

## Final customer analysis

### Identifying the Customer

The final customers will be the eventual users of the solar panels. This can be both individuals and companies. In the Netherlands, 70% of the total solar panels are in possession of households, while 30% of the solar panels are used for commercial purposes. This results in almost 260.000 households that have solar panels. The final yield of all the solar panels was 1485 MW in 2015. This is less than 1% of the total power supply. The government aspires to increase this number to at least 5% in 2020. This means that the number of solar panels has to be increased enormously or the efficiency of the solar panels have to be improved[1].

Germany is the world's leader of photovoltaic capacity since 2005. With a total capacity of more than 35 GW, the photovoltaics contribute almost 6% to the national electricity demands. The government is planning to increase this percentage even more[2].

Worldwide growth of the use of solar panels varies strongly by country. By the end of 2014, cumulative photovoltaic capacity increased by more than 40 GW and reached at least 178 GW. Currently, the total worldwide consumption of energy is equal to 18,400 TWh. This means that the total photovoltaic capacity is sufficient to supply 1% of the world's total electricity consumption.

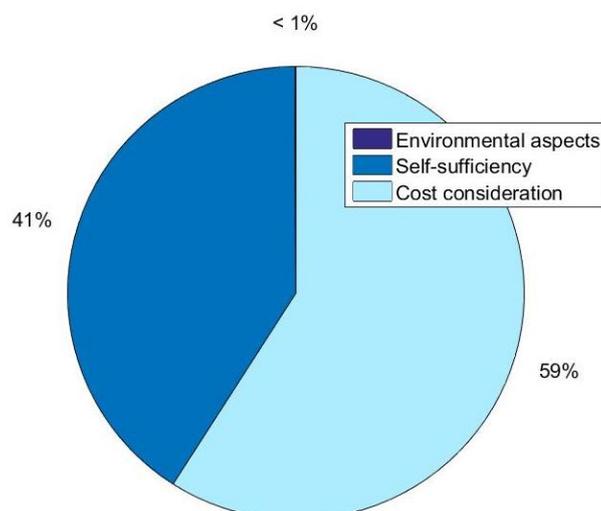
In conclusion, the solar energy market is dynamic and growing market. There is an increasing demand for environmental friendly and renewable energy sources. It is expected that the total demand solar panels will increase even further in coming years therefore.

### Needs of the final Customer

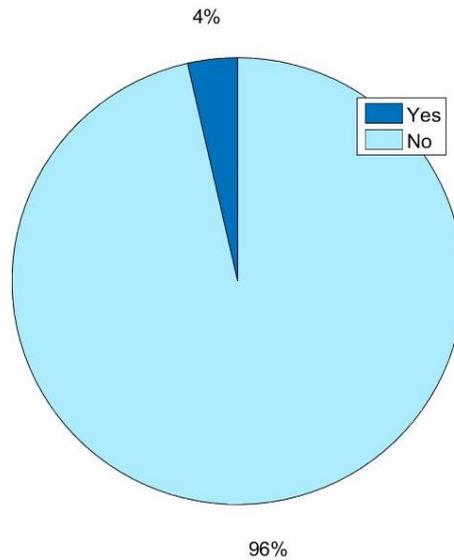
To analyze what the opinions and needs of the final consumers of solar cells are, we formulated, likewise for the producers, a standardized questionnaire that we have sent out to users and possible users. Both the opinions individuals and companies have been analyzed. The template questionnaire can be found here:

We have interviewed over 50 possible final customers. Based on their opinions the needs of the final customers have been formulated.

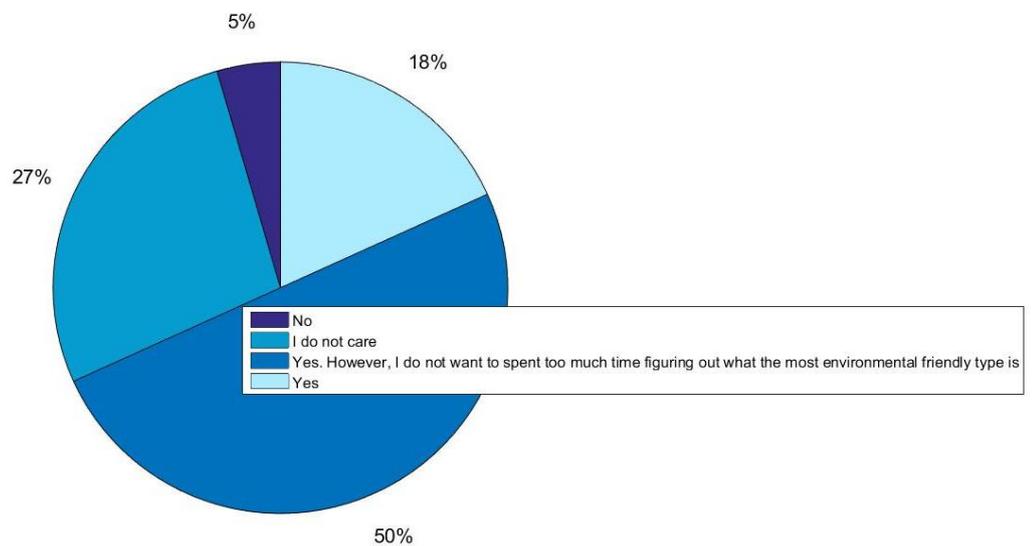
The survey shows that there are two main reasons for final customers to purchase solar panels, cost considerations and self-sufficiency. None of the responders has the environment as main argument to purchase solar panels.



Nevertheless, a small majority of the people believes that more environmentally friendly produced solar panels provide added value for the consumer. However, as can be seen in the figure below, most of them are not prepared to pay a higher price for the more environmentally friendly solar panels.

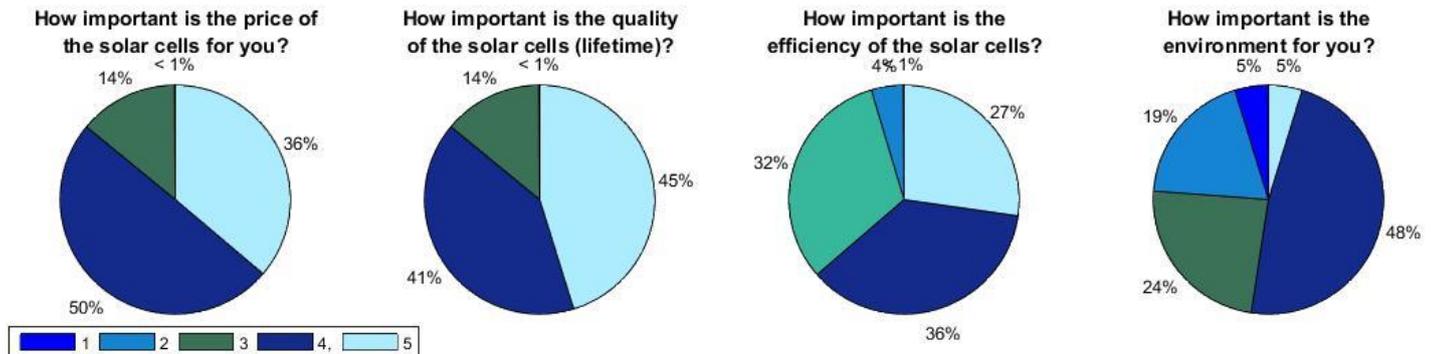


Based on the survey it appears that, if the price is comparable, more than 65% would choose the most environmental type of solar panels. However, most of those responders do not want to spend too much time figuring out what the most environmental friendly type is.



Furthermore, it is remarkable that after the survey more people are planning to do research into the environmental aspect of solar cells. Apparently, it is important to make people aware of the environmental aspects of the solar panels itself.

Finally, when users of potential users of solar cells are asked what important is about the solar panels, the answers are comparable with the aforementioned findings. The price of the solar panels is the most important. The environment is clearly subordinate thereto.



The main key points are:

- Final customers are not prepared to pay a higher price for solar cells because they are more environmental friendly.
- In most cases final customers do not in particularly think about the environmental aspects of the solar panels itself.
- If the price is comparable, most final customers would buy the most environmental friendly solar panels. However, they do not want to spent too much time figuring out what the most environmental friendly type is.

Based on the main key points we can conclude that the fact that the use of the biologically produced MLAs result in more environmental friendly solar panels is on its own not a convincing argument for the final customers. They are not willing to pay a higher price purely based on that argument. This means that the improvement of the efficiency has to be large enough to compensate for eventual increase in price. It also means that quality or the price have to be better than those of the regular alternative chemical produced MLAs. Finally, it is interesting to conclude that final customers are often not aware of the environmental aspects of the solar panels itself. This could be used for marketing purposes.

#### Reference List

- [1] B. v. Wezel, "Elektriciteit in Nederland," Centraal Bureau voor de Statistiek 2015.  
 [2] C. B. v. d. Statistiek, "Solar energy data," in *Hernieuwbare elektriciteit; productie en vermogen*, C. B. v. d. Statistiek, Ed., ed. Den Haag 2015.