INTERNATIONAL ENERGY AGENCY

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Task 1

Exchange and dissemination of information on PV power systems

National Survey Report of PV Power Applications in Denmark

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TABLE OF CONTENTS

I FOREWORD

The International Energy Agency (IEA), founded in November 1974, is an autonomous body within the framework of the Organisation for Economic Co-operation and Development (OECD) which carries out a comprehensive programme of energy co-operation among its 23 member countries. The European Commission also participates in the work of the Agency.

The IEA Photovoltaic Power Systems Programme (IEA-PVPS) is one of the collaborative R & D agreements established within the IEA and, since 1993, its participants have been conducting a variety of joint projects in the applications of photovoltaic conversion of solar energy into electricity.

The 22 participating countries are Australia (AUS), Austria (AUT), Canada (CAN), China (CHN), Denmark (DNK), France (FRA), Germany (DEU), Israel (ISR), Italy (ITA), Japan (JPN), Korea (KOR), Malaysia (MYS), Mexico (MEX), the Netherlands (NLD), Norway (NOR), Portugal (PRT), Spain (ESP), Sweden (SWE), Switzerland (CHE), Turkey (TUR), the United Kingdom (GBR) and the United States of America (USA). The European Commission, the European Photovoltaic Industry Association, the US Solar Electric Power Association and the US Solar Energy Industries Association are also members.

The overall programme is headed by an Executive Committee composed of one representative from each participating country or organization, while the management of individual Tasks (research projects / activity areas) is the responsibility of Operating Agents. Information about the active and completed tasks can be found on the IEA-PVPS website www.iea-pvps.org

II INTRODUCTION

The objective of Task 1 of the IEA Photovoltaic Power Systems Programme is to facilitate the exchange and dissemination of information on the technical, economic, environmental and social aspects of photovoltaic power systems.

An important deliverable of Task 1 is the annual **Trends in photovoltaic applications report**, which gives information on trends in PV power applications in the PVPS member countries and other selected countries. The Trends report is largely based on the information provided in the National Survey Reports which are produced annually by each Task 1 participant.

This document is the Danish National Survey Report for the year 2010.

The PVPS website www.iea-pvps.org also plays an important role in disseminating information arising from the programme, including national information.

III DEFINITIONS, SYMBOLS AND ABBREVIATIONS

For the purposes of this and all IEA PVPS National Survey Reports, the following definitions apply:

PV power system market: The market for all nationally installed (terrestrial) PV applications with a PV power capacity of 40 W or more.

Installed PV power: Power delivered by a PV module or a PV array under standard test conditions (STC) – irradiance of 1 000 W/m^2, cell junction temperature of 25°C, AM 1,5 solar spectrum – (also see 'Rated power').

Rated power: Amount of power produced by a PV module or array under STC, written as W.

PV system: Set of interconnected elements such as PV modules, inverters that convert d.c. current of the modules into a.c. current, storage batteries and all installation and control components with a PV power capacity of 40 W or more.

Module manufacturer: An organisation carrying out the encapsulation in the process of the production of PV modules.

Off-grid domestic PV power system: System installed to provide power mainly to a household or village not connected to the (main) utility grid(s). Often a means to store electricity is used (most commonly lead-acid batteries). Also referred to as 'stand-alone PV power system'. Can also provide power to domestic and community users (plus some other applications) via a 'mini-grid', often as a hybrid with another source of power.

Off-grid non-domestic PV power system: System used for a variety of industrial and agricultural applications such as water pumping, remote communications, telecommunication relays, safety and protection devices, etc. that are not connected to the utility grid. Usually a means to store electricity is used. Also referred to as 'stand-alone PV power system'.

Grid-connected distributed PV power system: System installed to provide power to a grid-connected customer or directly to the electricity grid (specifically where that part of the electricity grid is configured to supply power to a number of customers rather than to provide a bulk transport function). Such systems may be on or integrated into the customer's premises often on the demand side of the electricity meter, on public and commercial buildings, or simply in the built environment on motorway sound barriers etc. They may be specifically designed for support of the utility distribution grid. Size is not a determining feature – while a 1 MW PV system on a rooftop may be large by PV standards, this is not the case for other forms of distributed generation.

Grid-connected centralized PV power system: Power production system performing the function of a centralized power station. The power supplied by such a system is not associated with a particular electricity customer, and the system is not located to specifically perform functions on the electricity grid other than the supply of bulk power. Typically ground mounted and functioning independently of any nearby development.

Turnkey price: Price of an installed PV system excluding VAT/TVA/sales taxes, operation and maintenance costs but including installation costs. For an off-grid PV system, the prices associated with storage battery maintenance/replacement are excluded. If additional costs are incurred for reasons not directly related to the PV system, these should be excluded. (E.g. If extra costs are incurred fitting PV modules to a factory roof because special precautions are required to avoid disrupting production, these extra costs should not be included. Equally the additional transport costs of installing a telecommunication system in a remote area are excluded).

Field Test Programme: A programme to test the performance of PV systems/components in real conditions.

Demonstration Programme: A programme to demonstrate the operation of PV systems and their application to potential users/owners.

Market deployment initiative: Initiatives to encourage the market deployment of PV through the use of market instruments such as green pricing, rate based incentives etc. These may be implemented by government, the finance industry, electricity utility businesses etc.

Final annual yield: Total PV energy delivered to the load during the year per kW of power installed.

Performance ratio: Ratio of the final annual (monthly, daily) yield to the reference annual (monthly, daily) yield, where the reference annual (monthly, daily) yield is the theoretical annual (monthly, daily) available energy per kW of installed PV power.

Currency: The currency unit used throughout this report is DKK (Danish Crown)

PV support measures:

Enhanced feed-in tariff	an explicit monetary reward is provided for producing PV electricity; paid (usually by the electricity utility business) at a rate per kWh somewhat higher than the retail electricity rates being paid by the customer
Capital subsidies	direct financial subsidies aimed at tackling the up-front cost barrier, either for specific equipment or total installed PV system cost
Green electricity schemes	allows customers to purchase green electricity based on renewable energy from the electricity utility business, usually at a premium price
PV-specific green electricity schemes	allows customers to purchase green electricity based on PV electricity from the electricity utility business, usually at a premium price
Renewable portfolio standards (RPS)	a mandated requirement that the electricity utility business (often the electricity retailer) source a portion of their electricity supplies from renewable energies (usually characterized by a broad, least-cost

	approach favouring hydro, wind and biomass)
PV requirement in RPS	a mandated requirement that a portion of the RPS be met by PV electricity supplies (often called a set-aside)
Investment funds for PV	share offerings in private PV investment funds plus other schemes that focus on wealth creation and business success using PV as a vehicle to achieve these ends
Income tax credits	allows some or all expenses associated with PV installation to be deducted from taxable income streams
Net metering	in effect the system owner receives retail value for any excess electricity fed into the grid, as recorded by a bi-directional electricity meter and netted over the billing period
Net billing	the electricity taken from the grid and the electricity fed into the grid are tracked separately, and the electricity fed into the grid is valued at a given price
Commercial bank activities	includes activities such as preferential home mortgage terms for houses including PV systems and preferential green loans for the installation of PV systems
Activities of electricity utility businesses	includes 'green power' schemes allowing customers to purchase green electricity, operation of large-scale (utility-scale) PV plants, various PV ownership and financing options with select customers and PV electricity power purchase models
Sustainable building requirements	includes requirements on new building developments (residential and commercial) and also in some cases on properties for sale, where the PV may be included as one option for reducing the building's energy foot print or may be specifically mandated as an inclusion in the building development

1 EXECUTIVE SUMMARY

Installed PV power

By the end of year 2010 Denmark (including Greenland) had about 7 MW installed, an increase of 2,3 MW compared to 2009. Grid-connected distributed systems constitute at about 90 % the majority of PV systems. Denmark has no general incentive for reducing the investment cost of PV systems, but has a net-metering scheme for private households and institutions set by law. Due to increasing taxes on electricity the net-metering scheme is getting more and more attractive, which is driving the market illustrated by a market increase 2009 to 2010 of more than 50 %. Many new commercial actors are found.

Costs & prices

The projects completed in 2010 demonstrate turn-key system prices for medium to large scale “roof-tops” of around 20 DKK/W. The price of PV modules dropped during 2010 but not as dramatic as in 2009. The individual PV systems implemented during 2010 exhibit turn-key system prices in the range of 20 to 40 DKK/W.

PV production

In 2010 the inverter developer and manufacturer Danfoss Solar Inverters reported ongoing and increasing commercial activities in the multi-million € range; about 1 GW of capacity was reached. The module production (Gaia Solar) in 2010 is at about 2 MW, a doubling compared to 2009. The main export markets for Gaia Solar are Germany and Sweden. There is no production of PV batteries in Denmark. The building industry is showing a limited, but growing interest in developing PV-building integrated components and systems in particular in connection with highly industrialized building processes.

Late 2008 Danish PV companies took the initiative to establish a national PV association named Dansk SolcelleForening (DSF, www.solcelle.org). The DFS firmed up during 2010 and consolidated itself as the voice of the industry having about 40 members - mostly from industry.

Budgets for PV

In 2010 the government confirmed its commitment to support renewable in its annual “Statement of Energy”, followed early 2011 by a new energy strategy “Energy Strategy 2050” reaching up to 2050 and targeting independence of fossil fuels. Public funding for R&D into energy is on track being doubled from about 0,5 billion DKK in 2007 to 1 billion by 2010 and is expected to continue on this level. Over a 3-5 year period more than 150 million DKK will be allocated to R&D in renewables; however it is still too early to say to which extent PVs effectively can benefit from these initiatives. In 2010 the Public Service Obligation (PSO) of the Danish transmission system operator Energinet.dk, the so called ForskEL and ForskVE programmes, funded about 14 million DKK for applied research and demonstration projects in PV’s, and the other public programme EUDP funded about 10

million DKK for PV R&D&D activities. PV market actors also receive support from other public sources targeting market introduction of “new green technologies”.

2. THE IMPLEMENTATION OF PV SYSTEMS

The PV power system market is defined as the market of all nationally installed (terrestrial) PV applications with a PV capacity of 40 W or more. A PV system consists of modules, inverters, batteries and all installation and control components for modules, inverters and batteries.

For the purposes of this report, PV installations are included in the 2010 statistics if the PV modules were installed between 1 January and 31 December 2010, although commissioning may have taken place at a later date.

2.1 Applications for photovoltaics

The national electric grid covers practically all of Denmark and leaves little room for stand-alone applications besides the traditional low-power niche applications such as signalling, week-end cottages, garden lights, telemetry & telecommunication and urban furniture such as parking meters and information displays. In Greenland stand-alone PV's play a major role as power source for remote signalling and for the telecommunication network extending more than 2 000 km on the western coast line.

Grid connected PV applications are seen as the largest potential in Denmark, in particular building applied or integrated applications on single family houses, apartment buildings, commercial and office buildings. The public interest for building integrated PVs is increasing, and most efforts are focused on developing and demonstrating PVs in the context of existing buildings. The EU directive[1] on energy consumption in buildings has in 2005 been minted into a revised national building code – moved into force early 2006 – which specifically mentions PV and allocates PV electricity a factor 2,5 in the calculation of the "energy foot print" of a building. However, due to the inertia in the construction sector only in 2009 is was possible to detect some real impact on PV deployment, as developers, builders and architects openly admitted the inclusion of BIPV in projects due to the building codes. This trend was markedly strengthened during 2010 Ongoing political discussions both on the EU level and nationally indicate an upcoming further tightening of the building codes, which may further promote BIPV.

2.2 Total photovoltaic power installed

The PV power installed in 4 sub-markets during 2010 is shown in Table 1.

Table 1: PV power installed during calendar year 2010 in 4 sub-markets.

Sub-market/ application	off-grid domestic	off-grid non-domestic	grid-connected distributed	grid-connected centralized	Total
PV power installed in 2010 (kW)	55	95	2 350	-	2 400

[1] EU directive: Directive 2002/91/EC of 16.12.02

Table 2a: PV power and the broader national energy market.

Total national (or regional) PV capacity (from Table 2) as a % of total national (or regional) electricity generation capacity	New (2010) PV capacity (from Table 1) as a % of new electricity generation capacity	Total PV energy production as a % of total energy consumption
N.A	N.A.	N.A.

A summary of the cumulative installed PV Power, from 1992-2010, broken down into four sub-markets is shown in Table 3.

Table 3: The cumulative installed PV power in 4 sub-markets.

	Cumulative installed capacity as at 31 December															
Sub-market	1995 (kW)	1996 (kW)	1997 (kW)	1998 (kW)	1999 (kW)	2000 (kW)	2001 (kW)	2002 (kW)	2003 (kW)	2004 (kW)	2005 (kW)	2006 (kW)	2007 (kW)	2008 (kW)	2009 (kW)	2010 (kW)
Stand-alone domestic	15	20	25	35	40	50	50	50	55	65	70	80	100	125	165	220
Stand-alone non-domestic	85	120	125	140	150	155	160	165	170	190	225	255	285	315	375	470
Grid-connected distributed	40	105	272	330	880	1255	1290	1 375	1 675	2 035	2 355	2 565	2 690	2 825	4 025	6 375
Grid-connected centralised	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL (kW)	140	245	422	505	1 070	1 460	1 500	1 600	1 900	2 290	2 650	2 900	3 075	3 265	4 565	7 065

The main Danish PV market sector, grid-connected distributed, exhibited quite some progress due to dropping prices, the effect of the building codes as mentioned previously and a few medium-scale projects, e.g. the PhotoSkive project targeting 1 MW on municipal buildings but now reaching 1,5 MW and the Bornholm project targeting 5 MW. The only general incentive for PV in Denmark remains the net-metering scheme targeting private household and institutions with some limiting conditions; however, the net-metering scheme is getting more attractive as electricity prices increase mainly due to taxation.

2.3 PV implementation highlights, major projects, demonstration and field test programmes

During 2010 no national PV promotional activities were found, except for the 4-year ForskVE program, which supported the PhotoSkive project targeting 1 MW BIPV on municipal buildings. Also the PVIB project targeting up to 5 MW of PV's on the island of Bornholm received support from this program. The PVIB project is closely linked to the EcoGrid project, which is an EU supported Smart Grid "real-life" laboratory (www.ecogrid.dk).

The PV related impact of the more stringent building codes could clearly be found, as several new buildings implemented BIPV with a direct reference to same building codes.

The off-grid professional and private market sectors developed almost as in the previous years although accelerated somewhat due to lower PV technology costs.

For a more historical overview or context, please refer to the Danish National Survey Reports covering 2008 and previous years (www.iea-pvps.org).

2.4 Highlights of R&D

During 2010 R&D efforts in the fields of organic dye sentizied PV cells (PEC), polymer cells and "PV cells-architecture-lights" continued with steady progress primarily for the polymer cells, and efforts to commercialize the R&D results in the field of polymer cells were quite

successful in 2010 involving the screen printing company Mekoprint. R&D efforts into nano-structured PV cells were continued as well.

Basic research into PV cells based on mono-X Si is ongoing at the University of Aarhus in a partnership with industry; the intention to commercialize results of this R&D in terms of a 100 MW production facility was announced in 2009, but since there has been no news.

One company (Sunsil) is developing an innovative PV module with an integrated, distributed optimizer/inverter structure allowing each cell to operate individually.

2.5 Public budgets for market stimulation, demonstration / field test programmes and R&D

Table 4: Public budgets for R&D, demonstration/field test programmes and market incentives in million DKK.

	R & D	Demo/Field test	Market incentives
National/federal	25	25	-
State/regional	-	-	-

Funding is mainly from the PSO ForskEl, ForskVE and the EUDP programmes and there is no funding dedicated only to PV – only RE in general. The figures in table 3 are thus indicative. Funding for more basic research is in principle also available for PV's, but few if any projects benefitted from this during 2010. A major demonstration project, Photo-Skive, targeting 1 MW of BIPV on the buildings of the Skive municipality has received 22 million DKK in support from the ForskVE programme and has during 2010 reached a total of about 800 kW; it is expected that the project during 2011 will reach a total of 1,5 MW. The PVIB project targeting 5 MW corresponding to a PV penetration of 10 % in the grid system of Bornholm has received support from the ForskVE programme at about 20 million DKK, and is expected to reach about 3 MW with the current funding level.

3. INDUSTRY AND GROWTH

3.1 Production of feedstocks, ingots and wafers

Table 5: Production information for the year for silicon feedstock, ingot and wafer producers

Manufacturers (or total national production)	Process & technology	Total Production	Product destination (if known)	Price (if known)
	Silicon feedstock	tonnes		
	sc-Si ingots.	tonnes		
	mc-Si ingots	tonnes		
	sc-Si wafers	MW		
	mc-Si wafers	MW		

No information available on the above. The company Topsil produces manufacturing equipment for float zone Si ingots.

3.2 Production of photovoltaic cells and modules

Module manufacturing is defined as the industry where the process of the production of PV modules (the encapsulation) is done. A company may also be involved in the production of ingots, wafers or the processing of cells, in addition to fabricating the modules with frames, junction boxes etc. The manufacturing of modules may only be counted to a country if the encapsulation takes place in that country.

Total PV cell and module manufacture together with production capacity information is summarised in Table 5 below.

Table 6: Production and production capacity information for 2010

Cell/Module manufacturer (or total national production)	Technology (sc-Si, mc-Si, a-Si, CdTe)	Total Production (MW)		Maximum production capacity (MW/yr)	
		Cell	Module	Cell	Module
Wafer-based PV manufactures					
Gaia Solar	mc-Si, sc-Si	-	2	-	2
Thin film manufacturers					
Cells for concentration					
TOTALS		**-**	**2**	**-**	**2**

Gaia Solar produces modules (laminates) based on imported cells. Modules are of the standard glas-EVA-Tedlar design. Product range is 30-250 Wp with 55-110 W modules

being most typical. Normal warranty: 5 years. The company is open to custom design modules. Certification to IEC 61215.

Typical PV module cost range between DKK 10 – 15/W. Most modules are exported to Germany and Sweden.

Some companies have announced plans to establish more large scale PV module production, and a few other companies have shown interest in manufacturing window-integrated PVs, but so far the throughput is estimated as commercially negligible.

3.3 Module prices

Table 7: Typical module prices for a number of years

Year	2004	2005	2006	2007	2008	2009	2010
Standard module price(s): Typical	30-50	30-50	40-60	30-50	25-45	15-25	10-20
Best price	-	-	-	-	-	-	-

The trend towards lower module prices found in 2008 and in particular 2009 continued during 2010.

3.4 Manufacturers and suppliers of other components

Balance of system component manufacture and supply is an important part of the PV system value chain. For 2010 the situation in Denmark is briefly described below.

The company Danfoss Solar Inverters has reported multi million € commercial orders for its recently developed modular inverter system. For 2010 a production volume of > 1 GW has been reported, but no detailed information is publicly available on technology, performance, volume and prices.

The company Grundfos produces its special variable frequency inverter system for its water pumping systems. However, no detailed information is publicly available on technology, performance, volume and prices.

No battery producers in Denmark with PV related products.

Three companies produce (on a small scale) charge controllers and PV related electronics for stand-alone PV systems.

One company (Linak) is looking into development and manufacturing of support structures and trackers.

The company Velux Industries has developed and marketed a roof-integration package. However, no detailed information is publicly available on technology, performance, volume and prices.

3.5 System prices

Table 8: Turnkey Prices of Typical Applications

Category/Size	Typical applications and brief details	Current prices per W
OFF-GRID Up to 1 kW	Telemetry, navigational aids, emergency phones, road signs, information displays, etc.	30-50
OFF-GRID >1 kW	Professional remote, telecommunication, etc.	60-100
ON-GRID Specific case	1-6 kW roof-mounted system (roof-tops)	20-30
ON-GRID up to 10 kW	PV systems on buildings	20-25
ON-GRID >10 kW	PV systems on buildings	20-40*)
GRID – CONNECTED (centralized, if relevant)	-	-

*) some BIPV systems are quite costly

Table 7a: National trends in system prices (current) for roof-tops

YEAR	2003	2004	2005	2006	2007	2008	2009	2010
Price /W:	33-36	33-36#)	33-36#)	35-45#)	33-40	35-45	25-40	20-30

#) only for system on long term contract, e.g. SOL 1000. Other (few) systems exhibit higher prices, which vary widely.

3.6 Labour places

a) Research and development (not including companies): 25
b) Manufacturing of PV system components, including company R&D: 300
c) All other, including within electricity companies, installation companies etc. 50

Information on labour places is based on the author's best estimate – no official statistics available. Table 8 on Labour Places cannot be completed due to lack of data.

3.7 Business value

Total business value for 2010 is estimated (author's estimate – no way of getting solid data) to about 1 200 million DKK for Danfoss Solar Inverters, plus about 800 million DKK for the rest of the Danish PV sector – in total about 2 billion DKK .

Table 9 on Business Value cannot be completed due to lack of data.

4. FRAMEWORK FOR DEPLOYMENT (NON-TECHNICAL FACTORS)

Table 9: PV support measures

	On-going measures	Measures that commenced during 2010
Enhanced feed-in tariffs (gross / net?)	-	-
Capital subsidies for equipment or total cost	-	-
Green electricity schemes	-	-
PV-specific green electricity schemes	-	-
Renewable portfolio standards (RPS)	-	-
PV requirement in RPS	-	-
Investment funds for PV	-	-
Income tax credits	-	-
Net metering	Net metering	-
Net billing	-	-
Commercial bank activities e.g. green mortgages promoting PV	-	-
Activities of electricity utility businesses	ForskVE programme for demonstration of PV	
Sustainable building requirements	Building codes	Building codes with planned future tightening

4.2 Indirect policy issues

The European Commission has early 2007 established binding targets for RE implementation in the EU as such. This has been followed by binding targets for the member countries, but no technology specific targets have yet been set.

The Danish government has as previously mentioned – also early 2007 – set binding RE targets for the country for 2025. However, few technology specific targets have been set and none for PV. The new energy strategy publicised early 2011 does not set any targets for PV.

The extent to which these overall RE targets may stimulate the deployment of PV's in Denmark is very uncertain.

The EU Directive on energy in buildings has lead to obligatory building codes in the EU member states including Denmark. The revised Danish building codes were introduced in 2006, and were expected to promote PV's as PV's enter favourably into the calculation of a buildings energy "foot print". The building sector has proven to be quite "conservative", but in 2009 and in particular during 2010 architects, builders and developers reported increasing application of PV's due to the building codes with planned tightening.

4.3 Interest from electricity utility businesses

The Danish TSO Energinet.dk has for several years expressed interest in PV as a potential contributor to the electricity supply and in support of the electric grid. This interest has also been minted out via support channelled through the various relevant PSO support programmes.

The distribution utilities, notably EnergiMidt, have also promoted the use of PV, and in particular since 2009 several distribution utilities have included PV technology in their portfolio of products. EnergiMidt made for a couple of years use of a capital incentive to customers inside its service area, but is now marketing PV technology without any special support. Most distribution utilities simply regard PV as a relevant standard product and some offer finance packets and payment via the electricity bill.

Through its national federation Dansk Energi the Danish utilities in 2010 announced, that they will not charge PV system owners for the use of the grid (related to the use of the net-metering scheme), and several distribution utilities will not charge for the metering system needed to benefit from the net-metering scheme.

4.4 Standards and codes

Certification scheme for PV components and systems are established; certification of installers is established and ongoing.

The aforementioned EU Directive on energy consumption in buildings has lead to national building codes in favour of BIPV. The revised Danish building codes has move into force early 2006 and includes a factor of 2,5 for BIPV when calculating the energy "foot print" of a building, see also section 4.2.

5 HIGHLIGHTS AND PROSPECTS

The existing net-metering scheme (bound by law) is getting more and more attractive driving the market for PV systems qualifying for the scheme. Sharply decreasing price of PV technology coupled with increasing tariffs for electricity (mostly due to increasing taxes; by end of 2010 the tariff including taxes was about 2 DKK/kWh) have during 2009 and 2010 driven an annual market growth of 40-50 % albeit from a very low starting point, and this trend is expected to continue.

The revised national PV Strategy was published primo 2009, and a revision is soon needed to proper reflect the above development.

ANNEX A: COUNTRY INFORMATION

The following brief description of the Danish scene in which PV activities take place is based on the author's estimates and opinion.

The national electric grid covers practically all of Denmark and leaves little room for stand-alone applications besides the traditional low-power niche applications such as signalling, week-end cottages, garden lights, telemetry & telecommunication and urban furniture such as parking meters and information displays. In Greenland stand-alone PV's play a major role as power source for the telecommunication network extending more than 2 000 km along the west coast as well as for powering navigational aids.

Grid connected PV applications are seen as the largest potential in Denmark, in particular building integrated applications on single family houses, apartment buildings, commercial and office buildings.

For private households the retail price of electricity is constituted by a number of elements including various taxes and on top of everything 25 % VAT; by end of 2010 the average retail price of electricity for private households was around 2 DKK/KWh with certain variations across the country.

Certain industries and commercial operations can get certain taxes refunded.

Average household electricity consumption is estimated to 4 400 kWH/year, and for private households electricity is typically metered at a constant flat rate. Net-metering (allowing the meter to run "backwards") is permanently set by law for PV systems up to 6 kW and under certain conditions to prevent misuse.

For single family houses PV roof-top systems are seen as an integrated part of the house with regard to taxing, insurance, mortgage etc. Typical mortgage interest is in the range of 2-5 % depending on type of loan.