Factors affecting the Amortisation of a Solar Panel

Discussions about the economic efficiency of solar panels usually reach a general conclusion, one that perhaps not everyone is familiar with - a solar panel pays for itself! However, the speed at which and to what extent this happens is not very clear, as numerous factors need to be accounted for and these can vary with each panel. It simply depends on each circumstance... We discussed the factors that influence an amortisation calculation, as well as their different levels of impact, with Bastian Rösch, key account manager for the LG EU Solar Business Group.

The General Amount of Sunshine

Within Europe, which extends from the far north to the deep south between the 70° and 36° lines of latitude, the sunshine naturally occurs in varying intensities. The amount of sunlight, which can be “harvested” by solar panels, depends on the sun’s seasonally conditioned irradiation angle, as well as general weather factors, such as constant low-pressure areas over the UK as opposed to the almost permanently cloudless heights in southern Spain.

One thing remains certain - the amount of sunlight in areas within Europe differs considerably. While the energy levels in Norway amount to under 500 kWh/m², these levels can reach up to more than 3 times that value, over 1 800 kWh/m², in several regions in mediterranean countries. “In central, and of course southern Europe we have more than enough potentially useable solar energy, making the
use of solar panels a sensible option,” explains Bastian Rösch. “The newest panels from LG, especially, have an efficiency of almost 20% and are perfectly capable of refinancing themselves, even in less than ideal areas.”

The Roof
Many solar panels are erected on rooftops; this is not an uncommon sight to see all over Europe. The expected power harvest is influenced by the slope of the roof and the direction in which the roof is facing. “However, the location of the roof, as well as the slope, affect the cost-benefit analysis of a solar panel less than one would expect,” says Bastian Rösch. “The new solar panel models make it possible for virtually any roof, excluding only those facing north, northwest or northeast, to use photovoltaic panels.”

The Costs
The profitability of an investment is based on the relation between the costs (expenditure) and the return (income). The amount of the investment to be put up for solar panels depends on a variety of factors. A solar panel’s price is only one factor among many. Another includes the costs for the installation, which in turn is affected by the general conditions of the surface area where the panels are to be mounted. The steep roof of a 3-storey apartment building will definitely generate more expenses than a 1-storey bungalow with a flat roof. Hence, the supporting structure and installation costs have to be estimated
differently. Lastly, the cost for using the solar panels needs to be considered, there’s the technical preparations (lightning protection, system monitoring, etc.), as well as a few recurring expenses, such as cleaning. “LG delivers quality. We do not want to compete with the prices of hurriedly assembled mass-produced products,” Bastian Rösch clarifies LG Solar’s market positioning. “Our panels are easy to handle, because of the sophisticated details of their design and they’re lightweight. This decreases the installation costs.”

It is often generally difficult for the end user to compare different offers for solar panel installations. This starts with the solar panels themselves, where total prices are compared without considering performance classes or output density.

Bastian Rösch advises, “Customers should pay attention to the electricity generation costs, in other words the costs per generated kilowatt-peak throughout the lifetime of the panels. Here the high performing and highly profitable solar panels from LG can make a huge difference, despite the higher investment costs. An increase of about 20% in performance on the roof means a greater additional yield.”

**Feed-in Remuneration vs. Home Consumption**

When looking at income there are two different important aspects of consumption, which are inconsistent throughout Europe, that should be considered - a fixed feed-in remuneration on the one hand and electricity costs that are spared by home consumption on the other. In Germany, the state guarantees a 20-year fixed remuneration for every kilowatt-hour supplied into the power grid through the German Renewable Energy Act. The price of electricity also varies. Using these prices, it is then possible to calculate how much one would need to pay to receive the same amount of electricity (from the grid) that could be produced with one’s own system. This theoretical cost is usually higher than the remuneration one would receive for feeding it into the power grid. The calculation should then also include how much of the electricity that is generated can be used. Bastian Rösch states, “A domestic consumption rate of 25% is possible. With a storage battery, this number can definitely be increased.” The feed-in remuneration in Germany was decreased in the last few years; however the 20-year guarantee the state provides means high planning security for solar panel users.
LG’s Product Guarantee protects your Investment
What use is excellent profitability if the product and its implemented technology cannot be relied on? The worst case scenario would be a complete loss on the investment. “With LG the customer takes no risks, because we provide a 12 year product guarantee with our newest solar panels,” says Bastian Rösch. “It is significantly more than the average offer in the solar industry, which is 10 years.” Furthermore, the guarantee from LG is covered by their Korean parent company (The court of jurisdiction is in Dusseldorf) and not through a special stand alone Solar company which could be vulnerable if financial problems occur.

Conclusion
There are two factors that play a very important role in the economic efficiency calculation of a solar panel. First and foremost, the highest possible performance a solar panel can offer needs to be ensured. Only high performance yields high profit. Secondly, the private, or domestic, consumption rate is becoming more and more important for the total calculation due to ever-increasing electricity costs. Those who are able to primarily use energy during the day, when the solar panels are performing at their highest capacity, will reap the benefits of their investment sooner.

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