

Residential Prosumers in the European Energy Union

EAHC/2013/CP/04

Mapping the legal and regulatory framework in the 28 Member States, Iceland and Norway

Denmark



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National report on the regulatory framework for residential prosumers: Denmark

General Description of the national legal and regulatory framework

General

In Denmark a private person is free to place a wind turbine, solar panels or other forms of RES generation equipment on their property, provided they receive planning permission from the municipality to do so¹. Certain building and safety rules must be upheld before planning permission is granted; these do not impact the role of prosumers specifically but rather everyone planning building projects on their land.

A prosumer must first comply with all the relevant building requirements that may apply for the setup of the installation. The installation of solar panels, according to Energinet.dk, falls under the scope of the Law on Building §2(1) and which cannot be completed without approval by the local municipality (§16(1)) additionally The Building Code Chapter 1.1(1) and (2) apply². Chapter 1.3(1) of the Building Code provides that no building work may begin without approval by the local municipality (unless otherwise provided for in the exceptions in Chapter 1.5 and 1.6). Chapter 1.6(1) no. 1 provides an exception to the need to get building approval for the placement of solar panels on detached family houses, semi-detached family houses (where separated by a vertical partition), summerhouses in summerhouse areas and terraced houses. This is so, as the mounting of solar panels would not change the surface area of the floors nor will it change the nature of its use³. However, it should be noted that all solar panels and thermal catchers mounted on a building will be considered a part of the building, it therefore follows that the installation must fulfil any height and distance requirements that can be found in Chapter 2 of The Building Code, whether building permission is required or not. That is to say these should be researched prior to starting a project to ensure the installation is lawfully permitted⁴.

A prosumer is permitted to have both solar panels and a household wind turbine and feed excess generated electricity back into the national grid; however, the total output of the installations combined for the households must not exceed 6kW⁵. Should a person wish to erect a household windmill on their property they should check the local municipality's town plan and the local municipality must approve the installation. Indeed, the Executive Order on the Planning and Approval of Windmills⁶ (§2) governs the erecting of windmills and states that the planning requirements for such installations fall under the scope of The Planning Law and must therefore abide by the local municipality plan (§11a(1), no. 5). In countryside zones there must be countryside zone approval and windmills must be placed close to the house (up to 20m away), placement further from a house is only permitted where the local municipality town planning provides for it. In town zones there must be obtained building permission and plans must comply with the area plan. A household windmill may be no more than 25m high and the erecting of such

¹ §35 'The Planning Law' *Bekendtgørelse af lov om planlægning LBK nr 1529 af 23/11/2015*, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=176182>, last accessed 22/12/2016.

² 'The Building Code' *Bygningsreglementet* Chapter 1.1 available at http://bygningsreglementet.dk/br15_01_id2001/0/42 last accessed 03/01/2017.

³ *Ibid.* Chapter 1.6.

⁴ 'Practical guidelines on building case handling of solar panels and sun thermal catchers on buildings', by The Building Code at http://bygningsreglementet.dk/file/257699/Vejl_solcellerpaabebyggelse, last accessed 03/01/2017.

⁵ 'Guidance regarding extensions of solar panel installations covered by annually calculated net settlement' *Vejledning vedrørende udvidelser af solcelleanlæg omfattet af årsbaseret nettoafregning*, by Energinet.dk, available at <http://www.energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Vejledning%20vedr%20%20udvidelser%20af%20solcelleanl%C3%A6g%20%C3%A5rsbaseret%20nettoafregning.pdf>, last accessed 04/01/2017.

⁶ 'The Executive Order on the Planning and Approval of Windmills' *Bekendtgørelse 2014-12-10 nr. 1590 om planlægning for og tilladelse til opstilling af vindmøller*, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=161315>, last accessed 03/01/2017.

windmills must comply with the Act on the promotion of renewable energy⁷. Where a person wishes to place solar panels on their property this must be first checked against area plans, protected areas and any existing easements which may infringe upon the ability to place solar panels on a house⁸.

The purpose of the “Act on the promotion of renewable energy”⁹ is to promote the production of energy using renewable energy sources in line with climate and environmental and socio-economic considerations. This Act was drafted to ensure compliance with national and international targets for increasing the share of energy produced using renewable sources (§1(2)), and it is also the main law governing the activities of prosumers, as will be described below.

The promotion of renewables is expected to reduce the dependence on fossil fuels, to ensure security of supply and to reduce CO₂ emissions and other greenhouse gases¹⁰. The aforementioned objectives are to be achieved by: creating subsidies for wind turbines and other power generation facilities using renewable energy sources; using measures that promote the development of wind turbines; promoting access to harness energy from water and wind on the sea; ensuring the connection and safety requirements for wind turbines and regulating electricity generated from tendered offshore wind turbines.

1. What types of residential prosumers are there in your country on the basis of type of RES used and size of the installation?

Answer:

Households producing energy from private windmills, solar panels and CHP generators may supply to the national grid any excess electricity generated and not consumed. That is to say private owners of these kinds of RES installations may be prosumers in Denmark.

As referred to above,¹¹ there is no definition of prosumers, but what is understood as a prosumer relationship (for the purpose of this report) is covered by the regulations on net settlement in Denmark. It can therefore be inferred that there are three types of prosumer in Denmark, as there are three types of installations that can take advantage of net settlement:

- Domestic wind turbines are small wind turbines of 25kW or less¹².
- PV Solar panels of 50kW output or less; and
- CHP of 11kW or less¹³.

However, the installation must be fully owned by the same legal entity or person that uses the electricity produced to be able to take advantage of net settlement¹⁴. Additionally, net settlement requires the solar panel or wind turbine installation is connected to the consumer's own consumption installations, or that the solar or wind installation is at the place of consumption. For energy produced by CHP or other electricity generating installations (other than solar or wind) net settlement is absolutely dependent upon the installation being situated at the place of consumption¹⁵.

⁷ SparEnergi.dk website ‘Produce your own wind energy’, available at <http://sparenergi.dk/forbruger/el/vindmoeller>, last accessed 03/01/2017.

⁸ SparEnergi.dk website ‘Solar Panels’, available at <http://sparenergi.dk/forbruger/el/solceller>, last accessed 03/01/2017.

⁹ ‘Law on the Promotion of Renewable Energy’, *Bekendtgørelse af lov om fremme af vedvarende energy LBK nr 1288 af 27/10/2016*, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=184376>, last accessed 12/12/2016.

¹⁰ §1(1) Law on the Promotion of Renewable Energy.

¹¹ In the ‘General’ section.

¹² Law on the Promotion of Renewable Energy. *Bekendtgørelse af lov om fremme af vedvarende energy LBK nr 1288 af 27/10/2016* available at <https://www.retsinformation.dk/forms/R0710.aspx?id=184376> last accessed 12/12/2016.

¹³ §3(2) Executive Order on Net Settlement for Self-Generated Electricity.

¹⁴ §3(3) Executive Order on Net Settlement for Self-Generated Electricity.

¹⁵ §3(4) Executive Order on Net Settlement for Self-Generated Electricity.

The owners of these types of wind and solar installations may also apply for the surcharge pool whereby they will receive an **inflated price** for any electricity sold back to the national grid (**premium tariff**). This pool is however limited to a volume of 1MW of solar produced energy and 1MW of wind produced energy. The pool is open for application on a first come first served basis once a year, when the quota is accounted for, the pool is closed for the year.

2. What is the institutional framework & division of competences regarding residential prosumers in your country?

Answer:

Energinet.dk is the authority deciding if subsidies and net settlement commitments are made to a prospective prosumer of domestic wind turbines solar plants and CHP generators. They also regulate existing turbines and solar installations.

Energinet.dk, the state-owned company responsible for the transmission system, owns and operates the overall electricity and natural gas grid. In addition, Energinet.dk calculates and finances support for renewable energy installations in agreement with the support tariffs recommended by the Law on Electricity Supply and the Law on the Promotion of Renewable Energy. Energinet.dk's business is regulated by the Act on Energinet.dk, see Consolidation Act No. 1097 of 8 November 2011¹⁶.

Additionally, the Danish Ministry of Energy, Utilities and Climate¹⁷ is the competent authority for the implementation of the Law on the Promotion of Renewable Energy (§70).

Specific Questions on the regulatory framework for residential prosumers

3. What is the regulatory framework for residential prosumers in your country?

General

The legislative framework for prosumer activities in Denmark is outlined in the table below:

	Solar	Wind
Planning Requirements	The Building Code and The Planning Law	The Planning Law
Connection to the grid	Executive Order on the surcharge for electricity produced via certain PV solar installations connected to the grid on 20th November 2012 or later. ¹⁸	Executive Order on the Grid Connection of Wind Turbines and Surcharge for Wind Turbine Produced Electricity etc. ¹⁹
Net Settlement	Executive Order on Net Settlement for Self-Generated	Executive Order on Net Settlement for Self-Generated

¹⁶ National Renewable Energy Action Plan Denmark, 2010. Available at <https://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans>, last accessed 12/12/2016.

¹⁷ Energi-, forsynings- og klimaministeren, available at <http://old.efkm.dk/en>, last accessed 22/12/2016.

¹⁸ 'Executive Order on the surcharge for electricity produced via certain PV solar installations connected to the grid on 20th November 2012 or later' *Bekendtgørelse om pristillæg til elektricitet fremstillet på visse solcelleanlæg nettilsluttet den 20. november 2012 eller senere* BEK nr 1114 af 18/09/2015, available at <https://www.retsinformation.dk/Forms/R0710.aspx?id=174365> (last accessed 12/12/2016).

¹⁹ 'The Executive Order on the Grid Connection of Wind Turbines and Surcharge for Wind Turbine Produced Electricity etc' *Bekendtgørelse om nettilslutning af vindmøller og pristillæg for vindmølleproduceret elektricitet m.v.* BEK nr 1115 af 18/09/2015, available at <https://www.retsinformation.dk/Forms/R0710.aspx?id=174366v>, last accessed 12/12/2016.

	Electricity ²⁰	Electricity
Surcharge Pool	Law on the Promotion of Renewable Energy and its amending law ²¹	Law on the Promotion of Renewable Energy and its amending law
Exclusion from paying PSO (Public Service Obligation)	Law on Electricity Supply ²²	Law on Electricity Supply

Table 1: Legislative framework on residential prosumers in Denmark

3.1. What is the existing legislative framework regulating Renewable Energy Projects in your country?

Answer:

There was formerly a different rule set for RES projects started before 1st July 2015, with anticipated connection to the grid after 1st January 2016 and for RES projects started after 1st July 2015 that would be connected to the grid after 1st January 2016. These rules are explained first for context and thereafter the current rules are discussed. The current rules have effectively suspended all incentives for establishing residential RES projects.

Prior to the current suspension of the surcharge pool the following rules applied:

The law passed on 29th December 2015²³ granted that between the years 2016 and 2019, 1MW of prosumer generated electricity per year will enjoy an increased surcharge for the electricity that is fed into the grid. Access to the surcharge pool was distributed on a 'first come, first served' basis (for 'adequate applications' that is those fulfilling all requirements).

Until recently where an application had been submitted for approval the following rules applied:
Domestic Wind Turbines:

Project started before 1st July 2015 (to be connected after 1st January 2016)

- In such instances the TSO Energinet.dk was to decide (by the 31st December 2016) whether the delayed connection to the grid was at the hands of the owner or not. Where it was not then an application for the surcharge pool would be permitted following the rules found in the transitional regime²⁴.

Project started after 1st July 2015 (to be connected after 1st January 2016)

- For such instances it was not possible to apply for the surcharge pool for excess energy produced by domestic wind turbines if it had not been granted already²⁵.

Solar Installations:

Project started before 1st July 2015 (to be connected after 1st January 2016)

²⁰ 'Executive Order on Net Settlement for Self-Generated Electricity' *Bekendtgørelse om nettoafregning for egenproducenter af elektricitet* BEK nr 999 af 29/06/2016, available at <https://www.retsinformation.dk/Forms/R0710.aspx?id=183390>, last accessed 12/12/2016.

²¹ 'Law amending the law on the promotion of renewable energy' *Lov om ændring af lov om fremme af vedvarende energi* LOV nr. 1877 af 29/12/2015, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=176815>, last accessed 12/12/2016.

²² 'Law on Electricity Production' *Bekendtgørelse af lov om elforsyning* LBK nr 418 af 25/04/2016, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=174909>, last accessed 12/12/2016.

²³ Law amending the law on the promotion of renewable energy.

²⁴ §7(5), 'Law amending the Law on the Promotion of Renewable Energy Act on subsidies to promote renewable energy in enterprises' production processes and the Electricity Supply Act' *Lov om ændring af lov om fremme af vedvarende energi, lov om tilskud til fremme af vedvarende energi i virksomheders produktionsprocesser og lov om elforsyning* LOV nr 744 af 01/06/2015, available at <https://www.retsinformation.dk/forms/r0710.aspx?id=170470> last accessed 24/01/2017.

²⁵ Law amending the law on the promotion of renewable energy.

- In such instances the TSO Energinet.dk was to decide (by the 23rd December 2016) whether the delayed connection to the grid is at the hands of the owner or not. Where it was not then an application for the surcharge pool would be permitted following the rules found in the transitional regime²⁶.

Project started after 1st July 2015 (to be connected after 1st January 2016)

For such instances it was not possible to apply for the surcharge pool for excess energy produced by solar installations if it had not been granted already²⁷.

The current situation is as follows:

The Danish Ministry of Energy, Utilities and Climate on 18th November 2016 submitted a bill of law²⁸ according to which all processing applications for surcharges for new solar installations, wind turbines etc. will temporarily stop from 1st January 2017²⁹. This bill of law concerns solar installations of less than 500kW, domestic wind turbines, other RES technologies under 500kW (including wave energy), small biogas plants up to and including 6kW that have started the application process on the 'old scheme'³⁰ whereby an application is made once the installation project is started. Following consultation with the EU, in July 2015 the Danish support rules (**net settlement and the surcharge pool/premium tariff**) regarding RES installations were changed so that subsidies must be sought prior to the project starting. This is the opposite order to the former process. The law came into force 1st January 2016. In connection with it, a transition scheme was created for those projects that were started but still unfinished in 2016. It is this transition period to which the new bill of law (from 18th November 2016) applies and will put on hold from the 1st January 2017, it is currently unknown for how long this hold on the surcharge pools will last³¹. The projects affected by this law include projects started before 1st July 2015, where installations are not yet/or will not be connected to the national grid in 2016 and those that applied after 1st July 2015 and are not yet connected to the grid and any future applications. This draft law does not affect the ability to apply for net settlement however a commitment from Energinet.dk must still be given before the project begins.

That is to say, currently it is not possible to apply for the surcharge pool but it is still possible to apply for net settlement.

3.2. Does the Renewables National Action Plan include any objectives for residential prosumers (if so, please specify)

Answer:

The Danish Renewable National Action Plan does not mention residential prosumers³².

²⁶ §7(5), 'Law amending the Law on the Promotion of Renewable Energy Act on subsidies to promote renewable energy in enterprises' production processes and the Electricity Supply Act' *Lov om ændring af lov om fremme af vedvarende energi, lov om tilskud til fremme af vedvarende energi i virksomheders produktionsprocesser og lov om elforsyning* LOV nr 744 af 01/06/2015, available at <https://www.retsinformation.dk/forms/r0710.aspx?id=170470> last accessed 24/01/2017.

²⁷ Law amending the law on the promotion of renewable energy.

²⁸ Bill of law dated 18th November 2016 'Bill to Law on the amendment of the law on the promotion of renewable energy' *Forslag til Lov om ændring af lov om fremme af vedvarende energi 2016/1 LSF 91*, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=184849> last accessed 12/12/2016.

²⁹ 'New bill of law about PV solar panels and wind turbines: What does it mean for your application', available at Energinet.dk website, <http://energinet.dk/DA/El/Nyheder/Sider/Nyt-lovforslag-om-solceller-og-vindmoeller-Hvad-betyder-det-for-din-sag.aspx>, last accessed 12/12/2016.

³⁰ <http://www.energinet.dk/DA/El/Nyheder/Sider/Sagsbehandling-af-VE-stoette-stopper-midlertidigt.aspx>

³¹ Consultation with stakeholder at Energinet.dk, contact made 05/01/2017.

³² National Renewable Energy Action Plan Denmark, 2010. Available at, <https://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans>, last accessed 12/12/2016.

3.3. Is there a definition (legal or regulatory) of residential prosumers (or self-consumption) in your country? If so, state it and describe the elements of this definition?

Answer:

No definition of 'prosumers' exists in the Danish regulatory or legal framework. However, §41(1) of the Law on the Promotion of Renewable Energy refers to the 'electricity supplied to the electricity grid from a wind turbine with an installed power of 25 kW or less and which is connected to their consumer installation [*forbrugerinstallation*]'.

4. What are the permitting requirements for each type of residential prosumer?

General

As referred to above,³³ to be able to sell electricity back to the national grid a prosumer must have requested to do so with Energinet.dk by applying for net settlement. Additionally, the RES installation must be 100% owned by the user of the electricity produced³⁴. The RES equipment (solar or eventually wind) must also be connected to the consumer's installation or be located at the place of use. CHP equipment must be at the place of use³⁵.

Net settlement must be requested prior to starting a RES project³⁶. The governing law for connecting to the national grid is the Executive Order for the Net Settlement for Self-Production of Electricity.

4.1. Does your country recognise certain forms of self-consumption and subject prosumers to certain

- requirements,
- application fees and
- one-off costs

in order to give them a permit or licence to generate energy?

Answer:

A RES owner is required to notify Energinet.dk of the wish to net settle excess energy produced by an installation prior to starting the RES project³⁷. Requests are to be done via a form³⁸ provided by energinet.dk³⁹. A request is required for each RES installation⁴⁰. There are no application fees nor costs related to the request for net settlement, nor to apply for the pool. Application forms must contain the following minimum information:

- 1) Name of the owner or owners of power generation plant.

³³ See above '3.1. What is the existing legislative framework regulating Renewable Energy Projects in your country?'

³⁴ §3(3) Executive Order for the Settlement for Self- Production of Electricity.

³⁵ §3(4) Executive Order for the Settlement for Self- Production of Electricity.

³⁶ §3 Executive Order for the Settlement for Self- Production of Electricity.

³⁷ 'Net settlement' *Nettoafregning*, Energinet.dk website, available 12/12/2016 at

<http://www.energinet.dk/DA/El/Husstandsvindmoeller/Har-du-en-husstandsvindmoelle/Sider/Nettoafregning.aspx> (last accessed 16/01/2016).

³⁸ 'Request for increased surcharge for domestic wind turbines' *Anmodning om forhøjet pristillæg til husstandsvindmøller*, available at

<http://www.energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Anmodning%20om%20forh%C3%B8jet%20pristill%C3%A6g%20-%20husstandsvindm%C3%B8ller.pdf> 'Request for net settlement for solar panels' *Anmodning om nettoafregning for solcelleanlæg*, available at

<http://www.energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Anmodning%20om%20nettoafregning%20for%20solcelleanl%C3%A6g.pdf> both last accessed 12/12/2016.

³⁹ §41(3) Law on the Promotion of Renewable Energy, available at

<https://www.retsinformation.dk/forms/R0710.aspx?id=184376>, last accessed 12/12/2016.

⁴⁰ §6(1) Executive Order for the Settlement for Self- Production of Electricity.

- 2) National ID number, registration or identification number for a department in a social housing for the owner or owners.
- 3) Residential address of the owner or owners of the power generation plant.
- 4) Installation address.
- 5) Phone number or e-mail to the owner or owners.
- 6) Electricity generating facility's nominal power measured in kW.
- 7) The expected time for grid connection of the electricity generating facility.
- 8) Net Settlement Group.
- 9) System type.
- 10) Documentation for the project has not begun.⁴¹

Net settlement where producers of electricity from RES are exempted from energy taxes and the PSO payment for electricity consumed by the producer themselves within the same hour is adjusted in respect of the electricity tax in the Electricity Tax Act (under the Ministry of Taxation). The exemption from paying PSO payments finds legal basis in the Law on Electricity Supply⁴². There are costs related to the rental of the electricity meter from the electricity supplier and their eventual administrative work⁴³.

Where energinet.dk has committed to net settlement for a RES installation it must be connected to the national grid within two years of the decision by energinet.dk otherwise the right to net settlement is forfeited⁴⁴. Dispensation may be granted by Energinet.dk with regards to this deadline⁴⁵.

Net settlement can first be operational once measuring of electricity produced is established⁴⁶. That is to say the RES installation is connected to the collective national electricity grid, there is established measuring both of electricity taken from but also fed into the grid, the RES installation is registered in accordance with the Law on Electricity Supply, and that energinet.dk has received an application at the latest 30 days after the establishment of measuring of electricity to and from the national grid⁴⁷.

A RES electricity producer has the right to opt out of net settlement and thereafter to opt in again (first after three months) should they choose to do so; they may only opt out a maximum of once a year⁴⁸.

- 4.2. Does the national legal/regulatory framework determine the contractual conditions under which prosumers are allowed to feed or sell their surplus back into the grid or to other consumers?

Answer:

It is for energinet.dk to set the guidelines not only for requesting net settlement but also the calculation of net settlement, the statement detailing the installation owners' purchase and sale of electricity on the electricity market, the execution of measurements for net settlement and the size of the average electricity production specific for specific installations. These guidelines are approved by the Danish Energy Agency⁴⁹.

⁴¹ §6(4) Executive Order on net settlement for own production of electricity.

⁴² §10.

⁴³ §12(2) Executive Order on net settlement for own production of electricity.

⁴⁴ §8(2) Executive Order on net settlement for own production of electricity.

⁴⁵ §8(3) Executive Order on net settlement for own production of electricity.

⁴⁶ §9(1) Executive Order on net settlement for own production of electricity.

⁴⁷ §9(2) points 1)-4) Executive Order on net settlement for own production of electricity.

⁴⁸ §10(1)-(4) Executive Order on net settlement for own production of electricity.

⁴⁹ §16 Executive Order on net settlement for own production of electricity.

5. What are the rules applicable to the access to the grid?

General

The current legislative framework in Denmark is such that where a person wishes to invest in an RES installation in a private capacity and sell excess generated electricity to the national grid then they are required to apply for a commitment from Energinet.dk prior to starting the project⁵⁰. This commitment is required for net settlement always but also the surcharge pool/premium tariff (if the application period is open at the time of initiating the project).

The rules concerning connection to the national grid can be found in the Executive Order for the New Settlement for Own Production of Electricity. When applying for net settlement there are four groups under which an owner of RES facility can apply. For comparative reasons we present the situation regarding both wind turbines and solar panels as follows:

Wind turbines: Hourly-based net settlement is for groups 2, 4 and 5.

Group 2- Hourly-based calculation. Any self-produced energy not used within an hour is sold to the national grid. Any required additional energy used within an hour is taken from the national grid. The net settlement of this use and generation is (where to the benefit of the producer) paid into a NemKonto (bank account connected to an individual's public matters, e.g. tax, social help, etc.). The price for a subscription with a provider can be higher in this group.

Group 4 – Instantaneous calculation. Power generated is used in the same instant as it is produced; any excess is sold to the national grid immediately. The net settlement difference is paid monthly into a NemKonto.

Group 5 - Instantaneous calculation. Power generated is used in the same instant as it is produced; any excess is given to the national grid immediately. There is no net settlement price to be paid out.

Group 6 – Annual-based calculation is no longer available to RES owners.

Solar Panels: Hourly-based net settlement is for groups 1, 2, 4 and 5.

Group 1 – Is based on hourly calculations where all electricity produced is sold to the national grid. Balance costs must be paid on the amount sold to the grid.

Group 2 – Hourly-calculations where excess electricity produced within an hour is sold to the national grid. Balance costs on the amount sold to the grid are payable. Some electricity suppliers require a higher subscription for solar panels with group 2. The difference between use and production is paid into a NemKonto monthly.

Group 4 – Is with real time calculations, that is energy cannot be saved for an hour as in Group 1 and 2 but must be used instantaneously. Any real time excess is sold to the national grid. Any excess production is paid out monthly to a NemKonto.

Group 5- Uses real time calculations like Group 4 however any excess production is given to the national grid free of charge. Users of this group usually enjoy lower subscription charges by the electricity supplier.

Group 6 – Annual-based calculation is no longer available to RES owners.

⁵⁰ §4(1) Executive Order on Net Settlement for Self-Generated Electricity.

5.1. What is the inter-connection configuration used for each type of residential prosumer?

Answer:

For installations up to and equal to 11kW (installation category A1) the following technical regulations apply:

Translations in the following diagrams and their definitions are as follows.

Figur - Diagram

Spændning – Voltage

Forbrug – Consumption

Husstandsmølle – Household Wind Turbine

Solcelleenhed – Solar Panel Unit

Leveringspunktet – Point of Common Coupling (PCC) – Is the point on the collective (national) electricity grid where the consumer is or can be connected⁵¹.

Nettilslutningspunktet – Point of Connection (POC) – Is that in the collective (national) electricity grid where the installation is connected or can be⁵².

Nettilslutningspunktet i installationen – Point of connection in installation (PCI) – Is the point in the installation, where the electricity-producing unit is connected to the installation or can be connected⁵³.

Generatortilslutningspunktet/ Terminaler på den elproducerende enhed – Point of Generation Connection (PGC) – Is that point in the installations structure where the terminal's/generator terminal's for the electricity-producing unit is placed. For an installation the PGC is that point the manufacturer defines as the electricity-producing unit's terminal⁵⁴.

Kommunikationstilslutningspunkt/ Kommunikationsgrænseflade anlæg – Point of Communication (PCOM) – Is that place in an installation where data communication properties can be accessed and verified⁵⁵.

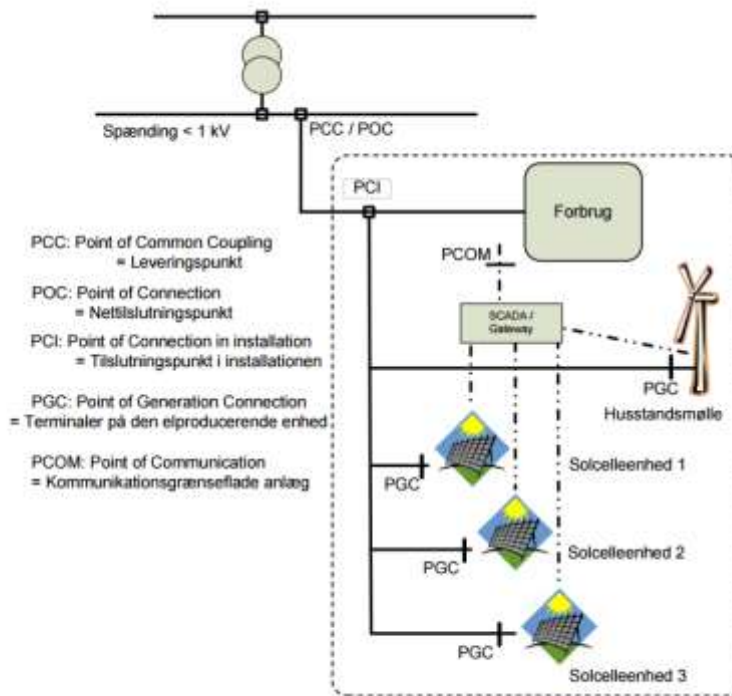
⁵¹ Page 11 of 'Technical Regulation 3.2.1 for installations up to and including 11kW (Installation category A1)' *Teknisk forskrift 3.2.1 for anlæg til og med 11 kW (Anlægskategori A1)* available at <http://energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Teknisk%20forskrift%203.2.1%20for%20anl%C3%A6g%20til%20og%20med%2011%20kW,%20rev.%202.pdf> last accessed 05/01/2017.

⁵² Page 11. *Ibid.*

⁵³ Page 10. *Ibid.*

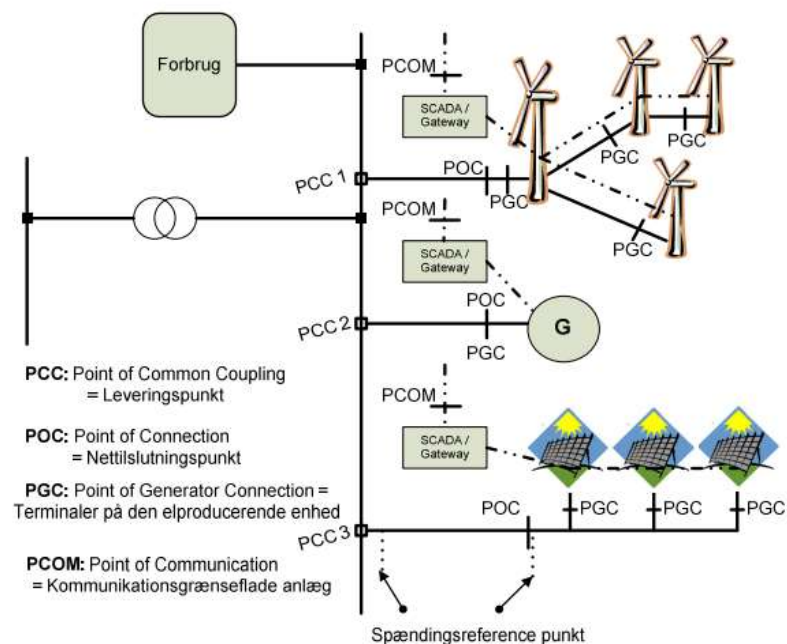
⁵⁴ Page 10. *Ibid.*

⁵⁵ Page 11. *Ibid.*



Figur 2 Typisk installationstilslutning af et anlæg.

Diagram 2⁵⁶ (Typical installation connection of an installation) illustrates a typical installation connection of one or several installations showing where PGC, POC, PCI and PCC are typically placed. In this situation the PCC and POC in the same place⁵⁷.



Figur 3 Typisk nettilslutning af anlæg.

⁵⁶ Page 12. *Ibid.*

⁵⁷ Page 11. *Ibid.*

Diagram 3⁵⁸ (Typical grid connection of installations) illustrates a typical grid connection of several installations with an indication of where PGC, POC, PCC and the *spændningsreferencerpunkt* (voltage reference point) can be placed. The voltage reference point is either in the POC, the PCC or a point between the two⁵⁹.

For solar panel and wind power installations that are bigger than 11kW the same grid connection requirements are necessary as those seen above for smaller installations⁶⁰.

5.2. Does the competence to determine the inter-connection configuration lie at State level or at a regional/lander level?

This is determined at state-level. Energinet.dk is the national TSO and it is them that have produced the requirements which must be met to connect an installation to the collective (national) electricity grid⁶¹.

5.3. Are there any rules to ensure that prosumers are inter-connected to the distribution network/the grid?

Answer:

Where a person wishes to generate electricity for their own use they are obligated to be connected to the grid. Should they not wish to sell surplus electricity produced to the national grid they may let it feed in free of charge by applying to one of the net settlement groups that provides for this⁶².

5.4. What are the grid access and grid use principles and rules for the energy generated by each type of residential prosumer?

Answer:

The technical requirements for grid access are outlined above,⁶³ the specific technical requirements can be found in the relevant regulations depending on the size and type of RES installation⁶⁴.

5.5. What are the network costs and charges for each type of residential prosumer?

Answer:

Network costs and charges are set by the supplier of electricity, Energinet.dk measures the number

⁵⁸ Page 13. *Ibid.*

⁵⁹ Page 12. *Ibid.*

⁶⁰ See 'Technical Regulation 3.2.2 for solar panel installations larger than 11kW' *Teknisk forskrift 3.2.2 for solcelleanlæg større end 11 kW*, available at <http://www.energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Teknisk%20forskrift%203.2.2%20for%20solcelleanl%C3%A6g%20st%C3%B8rre%20end%2011%20kW,%20rev.%204.pdf> and 'Technical Regulation 3.2.2 for wind power installations larger than 11kW' *Teknisk forskrift 3.2.2 for vindkraftanlæg større end 11 kW* available at <http://www.energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Teknisk%20forskrift%203.2.5%20for%20vindkraftanl%C3%A6g%20st%C3%B8rre%20end%2011%20kW,%20rev.%204.pdf>, both last accessed 05/01/2017.

⁶¹ Page 15. of 'Technical Regulation 3.2.1 for installations up to and including 11kW (Installation category A1)' *Teknisk forskrift 3.2.1 for anlæg til og med 11 kW (Anlægskategori A1)*, available at <http://energinet.dk/SiteCollectionDocuments/Danske%20dokumenter/El/Teknisk%20forskrift%203.2.1%20for%20anl%C3%A6g%20til%20og%20med%2011%20kW,%20rev.%202.pdf>, last accessed 05/01/2017.

⁶² Consultation with stakeholder at Energinet.dk, contacted by phone 05/01/2017.

⁶³ See above 'What is the inter-connection configuration used for each type of residential prosumer?'

⁶⁴ The different technical regulations can be found here: 'Regulation for grid connection' *Forskrifter til nettilslutning* <http://energinet.dk/DA/EL/FORSKRIFTER/TEKNISKE-FORSKRIFTER/Sider/Forskrifter-for-nettilslutning.aspx>, last accessed 06/01/2017.

of kW received by the national grid and the price at which it was bought, this information is passed onto the supplier who calculates the difference and issues the bill accordingly⁶⁵.

6. What are the incentives (e.g. through taxes or tariffs) for each type of residential prosumers?

General

Danish legislation encourages private persons to take on the role of prosumers in two ways, firstly by allowing **net settlement** and secondly by allowing an annual pool of 1MW for each type of RES - wind and solar - to benefit from a **surcharge on the electricity sold back to the grid (premium tariff)**. Access to the pool is limited and applications are only open for a limited period of time: it was initially planned this would occur annually for the years 2016, 2017, 2018 and 2019. Where net settlement is approved it will last for 20 years from the date of approval or until 19th November 2032, whichever comes first.

However, as previously explained, there are currently no incentives to become a prosumer in Denmark following the draft law submitted to parliament 18th November 2016. The only option is the possibility to sell excess electricity generated back to the national supply but at market price.

6.1. Does your country apply specific tariffs to prosumers

- to charge them for the electricity they draw from the grid for consumption?
- or to compensate them for the electricity they feed back into the grid?

Answer:

Prosumers in Denmark are not required to pay PSO⁶⁶ nor electricity costs for electricity they themselves generate⁶⁷, they are still required to pay PSO and costs for any supplementary electricity taken from the grid.

The value of the energy fed back into the national grid is deducted from the cost of electricity taken from the grid by the prosumer. Where there is a negative, the excess is paid out to the prosumer.

Additionally, the cost of installing a RES installation can be deducted from an individual's taxable income⁶⁸.

6.2. Does your country

- tax prosumers in a specific way?
- allocate to them a certain part of the cost to upgrade the grid to accommodate the extra generation they feed into the grid?

Answer:

There are no tax advantages for prosumers. The only thing that may possibly be considered an advantage is the right to deduct the interest paid on a loan for RES equipment from one's taxable

⁶⁵ 'Net settlement', energinet.dk website, available at <http://www.energinet.dk/DA/El/Solceller/Har-du-solceller/Sider/Nettoafregning.aspx> (last accessed 16/01/2017).

⁶⁶ §1 Executive Order on net settlement for own production of electricity.

⁶⁷ 'Laws and Rules', Energinet.dk, available at <http://www.energinet.dk/DA/El/Husstandsvindmoeller/Har-du-en-husstandsvindmoelle/Sider/Love-og-Regler.aspx> (last accessed 16/01/2017).

⁶⁸ 'Service tax exemption', The Danish Tax Authority website available at <https://www.skat.dk/SKAT.aspx?oId=1947018> last accessed 22/12/2016.

income⁶⁹.

A prosumer also is not required to pay electricity costs which total approximately 65% of the total electricity bill for consumption of electricity taken from the national grid⁷⁰. The energy cost includes VAT, purchasing costs and CO2 costs. A prosumer will only have to pay these costs for electricity taken from the grid where that produced by their own installation is not enough to satisfy the demand. No costs are paid on the electricity generated by the RES installation and consumed by the prosumer.

7. **A. What are the conditions that may encourage residential prosumers (to entry into activity or during functioning)?**
B. What are the conditions that may act as barriers for residential prosumers (to entry into activity or during functioning)?

General

The greatest barrier for pursuing a role as a prosumer is that there is no longer access to the surcharge pool (and therefore the premium tariff) and it is undecided when and if the pool will reopen in 2017 following the recent decision on 18th November 2016.

Without access to the pool a prosumer may still request the ability to make net settlements however the price at which excess energy is sold will be determined by agreement with a supplier for the sale of excess energy and based on the market price which is dependent upon the time of sale and the current demand on the national grid. This extra administrative burden may dissuade a potential prosumer where they suspect their production would exceed their consumption. Where no surplus energy is anticipated this may very well have little to no effect upon the potential prosumer.

- 7.1. What are the metering systems for each type of residential prosumer? Do these systems provide adequate conditions for prosumers integration in the market?

Answer:

Prosumers are required to have a new meter that can run both ways both to show consumption and production of electricity; without this it is not possible to calculate how much energy is supplied to the national grid⁷¹.

- 7.2. What are the billing conditions for each type of residential prosumer?

Answer:

Where a person is within the surcharge pool the price at which surplus is set is determined by law (premium tariff). However, where net settlement is sought without access to the pool surcharge then price is to be settled via agreement between the generator and the RES prosumer themselves⁷².

The group to which a prosumer is connected for net settlement determines when they receive their

⁶⁹ 'Solar panels and other RES energy equipment' *Solceller og andre vedvarende energianlæg*, Danish Tax Authority available at <http://www.skat.dk/skat.aspx?oId=13954>, last accessed 22/12/2016.

⁷⁰ §2(1), c) 'Electricity Costs Law' *Bekendtgørelse af lov om afgift af elektricitet LBK nr 1165 af 01/09/2016*, available at <https://www.retsinformation.dk/forms/R0710.aspx?id=173417>, last accessed 22/12/2016.

⁷¹ 'Question and Answer' *Spørgsmål og svar*, Energinet.dk, available at <http://energinet.dk/DA/El/Solceller/Sider/Spoergsmaal-og-svar.aspx> last accessed 24/01/2017.

⁷² Contact with stakeholder at energinet.dk.

net settlement amount. For all groups except Group 6 mentioned to above (both wind turbines and solar)⁷³ billing occurs once a month based on the net settlement between use from the national grid and production and supply to the national grid.

7.3. Are there measures to encourage the creation of energy communities at municipal level, or other schemes to encourage inclusive development of the market?

Answer:

The rules concerning the surcharge pool also apply to communal/collectively owned solar panels⁷⁴. Such solar installations must be owned in equal shares, with equal ownership rights and liability, it **can also be** the case that the owners, as a company, own the installation. It is a requirement that the installations capacity amounts to 6kW or less per natural person. Additionally, all co-owners of the installation must be resident within 2 km of where the solar installation is connected to the national grid⁷⁵.

Owners of a collective solar installation do not have a right to make use of net settlement but must sell it all to the national grid and therefore are not prosumers but producers.

However collective solar installations owned by a department in a social housing organisation, a freehold housing association, a housing community such as a housing cooperative, etc. where ownership is connected to the right of use of a house/apartment or a private rental housing organisation with several housing units, the solar installation must be connected to the property's own consumption installation. There must also be exclusive use of the electricity produced for common facilities use and that which is not used is then sold to the national electricity grid. The balance between communal facilities used and that sold to the grid is then net settled at a surcharge (premium tariff)⁷⁶. No such system is available for wind turbines or other RES equipment.

7.4. Are there rules facilitating the creation of energy cooperatives to provide a legal entity to energy communities? Are there measures facilitating other type of schemes and if so which ones?

Answer:

The rules do not necessarily facilitate the creation of energy cooperatives, they simply make it possible.

⁷³ See S. 'What are the rules applicable to the access to the grid'?

⁷⁴ §§3 - 6 'Executive Order on the surcharge for electricity produced via certain PV solar installations connected to the grid on 20th November 2012 or later' *Bekendtgørelse om pristillæg til elektricitet fremstillet på visse solcelleanlæg nettilsluttet den 20. november 2012 eller senere* BEK nr 1114 af 18/09/2015, available at <https://www.retsinformation.dk/Forms/R0710.aspx?id=174365> (last accessed 16/01/2017).

⁷⁵ 'Understanding the concept of Shared PV solar installations' Energinet.dk, available at <http://www.energinet.dk/DA/El/Solceller/Har-du-solceller/Forhoejet-pristillaeg/Sider/Forstaaelse-af-begrebet-Faelles-solcelleanlaeg.aspx> (last accessed 16/01/2017).

⁷⁶ 'Understanding the concept of Shared PV solar installations' Energinet.dk, available at <http://www.energinet.dk/DA/El/Solceller/Har-du-solceller/Forhoejet-pristillaeg/Sider/Forstaaelse-af-begrebet-Faelles-solcelleanlaeg.aspx> (last accessed 16/01/2017).

7.5. What are the procedures/provisions for establishing cooperatives for prosumers? Are they more simple/less costly than those for other schemes?

Answer:

The procedures are the same for energy cooperatives as they are for individuals seeking to be prosumers⁷⁷.

8. Other questions on the regulatory framework

8.1. What are the complaint handling procedures for each type of residential prosumer?

Answer:

Complaints concerning pool decisions by energinet.dk shall be submitted to energinet.dk in writing within four weeks of the decision. Complaints about decisions concerning the transition period from the “old scheme” by energinet.dk can be made to The Energy Board of Complaints⁷⁸, they too shall be submitted in writing and with four weeks of the relevant decision⁷⁹.

Decisions on whether net settlement conditions are fulfilled and on the amount for net settlement **cannot** be appealed to any other administrative authority than The Energy Board of Complaints⁸⁰.

Unless a higher penalty is warranted by other legislation, punishment will be by way of a fine for the false submission of information or an outright failure to submit information⁸¹.

8.2. Are there any specific redress procedures available only to residential prosumers?

Answer:

No.

⁷⁷ This information can be found in the answer to the question: ‘3.1 What is the existing legislative framework regulating Renewable Energy Projects in your country?’

⁷⁸ Energy Board of Complaints, available at [http://www.ekn.dk/.\(last](http://www.ekn.dk/.(last) accessed 17/01/2017)

⁷⁹ ‘Complaints’, available at <http://www.energinet.dk/DA/El/Husstandsvindmoeller/Klage/Sider/default.aspx> (last accessed 16/01/2017).

⁸⁰ §17 ‘Executive Order on net settlement for own production of electricity’ *Bekendtgørelse om nettoafregning for egenproducenter af elektricitet BEK nr 999 af 29/06/2016*, available at <https://www.retsinformation.dk/Forms/R0710.aspx?id=183390> (last accessed 17/01/2017).

⁸¹ §18 ‘Executive Order on net settlement for own production of electricity’ *Bekendtgørelse om nettoafregning for egenproducenter af elektricitet BEK nr 999 af 29/06/2016*, available at <https://www.retsinformation.dk/Forms/R0710.aspx?id=183390> (last accessed 17/01/2017).

Country fiche (Summary and ranking)

The **country fiche** below summarises the information from the report and ranks the **level of favourable impact** of measures in relation to its favourable impact to the take up of residential prosumers.

Country fiche	Ranking Low/Medium/High
General Description of the national regulatory framework - Types of residential prosumers There is only one kind of residential prosumer in Denmark, those that own RES installations (under a predefined size) and are connected to the national grid. There are not differing types of prosumers but the option to be a prosumer is available and accessible providing certain conditions are met. - Institutional framework The institutional framework is simple all matters regarding prosumers are controlled and regulated by one national body namely Energinet.dk the TSO provider for Denmark. This makes the process centralised, uniform and accessible to all in Denmark. - Applicable legislation, plans and objectives The legislation in Denmark recognises the circumstances that are recognised as signalling the existence of a “prosumer relationship” between the national grid and an electricity consumer/producer. It can be inferred these rules work well as many Danes have taken up the role of prosumer. The current RES prosumer plans however, are in a process of review awaiting EU approval⁸² and as such are currently stagnant. - Definition of residential prosumers There is no definition of prosumer in Denmark.	Medium Medium High Low
Specific Questions on the regulatory framework for residential prosumers	
Permitting requirements for each type of residential prosumer A prosumer must have applied to Energinet.dk for net settlement of any RES installations, when this is granted the prosumer is permitted to feed back into the national grid.	Medium
Rules applicable to the access to the grid A prosumer must have applied to Energinet.dk for a commitment to net settlement to have access to the grid.	Medium
Incentives (e.g taxes and tariffs) for each type of residential prosumers	Low

⁸² No further details were provided for by the stakeholder consulted.

Currently there are no incentives to become a residential prosumer other than the potential to sell excess generated electricity to the national supply at market price and the premium tariff within surcharge pool applied to it.	
Conditions encouraging or acting as barriers for residential prosumers Metering systems for each type of residential prosumer A new metering system is required (that is a meter system that can run both directions: consumption and generation of electricity) Billing conditions for each type of residential prosumer Depending on whether a prosumer has secured access to the surcharge pool (and premium tariff) or not determines at what price excess energy generated is sold back to the national supply and deducted from a prosumer use of national supply energy. Measures to encourage the creation of energy communities at municipal level? There are no incentives. Rules facilitating the creation of energy cooperatives (simplicity/cost as compared to other schemes/commonality of cooperatives as the legal status for energy communities) Energy cooperatives have access to the same incentives as independent prosumers (surcharge pool/premium tariff (where available) and net settlement) but are subject to additional requirements (geographical placement and usage restrictions).	Medium Medium Low Low
Other questions on the regulatory framework - What are the complaint handling procedures for residential prosumer? A prosumer is only able to complain to the authorising authority about surcharge pool access. Other complaints are administered by a third party complaints authority- - What are the redress procedures available only to residential prosumers? In Denmark, there is no redress procedure for residential prosumers only.	Medium Low

Executive summary

The legislation in Denmark recognises the existence of a “prosumer relationship” between the national grid and an electricity consumer/producer. Denmark has **no definition** of prosumers, but what is understood as a prosumer relationship is covered by the regulations on net settlement.

Households producing energy from private windmills, solar panels and CHP generators may supply to the national grid any excess electricity generated and not consumed. That is to say private owners of these kinds of RES installations may be prosumers in Denmark. The installation must be fully owned by the same legal entity or person that uses the electricity produced to be able to take advantage of net settlement⁸³. Additionally, net settlement requires the solar panel or wind turbine installation is connected to the consumer’s own consumption installations, or that the solar or wind installation is at the place of consumption.

A permitting procedure is in place for net settlement of any RES installations in Energinet.dk that has to be initiated prior the start of the project. Once permits are granted, the prosumer is permitted to feed back into the national grid. The RES installation must be 100% owned by the user of the electricity produced. Currently there are no **incentives** to become a residential prosumer other than the potential to sell excess generated electricity to the national supply at market price and the premium tariff for those with access to the surcharge pool applied to it. Depending on whether a prosumer has secured access to the surcharge pool or not determines at what price excess energy generated is sold back to the national supply and deducted from a prosumer use of national supply energy. Energy **cooperatives** have access to the same incentives as independent prosumers (surcharge pool/premium tariff (where available) and net settlement) but are subject to additional requirements (geographical placement and usage restrictions). In Denmark, there is no redress procedure for residential prosumers only.

⁸³ §3(3) Executive Order on Net Settlement for Self-Generated Electricity.