

PV Financing Guidelines

PV Financing Project

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Germany

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Germany PV Environment

With almost 40 GW of PV capacity installed in 2015 Germany is still one of the market leaders. The PV share of gross electricity consumption is currently 6.4 from a total of 32.5% of renewables¹. The current market is mainly driven by large projects: in 2015 systems with more than 1,000 kWp have 42% of the market share (ground mounted); systems between 100 and 1,000 kWp have 24% (industrial/commercial sector); systems between 10 and 100 kWp have 15% (industrial/commercial sector, residential-multifamily); and small systems up to 10 kWp have 19% (residential sector)².

Nevertheless, the market has declined strongly in the last years: in 2015, only 1,460 MW were installed. This is 23% less compared to 2014 and 55% less compared to 2013³. The main reasons are: 1) the application of the Renewable Energy Act (in German EEG) surcharge for self-consumption⁴ and 2) the difficult access to financing. With the reduction of the Feed-in Tariff (FiT)⁵, financial institutions now look at the creditworthiness of the investor. Hence, the equity share of the investor increases (before it used to be 20%, now it should be between 25 and 40%, depending on the credit), which hinders the access to financing.

To overcome these difficulties innovative financial instruments have been developed. Schemes such as *leasing* and *crowdfunding* currently support and ease the financing of PV projects in Germany. *Leasing* gives the possibility to self-consume the PV electricity and pay the reduced EEG surcharge without investing⁶. *Crowdfunding* is an innovative way of raising money for PV investments directly from a large number of people who contribute relatively small amounts of money.

Traditional financial instruments such as equity, debt financing and energy cooperatives are also available and used in the PV market in Germany. However, leasing and crowdfunding have become increasingly popular and cover the finance gap for PV development. The PV Financing guideline describes these two financing schemes in detail.

¹ Fraunhofer ISE, "Aktuelle Fakten zur Photovoltaik in Deutschland". www.pv-fakten.de (visited: 17.03.2016)

² VonBredow Valentin Herz, "Selling Electricity from PV directly to third parties: opportunities and obstacles in Germany": http://www.pv-financing.eu/wp-content/uploads/2016/02/4.Selling-electricity-from-PV-directly-to-third-parties-opportunities-obstacles-in-Germany_SH.pdf (visited:17.03.2016)

³ Ibid.

⁴ The EEG surcharge for self-consumption takes place in three steps: in 2015 the charge corresponded to 30% of the EEG surcharge, in 2016 it is 35% and from 2017 the amount will reach 40%. Systems up to 10 kWp and with an annual generation of less than 10MWh are exempt from this charge. In 2016 the EEG surcharge corresponds to 6.354 cents per kWh.

⁵ FiT reduction of 70% per kWh since 2010. Source Fraunhofer ISE, "Aktuelle Fakten zur Photovoltaik in Deutschland". www.pv-fakten.de

⁶ See footnote 4.

Financing Schemes

Financing Scheme 1: Leasing

Leasing is an innovative way of financing PV systems for self-consumption by an external investor. The main characteristic is that the responsibility and risks of operating the system are transferred to the electricity consumer or lessee in order to qualify for self-consumption and avoid the payment of the complete EEG surcharge.

Application Segments

This financing scheme is regularly used in Germany in the single-family residential sector and by small and medium-sized enterprises. The reason is that the lessee of the PV system should be a single consumer or purchaser. A central condition is that the consumer should be responsible for the operation of the PV system.

Related Business Models

Leasing is used in the business model based on self-consumption. Self-consumption is from the legislature's perspective, when the plant operator and the consumer are the same entity. The electricity consumption profile in Germany is approximately 20% to 40% in households and 70% in educational and commercial office buildings⁷. The excess of electricity must be fed into the grid and receives the feed in tariff. The percentage of the consumption profile depends on the size of the system.

Implementation

Leasing is an excellent option to profit from the benefits of PV electricity in those cases where the building owner does not have the capital or willingness to invest in a photovoltaic system. The investment is done through an investor, which could be a utility or a company.

The benefits for the lessee include among others:

- The opportunity to have a PV system without investing.
- The lease of a PV system may be more appropriate than the acquisition of an investment for tax reasons.

The advantages for the lessor include among others:

⁷ Fraunhofer ISE, "Aktuelle Fakten zur Photovoltaik in Deutschland". <http://www.pv-fakten.de>

- The utility gives its customers the opportunity of self-consumption without losing its clients.
- The investor can calculate the monthly income for the plant and thus the return of investment. This can also facilitate the access to financing.

There are three possible leasing options in Germany. The implementation steps in each one are described as follows:

Leasing Model I:

Main characteristic: In this model a *solar installer, utility or an investor* leases the PV system to a *building owner*. Hence there can be only one user of the PV system such as single-family buildings, companies, etc. in order to qualify for self-consumption to avoid the payment of the complete EEG surcharge.

Steps:

1. Search for the suitable rooftop through the promotion of the model with the main target (single-building users).
2. Signing of the contracts between the lessee (building owner) and lessor (utility, solar installer or investor):
 - a. Rooftop contract: allows the use of the rooftop for the PV system;
 - b. Leasing contract: defines the amount of the monthly rent. This contract also defines that the risks of the plant operation are borne by the lessee;
 - c. Maintenance contract of the PV system: this contract can be done between the lessee and lessor or between the lessee and an external service provider. However, the lessee holds the responsibility and risks of this.
3. Financing of the PV system (lessor): e.g. through a bank loan or equity (investment of the utility or investor).
4. Installation of the PV system.

Leasing Model II:

Main characteristic: In this model a *solar installer, utility or an investor* leases the PV system to a *tenant*. Hence there can be only one user of the PV system such as single-family buildings, companies, etc. in order to qualify for self-consumption and avoid the payment of the complete EEG surcharge. The difference with model I is the signing of the contracts.

Steps:

1. Search for the suitable rooftop through the promotion of the model with the target group (single-building users).
2. Signing of a rooftop contract between the building owner and lessor (utility, solar installer or investor): this contract allows the use of the rooftop for the PV system.
3. Signing of a leasing contract between the lessee (tenant of the building) and the lessor (utility, solar installer or investor): this contract defines the amount of the monthly rent and defines that the risks of the plant operation are borne by the lessee (tenant).
4. Signing of maintenance contract of the PV system: this contract can be signed between the lessee (tenant) and lessor (utility, installer) or between the lessee and an external service provider. However, the lessee bears the responsibility and risks of this.
5. Financing of the PV system: e.g. through a bank loan or equity (investment of the utility or investor).
6. Installation of the PV system.

Leasing Model III:

Main characteristic: In this model a *building owner* invests in a PV system and leases the system to a *tenant*. Hence there can be only one user of the PV system such as single-family buildings, companies, etc. in order to qualify for self-consumption and avoid the payment of the complete EEG surcharge. The difference with model I and II is the signing of the contracts. Since the building owner invests in a PV system there is no need for a rooftop contract.

Steps:

1. Offer the lease of the PV system to the tenant.
2. Signing of a leasing contract between the lessee (tenant of the building) and the lessor (building owner): this contract defines the amount of the monthly rent and defines that the risks of the plant operation are covered by the lessee (tenant).
3. Signing of maintenance contract of the PV system: between the lessee and an external service provider. The lessee bears the responsibility and risks of this.
4. Financing of the PV system: e.g. through a bank loan or equity (investment of the investor).
5. Installation of the PV system.

External Conditions

Since the lessee is responsible for the PV system, he is also responsible for the following matters:

- The excess of electricity produced can be fed into the public grid receiving the corresponding Feed-in-Tariff (EEG).
- The lessee has the obligation to have an electricity contract with a utility to secure the electricity supply. This should be an “additional contract” (Zusatzvertrag) and not a basic contract (Grundversorgungsvertrag). The reason for this is that with the basic contract self-consumption is not allowed.
- The lessee is also responsible for the grid connection.

Example of key players and sources of information

Several utilities (private and municipal) in Germany offer this scheme. Some of the actors are the following:

- **N-ERGIE Aktiengesellschaft:** <https://www.n-ergie.de/privatkunden/produkte/solarstrom/solaranlage-mieten.html>
- **Stadtwerke Aachen:** <https://www.stawag.de/energie/privatkunde/strom/solaranlage-mieten/>
- **Anumar:** <http://www.anumar.de/Leistungen/Energy2Business/Anlagenpacht>
- **Stadtwerke Stuttgart:** <https://stadtwerke-stuttgart.de/produkte/privatkunden/solarstrom-fuer-stuttgart/>
- **RWE Deutschland:** <http://www.rwe.com/web/cms/de/2453108/rwe-deutschland/kommunen/produkte/partnerprogramm-fuer-kommunen/pacht-von-photovoltaikanlagen/>
- **Solarportal von Greenergetic:** offers utilities services to promote leasing. These include telesales, project management, purchasing, logistic.
<https://www.greenergetic.de/>

Financing Scheme 2: Crowdfunding

Crowdfunding⁸ is equity-based crowdfunding where the investors become shareholders and benefit from the profits of the project, meaning, they invest in a project and receive shares in return. In Germany, in most cases subordinated loans (“partiarisches Darlehen” or “Nachrangdarlehen”) are used. A subordinated loan is a mezzanine instruments in which no collateral is required. The recipient of the subordinated is a German legal entity. This mechanism covers the financing gap of projects which have difficulties to get a bank credit and has become popular in the last years. Currently, there are several crowdfunding platforms offering the crowdfunding model in the German market. These finance (among others) renewable energy projects in Germany and in other countries.

This simple instrument offers flexibility in the amount of investment and transparency.

Application Segments

Crowdfunding is suitable for the installation of PV systems in the residential (multi-family), commercial, industrial and public sector (in public/ municipal buildings such as swimming pools, etc.). Since equity crowdfunding involves investment into a commercial enterprise, it is often subject to securities and financial regulation (described below). The amount of the investment varies depending on the project type⁹.

Related Business Models

This financial mechanism is suitable for the business model Power Purchase Agreement and self-consumption. Nevertheless it is more profitable for self-consumption due to the reduced payment of the EEG surcharge.

Implementation

The **first step** to finance a PV project through equity investing is to find the suitable crowdfunding platform for your project¹⁰. The following selection criteria can help you to do this:

⁸ Crowdfunding is also known as equity crowdfunding, investment crowdfunding and crowd equity.

⁹ In some platforms the minimum investment amount is 50 EUR.

¹⁰ See below in „key players“ a list of platforms in Germany.

The track record of the platform:

- Expertise in crowdfunding: Does the executive team have any background in crowdfunding or venture capital?
- Expertise in the renewable energy field: How much money has been raised by similar projects? How many projects have raised funds?
- Financial backing: Do they have evident financial backing?

Marketing advantages and customer support:

- What is the marketing plan, and how are people expected to become aware of the site? E.g. through social media integration, advertising, networking, etc.
- How are the project development and results communicated to the investors?
- What are the advantages offered by the platform to the user? E.g. interests, type of platform, etc.

The requirements needed to apply for crowdfunding:

- What are the requirements to apply for the crowdfunding financing instrument? E.g. company type, minimum and maximum amount, required documentation, etc.
- What are the costs of using the platform?

The **second phase** is the funding application to the crowdfunding platform. The general requirements and steps for this are described below. This varies among the different providers.

1. **Present a profitability analysis of the project:** this should be presented by the project owner.
2. **Prove the creditworthiness of the project owner/ company (Schufa-Auskunft):** usually based on the credit history, credit rating, and character of the entity.
3. **Assessment of an energy consultant:** after the internal analysis of the project, some crowdfunding platforms get an external evaluation from an energy consultant (e.g. from an engineering company) in order to have an objective analysis of the technical and economic aspects of the project.
4. **Provide securities and investment prospectuses (Vermögensanlagen- Informationsblatt (VIB)):** investors must be provided with extensive and reliable information about the issuer and the security concerned. In Germany, securities and other investment products may not be offered for public sale without a prospectus

approved by the Bafin (Federal Financial Supervisory Authority), who checks whether the prospectus contains the minimum information required by law¹¹.

5. **Approbation of the project and signing of the contract:** once the project has been approved by the crowdfunding platform, the next step is the signing of the contract. The procedure is completed online and the contract is signed digitally. Generally there are two kinds of contracts that have to be signed:
 - a. Between the crowdfundering platform and the project owner: establish the duration and payment of the “loan”.
 - b. Between the investor and the project owner: establish the duration and the payment of the interest.
6. **Online publication of the project:** the project is posted on the crowdfundering platform where it can be examined and funded by investors.

The platforms offer different conditions:

- The return on investment for the project owner varies depending of the structure of the project;
- The return/ interest rate for the investor varies between 3% and 8%;
- The commission for the crowdfundering platform is usually between 10% and 12.5% of the funding sum and is generally paid once the targeted sum has been achieved. Some platforms also require an administration fee of about 1% of the funding sum per year for the administration of the investments.
- Duration of project’s accessibility for financing parties (time that the project is visible on webpage and project developers can receive financing). This is generally between 30 and 90 days;
- The possibility of extending the duration;

¹¹ Bafin “ Securities and investment prospectuses“:
http://www.bafin.de/EN/Consumers_alt/ConsumerInformation/Prospectuses/prospectuses_node.html (visited: 21.03.2016)

External Conditions

The crowdfunding platforms in Germany finance projects with a value of up to 2.5 million EUR. In case the amount of funding is higher the project owner has to present several documents and audits. These are time consuming and expensive (an audit can cost between 30,000 EUR and 50,000 EUR).

The central risk of this mechanism is the reduction of the expected profit for the project owner/ developer, who has to pay the interest rate to their investors regardless of the profitability of the project. A further risk is if the investor does not obtain 100% of the funding. The investor's risk is only in case of insolvency of the project.

Key players and sources of information

In Germany there are several crowdfunding platforms¹². Recently their focus turns to the renewable energy and energy efficiency field. Some of the actors are briefly described below:

- **Bettervest:** crowdfunding-platform that invests in sustainable projects of enterprises, NGOs, and local municipalities, and shares in the revenues from environmental protection. <https://www.bettervest.com/home>
- **Bürgerzins:** Crowdfunding platform for projects with an environmental background and projects in the field of "green energy". <http://www.buergerzins.de>
- **CEPP INVEST:** Equity crowdfunding platform with a focus on investment products in the fields of renewable energy, energy efficiency and properties. <http://www.cepp-invest.de/>
- **ecoligo:** financing platform to source investments for solar projects in developing countries. *ecoligo* also manages the operation of the plants as well as the billing and payment processes with the energy off-taker. <http://www.ecoligo.com>
- **Econeers:** crowdfunding platform for energy efficiency and green technologies. <http://www.econeers.de>
- **Greenvesting:** equity crowdfunding platform that specializes in the planning and operation of solar small power plants. *GreenVesting* also manages the technical operation of the plants. <http://www.greenvesting.com>
- **Tāmaota:** focus on environmental and social projects, including renewable energy, "green" services and social facilities. <http://www.tamaota.com>

¹² <http://www.crowdfunding.de/crowdfunding-plattformen/> (visited: 22.03.2016)