

## Abstract

The energy demand is increasing globally due to technology advancement and environmental apprehensions, consequently shifted the researcher's trend towards the promotion of renewable energy technologies. Solar Pv being the progressive amongst all renewable energy technologies got special consideration. Although, the solar Pv systems are getting cheaper and efficient, which gives it a competitive edge; but the technology still being dependent on the policy measures for its dissemination.

The goal of this study is to research on whether or not a grid connected solar Pv system is economically viable for some specific circumstances and consumer sectors. The study, analyzed this by performing techno economic analysis for the grid connected solar Pv system. The system being considered in this study are from residential and commercial sector of Lahore city.

The objectives of this study are perused by making use of major financial parameters like, NPV, IRR, PBP, LCOE, electricity prices and Pv system pricing for both the sectors; residential and commercial.

The results obtain from this research shows that a grid connected solar Pv system installed at residential or commercial sector will make net benefit over its lifetime. The residential grid tied system is of 6 kWp capacity having PBP of 6-7 years with LCOE is 5.37 Rs/kWh while the commercial grid tied system is of 488kWp capacity having PBP of 5 years and LCOE is 5.29 Rs/kWh. The results indicated that net energy metering policy is effective for all system sizes but get more beneficial when system size increased.

The study in hand thus results that the net energy metering policy proved to be a bit more beneficial to commercial customer than small scale residential user, however a domestic user could make full advantage out of the net metering policy.

**Keywords:** *Net Energy Metering, Solar PV, Techno-Economic Analysis, Pay Back Period, Levelized Cost of Electricity.*