

The impact of solar photovoltaic technologies at the municipal level

As the costs of solar photovoltaic (PV) technologies continue to decrease and electricity prices continue to increase, a significant number of people have already invested in PV, generating their own electricity through renewable energy.

The benefits to this trend in terms of carbon emissions are obvious. However, consequences for municipalities are potentially dire unless they make provision for the resultant reduction in electricity sales as electricity revenue supports not only electricity services, but also subsidises numerous other services.

WWF South Africa and the Centre for Renewable and Sustainable Energy Studies (CRSES) at Stellenbosch University are working to better understand the role of renewable energy in urban settings as a means to address climate change, energy security and access along with the long-term resilience of cities and towns. A key focus is the ability of municipalities to respond strategically and effectively to the inherent challenges of increased renewable use is a crucial aspect.

While the research is still underway, an initial survey was conducted to ascertain attitudes towards the use of solar PV technologies. 2 778 people responded to the survey.

Key findings include the following:

- Only 10% of all respondents have no intention of ever installing PV technology. Approximately 10% already have it installed, 60% would consider installing in the next 5 years, while a further 14% might install it after 5 years.
- Only 25% of respondents who have rooftop PV installed have done so with the knowledge of their electricity provider.
- Almost 90% of those who have PV installed are homeowners.
- Solar PV installations are often done in conjunction with other electricity-saving technologies such as solar water heaters.
- Social influence plays a role in the decision to invest in rooftop PV; most people who have invested, or who are intending to invest are influenced by friends, relatives or colleagues.
- The prospect of rising electricity prices is a motivation for the investment of alternate technologies.
- Upfront investment costs are, however, a deterrent to investment.

The research highlighted the fact that many private owners of PV fail to register the installations. It is important that policies and processes be developed to encourage registration. This will serve to both help municipalities with planning, and to ensure that the installations adhere to safety regulations.

In addition, a suitable tariff system must be developed to address grid defection. Such a system should aim to incentivise private owners to remain on the grid..

Finally, municipalities must develop long-term strategies to address the inevitable impact of increased private use of renewables on their revenue. Options may include changing their existing business model by providing additional value added services, the identification of additional sources of income such as a city tax, increased private sector investment in municipal infrastructure, and so on. Essentially, they will have to recast themselves as the preferred supplier of electricity services rather than a mere on-seller of electricity.

This research is intended to provide some of the analysis necessary for municipalities to develop an understanding of the existing distribution system, tipping points of defection and expectations and needs of their existing clients that can address both the threat of defection and the development of a future municipal electricity model.

For more information, see:

http://awsassets.wwf.org.za/downloads/korsten_kritzinger_and_scholtz_2018_understanding_solar_photovoltaic_investment_decisions.pdf