

Small Systems, Big Targets: Power Sector Reforms and Renewable Energy Development in Small Electricity Systems

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**Rabindra Nepal, Tooraj Jamasb, Anupama Sen
and Lawrence Cram**

Abstract: The dominant focus of much policy attention of late has been on the suitability of electricity market reform carried out under the ‘standard’ or prescriptive approach – the end point of which is market liberalization – for the integration of intermittent renewables. There is now a growing consensus around the argument that traditional energy-only electricity markets where prices are based on system marginal cost cannot function efficiently with both fossil fuels and renewables, potentially resulting in market disruptions and price volatility. Consequently, most policy discussion has focused on finding ways to successfully integrate the two through adopting advanced competitive solutions (such as the use of capacity markets in addition to energy-only markets) in larger electricity systems. This paper however argues that the effectiveness of competition is limited by the size of an electricity system – in other words, there is a minimum threshold size (and other associated characteristics such as tropical locations, lack of access, and the prevalence of remote communities of consumers) under which competition will not produce expected outcomes, and for which distinctive policy solutions are required. This paper contributes to the policy discourse by discussing the reform of small electricity systems to integrate renewable energy via the means of three case studies: Nicaragua, El Salvador, and their application to Australia’s Northern Territory. The paper draws some policy lessons that can be considered for other small electricity systems in island economies and territories across Africa, the Caribbean, and the Asia-Pacific, that are pursuing a triad of objectives including electricity sector reform, large-scale renewables development and improving energy access.

Keywords electricity, reforms, renewables, island economies, territories

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Contact rabindra.nepal@cdu.edu.au
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