

WILL MARKETS OVERSUPPLY PV ELECTRICITY?

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It is well-known that the economics of renewable electricity generation are problematic. Sun and wind seem to provide a cheap source of clean, renewable fuel, but the unpredictable nature of their supply coupled with ramp-up costs in thermal plants can, in heavily regulated markets, lead to situations where renewable fuel generation has low or even negative gross benefits. Renewable generation makes more sense in New Zealand where base-load power is hydro (with does haven't the ramp-up costs of thermal generation), and the market is not heavily distorted with regulation. The widespread practice of charging retail customers a single price throughout the year, however, does limit the ability of prices to optimally allocate home-based renewable generation in the form of solar water heating or PV panels, since the sun provides its greatest input at those times of the year when the true resource cost of electricity is at its lowest. This misallocation can even apply to PV generation that is supplied back into the grid even if the feed-in tariffs paid to consumers are set in a competitive market. In this paper, I show that, under plausible assumptions about the marginal cost structure of electricity, that a competitive electricity constrained only by a policy of flat year-round pricing, will tend to over-invest in PV generation.