a central registration system. Suppliers and BRPs that incur costs due to the energy sharing agreement are permitted to pass these costs on to the sharing parties. However, it is important that these charges are reasonable and do not create unnecessary barriers. Whether energy sharing becomes attractive remains to be seen in practice. For now, connected customers participating in energy sharing will pay the same network costs and taxes. The Environmental Taxes Act has been amended to ensure that all customers getting their electricity shared, will pay the same as those that get their energy supplied.
As a result of this activity, the energy bill may become somewhat more complex. Active customers may also receive multiple invoices.

[47] Assuming that the sharing key is established prior to the delivery of, for example, the flexible service.

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Anna van Buerenplein 1
2595 DA Den Haag
www.tno.nl