ETH zürich

An industry growing up – can self-consumption lead solar photovoltaics to independence from subsidies?

Frontiers in Energy Research – December 18 2013

Tillmann Lang

Departement Management, Technology, and Economics
D MTEC
Chair of Sustainability and Technology

Abstract of the presentation

"Rooftop photovoltaic (PV) power generation stands as a promising technology for the transition towards a low-carbon power and buildings sector. However, in the past, deployment has been strongly dependent on policy support. With the recent rapid decrease in module costs, rooftop PV is exhibiting a growing potential to be an attractive investment even in the absence of subsidies. While many drivers of economic performance have been investigated in isolation, a holistic analysis of how realistic combinations of influencing factors determine rooftop PV's economics is still missing. We identify the most important influencing factors through a comprehensive review of the literature. We then provide a model-based techno-economic analysis of a small-scale grid-connected residential building PV system, assessing how region-specific geographic, technological, and economic parameters jointly influence performance. We find that in many regions rooftop PV can already today be an attractive investment, even in the absence of subsidies. No regional influencing factor can in isolation guarantee or impede performance. Moreover, in most regions it might be possible to further improve economic performance. Self-consumption is identified as a likely driver of value in the future, while low electricity prices (and thus fossil fuel subsidies) present a powerful barrier in some regions. Based on these insights, we discuss implications for policy makers and investors with regards to recognizing and shaping attractive markets and investments."

Contact details

Group for Sustainability and Technology at ETH Zürich
(http://www.sustec.ethz.ch)

- Part of the Department of Management, Technology, and Economics (D-MTEC)
- Interdisciplinary research focusing on strategy, technology and policy in the energy sector
- Aims at informing private sector and public policy decisions in the context of the energy transition

Dipl.Math. Tillmann Lang

tillmannlang@ethz.ch

+41 44 632 04 22

- Researcher, PhD candidate
- Diploma in Mathematics and Computer Science
- Senior associate at McKinsey & Company