

Quantifying system-wide financial costs and benefits of renewables (Wind and PV) in South Africa

Tobias Bischof-Niemz, Joanne Calitz, Crescent Mushwana

Abstract:

In this study, the direct financial costs and benefits in South Africa from the wind and PV plants that came online in 2014 and all additional wind projects coming online in 2015 are quantified. In 2014, renewables created financial benefits of R5.3 billion in total (or R2.42 per kWh of renewable energy), while the tariff payments to independent power producers of the first wind and photovoltaic (PV) projects were only R4.5 billion (or R2.07 per kWh of renewable energy), leaving a net benefit of R0.8 billion. In the first half of 2015, renewables created financial benefits of at least R5.9 billion, while they cost R4.3 billion (IPP tariffs), leaving a net benefit of R1.6 billion. The methodology that was developed to assess these benefits and costs is robust and conservative and can easily be adjusted for and applied to other electricity control areas in the region or globally.