

Economics of Solar Power : A Case Study of Pakistan

Abstract

Pakistan is experiencing the severe power shortage, the shortage reached to all time high to 8500 MW when peak electricity demand reached to 21,063 MW on June 2012. Though, the country's gross installed generation capacity is 22,477 MW, which is technically more than peak demand. The reasons for this shortfall in electricity is due to de-rated capacity of some plants which led to capacity shortfall, shortage of fossil fuel – Oil and gas; gas shortage due to increased demand in other sectors, and oil shortage due to government's inability to pay the bills which led to circular debts. Nevertheless, in the past decade, energy mix has shifted from hydro to thermal power. Renewable energy has a great potential for Pakistan to meet the sustainable development goals while providing clean, secure, reliable and affordable electricity without compromising the growth paradigm. It has already proven to be more cost-effective than most of the diesel based generation for off-grid electricity. Solar Power has a great potential for Pakistan's agricultural based economy with major portion of population living in rural areas – which are not connected to grid.

This paper is an attempt to discuss and highlight the economics of solar power in global perspective with special focus on developing world – A case study of Pakistan. The sections of the paper will discuss the global solar technology potential and technologies available, cost reduction and future technological developments. Later sections will focus on Pakistan's existing power situation, theoretical potential for renewable energy in Pakistan, and policies on renewable energies and way forward.