Article title: Techno-economic review of Rooftop Photovoltaic Systems: Case Studies of Industrial, Residential and Off-grid Rooftops in Bangalore, Karnataka.

Journal title: Renewable and Sustainable Energy Reviews

Authors: Mr. Saptak Ghosh, Akhilesh Nair, S.S. Krishnan

Full bibliographic details: Renewable and Sustainable Energy Reviews (2015), pp. 1132-1142

DOI information: 10.1016/j.rser.2014.10.094

Web link: http://www.sciencedirect.com/science/article/pii/S1364032114009198

Source/Publisher: Elsevier

Abstract:

The objective of this study is to assess the financial feasibility of setting up Rooftop Photovoltaic (RTPV) systems in Bengaluru which is in the state of Karnataka, India. The Renewable Energy Policy of the state mandates the installation of 250 MW of RTPV systems by 2014, while research shows that the domestic RTPV potential in Bengaluru alone is around 560 MW. To achieve this potential, the Karnataka Renewable Energy Development Limited (KREDL) and the Karnataka Electricity Regulatory Commission (KERC) formulated policy incentives in the form of net metering at rates of Rs. 9.56/kWh (without the Ministry of New and Renewable Energy (MNRE) capital subsidy) and Rs. 7.2/kWh (with MNRE capital subsidy). Techno-economic assessment of RTPV systems show that these rates lead to viable business cases for the consumers. However, due to Bangalore Electricity Supply Company's (BESCOM) poor finances, a cap of 75% on the capacity of any installed RTPV system based on rated load has been set for all interested parties. Unless this cap is removed, the net metering scheme can never gain momentum in Karnataka because the power generated from the RTPV system will not exceed the monthly consumption. An additional amount of Rs. 81.6 crores per annum is required to reach the 250 MW target. BESCOM can tap the proposed State Clean Energy Fund (SCEF) to pay RTPV project developers. Other revenue models such as feed in tariffs (FiT) and the Renewable Energy Certificates (REC) schemes have been considered for analysis of larger RTPV systems on industrial and commercial rooftops.