PV Financing Best Practice: Heidelberger Energiegenossenschaft Multi Family Home (Germany)

General project Description

This photovoltaic system, shows a combined capacity of 445 kWp (it is a combination of seven individual plants) and occupies a total surface of 3000m2. The total generation is around 370.000 kWh / year.

The project is located on the roofs of the “Neue Heimat” Cooperative Family Home, situated in Nußloch, near the German city of Heidelberg.

Simply put, the system allows tenants to purchase electricity at a price lower than the price they would pay if they purchased electricity from the grid. This is achieved via a combination of self-production and consumption, and residual electricity supplied from the grid. The 116 tenants are given the opportunity to invest directly in the facility and purchase electricity at a price lower than grid-supplied power; the price is guaranteed for 20 years and thus allows also hedging against price variations.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 646554

Business case description / economic parameters

Business model

The installed PV System generates about 370,000 kWh of electricity per year and all this electricity is bought directly by tenants via an agreement with the Heidelberg Energiegenossenschaft.

Tenants buy the electricity directly from the roof at a rate of 25.4 c€/kWh plus a monthly fee of 6.95 €. The price is guaranteed for 20 years. Tenants that wish to participate in the project are also investors in the plant (see below “Financing Scheme”) and therefore shareholders of the HEG. This allows them to benefit even further in terms of receiving dividends from the company’s profit.

Financing Scheme

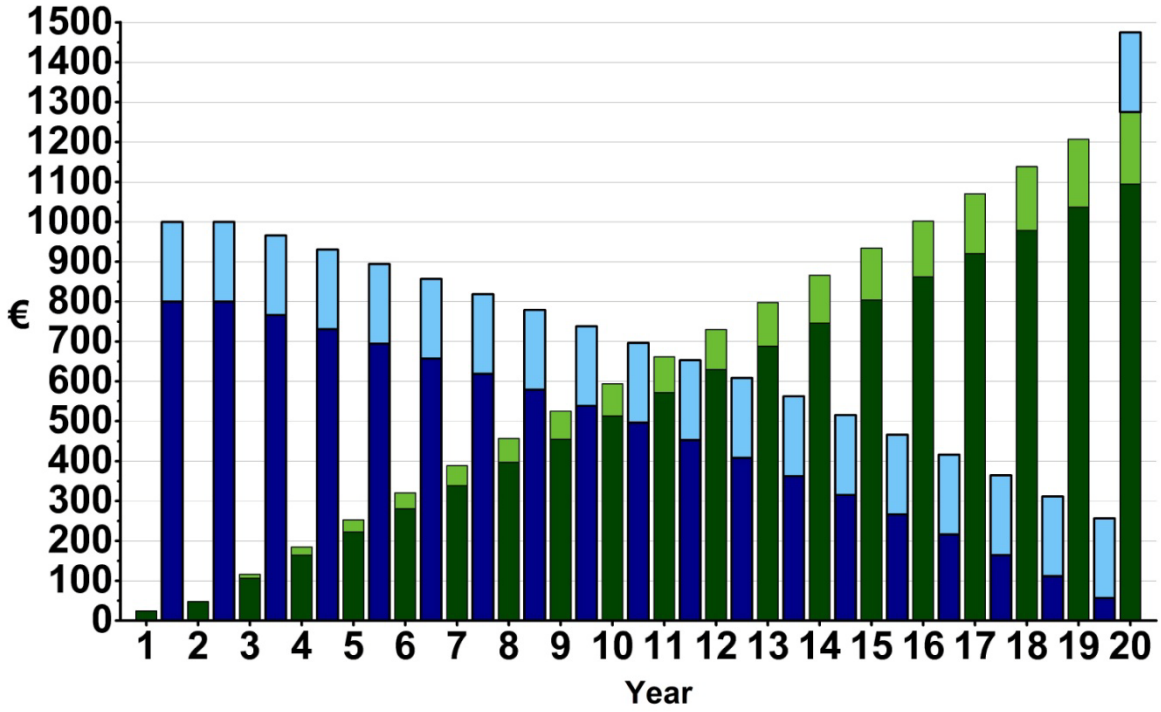
The PV plant has been fully financed via cooperative shares and loans. These are then repaid with interest via the electricity sales revenues. Tenants are offered a “package” of 1000 € consisting of a 800€ private loan and two shares with a nominal value of 100€ each.

The loans are repaid with the following conditions:

- 3% fixed interest rate
- Payback time: 20 years
- Payback period starts from the third year with a yearly instalment of 58,17€ inclusive of interest and amortisation.

The shares entitle the owner to participate in the profit of the Heidelberg Energiegenossenschaft in terms of dividend repayment.

The figure below shows a financial analysis of the investment for the Heidelberg Genossenschaft and for the Tenant / Shareholder. After 20 years, shareholders are paid back about 1400€.



Light Blue: Business share; Blue: Loan level; Light Green: Dividends from business shares; Green: Payback including accumulated interest and amortisation

The total investment costs for the installation were 525.000 EUR.

Technical project parameters

The plant is about 3000 square meters, mounted parallel to the roof and facing both east and west (two sides of the roof). It has an overall capacity of 445 kWp and generates around 370.000 kWh / year.

In total, this allows a level of autarchy of about 31%.

Stakeholders / companies / PPA

The main stakeholders are the Heidelberg Energiegenossenschaft and the Naturstrom AG Utility.

The HEG, apart from managing and supervising the plant, has also accompanied the whole planning and construction phase. Commercial management and technical monitoring are also taken over by HEG.

Naturstrom AG is providing additional electricity, meaning any amount of power needed to satisfy demand that cannot be satisfied by the PV-generated electricity.

Tenants direct all payments to HEG, according to the agreed tariff (see above). This tariff accounts for delivery of both PV-generated and grid-supplied electricity. A separate agreement is in place between HEG and Naturstrom for transferring the amounts corresponding to the electricity supplied from the grid.

All the electricity provided to the building by Naturstrom AG is guaranteed “green”.

Replicability / Outlook

The project setup has the potential to be widely replicable both within Germany and in other European countries. Clearly, details will also depend on the legal setup of the country: chiefly referral is made to the possiblility of the plant operator to act as an electricity retailer – i.e. selling electricity separately to single households. Whereas this is a possibility in Germany, it is explicitly ruled out in other countries (e.g. Italy).

The business mode *per se* could still be applicable, but some adaptations in terms of size and autarchy level would be needed. It is also likely that the profitability of the investment may be different due to this factor.

´Sources

- Internal BSW Analysis
- http://www.heidelberger-energiegenossenschaft.de/images/docs/familienheim_flyer.pdf
- http://www.genossenschaften.de/sites/default/files/Ferchl_Photovoltaik_0.pdf