Energy Policy. Volume:75 Number: Pages: 244-254. December 2014

The economic effect of electricity net-metering: consequences for network cost recovery, cross subsidies and policy objectives

C. Eid, J. Reneses, P. Frías, R.A. Hakvoort

Abstract— Net-metering is commonly known as a practice by which owners of distributed generation (DG) units may offset their electricity consumption from the grid with local generation. The increasing number of prosumers (consumers that both produce and consume electricity) with solar photovoltaic (PV) generation combined with net-metering results in reduced incomes for many network utilities worldwide. Consequently, this pushes utilities to increase charges per kW h in order to recover costs. For non-PV owners, this could result into inequality issues due to the fact that also non-PV owners have to pay higher chargers for their electricity consumed to make up for netted costs of PV-owners. In order to provide insight in those inequality issues caused by net-metering, this study presents the effects on cross-subsidies, cost recovery and policy objectives evolving from different applied netmetering and tariff designs for a residential consumer. Eventually this paper provides recommendations regarding tariffs and metering that will result in more explicit incentives for PV, instead of the current implicit incentives which are present to PV owners due to net-metering.

Index Terms— Tariff, DSO, regulation, distributed generation, DG

Citation:
Eid, C.; Reneses, J.; Frías, P.; Hakvoort, R.A. ; "The economic effect of electricity net-metering: consequences for network cost recovery, cross subsidies and policy objectives", Energy Policy, vol.75, no., pp.244-254. December, 2014.