

## **Memo on the Danish support scheme for electricity generation based on renewables and other environmentally benign electricity production**

**Office/Department**  
Supply

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This memo includes a description of the Danish support schemes for electricity produced on renewable energy sources.

It is important to note that the memorandum only outlines current support schemes and does not include former subsidy schemes from which subsidies are still being disbursed.

The support schemes in this memorandum are given in outline and the description is therefore not exhaustive. Please refer to the relevant legislation for the detailed provisions. The majority of the rules described in this memo, can be found in:

- Act no. 1288 of October 27, 2016 Promotion of Renewable Energy Act
- Act no. 418 of April 25, 2016 the Electricity Supply Act

### **Types of support schemes in Denmark**

Price supplements for renewable energy and other environmentally friendly energy supply is provided in Denmark as a price supplement, a fixed settlement price, contract for difference, basic amount or as plant support.

Price supplement is a fixed supplement provided in addition to the market price. This type of supplement can be given with or without a limit, in which the supplement will decrease if the market price reaches a predetermined level. If this price limit is reached the supplement will accordingly be fully repealed.

Fixed settlement price indicates a varying support cost in proportion to the market price. The settlement price is calculated by deducting the electricity market price from a fixed settlement price.

Contract for difference is the support scheme covering the procurement of offshore wind turbines. This means that the companies are responsible for the allocation of the electricity on the market and the subsidy is provided as the difference on the spot market price and the sale price.

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Basic amount is a subsidy given as a fixed yearly amount.

Plant support typically covers a certain percentage of the plant expenditures.

In the following tables the support schemes shared among the different renewable energy sources and technologies are summarized including the present subsidy rates, the regulation and expiration of subsidy along with its legal basis.

### Wind power and subsidies for electricity production from wind turbines

Current support rates for electricity production from wind turbines are illustrated in Table 1. In addition, the Danish Parliament has enacted a subsidy for household wind turbines that has not become effective yet as it awaits approval from the EU. Moreover, it should be mentioned that a number of wind turbines are continually granted subsidies from former support schemes. Wind turbines that are set up today cannot get subsidies from these former support schemes nor are the schemes included in present memo.

<b>Table 1. Current support rates for electricity production from wind turbines</b>				
	Price supplement	Price supplement + limit	Regulation/ expiration of subsidy	Legal basis
	DKK/kWh	DKK/kWh		
On shore wind turbines connected to the grid from 1 <sup>st</sup> of January 2014 + off shore wind turbines outside tenders (which applied for permission to perform a feasibility study after 15 <sup>th</sup> of June 2013). Do not apply to household wind turbines <sup>1)</sup>	Balancing reimbursement: 0.018	Supplement: 0.25 Limit: 0.58	Expires after the sum of the electricity production of 6600 full load hours and an electricity production on 5.6 MWh per m <sup>2</sup> of the rotor area corresponding to approx. 25,000 full load hours depending on the type of turbine. Balancing reimbursement is limited to 20 years. The scheme is approved until February 21 <sup>st</sup> 2018.	Renewable Energy Act § 35 a

Annual pool of 1 MW: household wind turbines <sup>1</sup> 2017-2020						
Year grant was awarded	Settlement price in DKK/kWh				Regulation/ expiration of subsidy	Legal basis
	2017	2018	2019	2020		
Household wind turbines with a capacity $\leq$ 10 kW connected to the grid no more than 2 years after grant of aid.	1.74	1.36	98	60	Fixed settlement price that is given for 12 years after the plant has been connected to the grid. The scheme is approved until December 31 <sup>st</sup> 2020.	Renewable Energy Act §41
Household wind turbines with a capacity $>10$ and $\leq$ 25 kW, connected to the grid no more than 2 years after grant of aid.	1.14	96	78	60	Fixed settlement price that is given for 12 years after the plant has been connected to the grid. The scheme is approved until December 31 <sup>st</sup> 2020.	Renewable Energy Act §41
Notes:						
1) Household wind turbines cover turbines up till 25 kW that are connected to private households.						

### Biogas, biomass, decentralised CPH and CPH based on waste

The following Table 2 illustrates existing subsidy rates for electricity produced on biogas, biomass, decentral CPH and CPH based on waste covering new plants that are established today.

<b>Table 2. Current subsidy rates for electricity produced on plants based on biomass, biogas and biomass based producer gas</b>				
	Price supplements in DKK/kWh	Settlement price in DKK/kWh	Regulation/subsidy expiration date	Legal basis
<b>Electricity produced on biogas and biomass based gasification gas and other fuels</b>				
Production based on pure biogas or gas from gasification	Supplement 1: 0.26 <sup>1)</sup> Supplement 2: 0.10 <sup>1)</sup>	0.793 <sup>1), 2)</sup>	Fixed settlement price. The settlement price is regulated every year with 60 pct. of the increase in the NPI. Price supplement 1 increases in case of a reduction in the price of natural gas and reduces in case of an increase in the price of natural gas. Price supplement 2 is set to a fixed gradual reduction from 2016 and will be repealed in 2020. The scheme is approved until November 14 <sup>th</sup> 2023.	Renewable Energy Act § 43 a and § 43 e
Production based on biogas or gasification gas in a gas mix	Supplement 1: 0.431 <sup>1), 3)</sup> Supplement 2: 0.26 <sup>1)</sup> Supplement 3: 0.10 <sup>1)</sup>		There are 3 price supplements. Supplement 1 is regulated every year with 60 pct. of the increase in the NPI. Supplement 2 decreases/increases in accordance to the natural gas price. Supplement 3 is set to a fixed gradual reduction from 2016 and will be repealed in 2020. Only the share of the production that is based on biogas of producer gas will receive the subsidies. The scheme is approved until November 14 <sup>th</sup> 2023.	Renewable Energy Act § 43 a and § 43 e

<b>Electricity produced on biomass</b>				
	Price supplements in DKK/kWh	Settlement price in DKK/kWh	Regulation/subsidy expiration date	Legal basis
Existing and new biomass installations	0.15		Fixed settlement price on electricity produced on plants using biomass. The scheme is approved until April 1 <sup>st</sup> 2019.	Renewable Energy Act § 45
<b>Electricity installations using biogas and biomass based producer gas and power plants using Stirling engines and other special installations using biomass as energy source</b>				
	Price supplements in DKK/kWh	Settlement price in DKK/kWh	Regulation/subsidy expiration date	Legal basis
Plants with an installed electricity capacity ≤ 6 kW only using the above mentioned RE fuels that are grid connected 20 <sup>th</sup> of November 2012 or later can chose this subsidy instead of the subsidy outlined above		1.30 <sup>4)</sup>	Fixed settlement price that is given for 10 years after the plant has been connected to the grid. From 1 <sup>st</sup> of January 2014 until 1 <sup>st</sup> of January 2018 the settlement price will be reduced annually with DKK 0.14/kWh. Plants that have been connected to the grid after 1 <sup>st</sup> of January 2018 will hence get a fixed settlement price of DKK 0.60/kWh for 10 years. The scheme is approved until December 31 <sup>st</sup> 2020.	Renewable Energy Act § 43 a subsection 7 & § 44 subsection 5
<b>Notes:</b> <ol style="list-style-type: none"> <li>1) Rate in 2012, which is used as basis for regulation of the rates.</li> <li>2) The rate is 0.816 DKK/kWh in 2017.</li> <li>3) The rate is 44.3 DKK/kWh in 2017.</li> <li>4) Rate applying for installations connected to the grid before 1<sup>st</sup> January 2014.</li> </ol>				

### Solar PV installations, wave power and hydropower and other RE-technologies of significant importance for the future distribution of RE-electricity

The following Table 3 includes current subsidy regulation for photovoltaic systems and other renewable energy installations.

Under current regulation photovoltaic systems can get a subsidy within an annual pool of 20 MW in 2016 and 2017. This subsidy within the annual pool of 20 MW can be granted household PV installations as well as commonly owned PV installations. The subsidy is granted in 10 years from grid connection of the installation. The subsidy rate depends on the year in which Energinet.dk has approved the subsidy as the rates decrease from 2015 – 2017. The subsidy pools for photovoltaic systems are presented in Table 3.

Other special RE installations can also be granted a subsidy with corresponding regulation as outlined for subsidy for photovoltaics, indicating subsidy rates that will decrease from 2015 – 2017.

<b>Table 3. Current settlement regulation for new photovoltaics and other special RE installations.</b>					
<b>Photovoltaics, annual subsidy pool constitutes an annual establishment of 20 MW<sup>1)</sup></b>					
Year for annual pool approval by Energinet.dk	Fixed settlement price in DKK/kWh				Legal basis
	2015	2016	2017	2018	
Annual pool 1: photovoltaic systems connected in private utility installation with capacity ≤ 6 kW per household	1.02	0.88	0.74	-	Renewable Energy Act § 47 subsection 7, no. 1)
Common photovoltaic systems on the roof of a building or integrated in a building. Annual pool 2 (cooperatives) or annual pool 3 (for common consumption)	1.11	0.94	0.77	-	Renewable Energy Act § 47 subsection 7, no. 2)
Other common photovoltaic systems in annual pool 2 (cooperatives)	0.78	0.72	0.66	-	Renewable Energy Act § 47, subsection 7, no. 3)

Other common photovoltaic systems in annual pool 3 (for private common consumption)	1.02	0.88	0.74	-	Renewable Energy Act § 47 subsection 7, no. 1)
<b>Other special RE installations ≤ 6 kW</b>					
	Fixed settlement price in DKK/kWh				Legal basis
Grid connection date <sup>2</sup>	2015	2016	2017	2018	
Other RE technologies ≤ 6 kW of significant importance, grid connected 20 <sup>th</sup> of November 2012 or later	1.02	0.88	0.74	0.60	Renewable Energy Act § 47 subsection 9, no. 1)
<b>Other special RE installations ≤ 500 kW</b>					
	Price supplements in DKK/kWh	Fixed settlement price in DKK/kWh	Regulation/ subsidy expiration date	Legal basis	
Other RE technologies of significant importance ≤ 500 kW, grid connected 1 <sup>st</sup> of January 2016 or later		0.6/0.4	Fixed settlement price of 0.6 DKK/kWh for 10 years followed by 0.4 DKK/kWh for 10 years. The scheme is approved until December 31 <sup>st</sup> 2020.	Renewable Act § 47 subsection 3, no. 1) and subsection 9, no. 2)	
Other RE technologies ≤ 500 kW, grid connected 1 <sup>st</sup> of January 2016 or later	0.1		Price supplement is given for 20 years from grid connection. The scheme is approved until December 31 <sup>st</sup> 2020.	Renewable Act § 47 subsection 3, no. 2) and subsection 9, no. 3)	
Notes:					
1) The scheme was approved until December 31st 2016. A resubmission is being considered in spring 2017.					
2) The scheme is approved until December 31 <sup>st</sup> 2020.					

### **Net settlement of accounts for private producers of electricity**

A private producer is an electricity consumer who produces electricity or heat and electricity with a view to entirely or partly cover his/hers own energy consumption. This applies for instance for households with photovoltaics connected to a private user installation in which the electricity production from the photovoltaics can be used for own consumption.

In general the consumer is exempted to pay taxes for the electricity that is privately produced and used. If the consumer on the other hand sells the produced electricity to the grid and buys electricity for own consumption later on, the consumer has to pay taxes of the entire amount of electricity that is bought. Upon request a private producer can get permission to deduct electricity sold and bought within the same hour, which means that only the net-purchase of electricity within the given hour will be tax-imposed. If the electricity production in an hour has been larger than the consumption a price supplement can be granted for the surplus electricity production depending on the plant type and type of fuel.

Larger private producers are additionally exempted to pay for environmentally friendly electricity production for own consumption however they must pay PSO for the security of supply.

A condition to get a net settlement account is that the electricity production installation is 100 pct. privately owned by the consumer and that it is connected to the public electricity utility net.

The net settlement account can only be granted for electricity produced on a wind turbine or photovoltaic system if the turbine/system is connected to a consumer installation.