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Commercial Models for Regulating Network Voltage with Customer Inverters

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The technical ability of inverters, large or small, to provide power quality services including voltage regulation is well understood. The ubiquity of customer inverters and their suitability for distributed intelligent control present opportunities to manage distribution networks with a precision not seen before. When a suitable commercial model is proved rapid adoption of inverter controls can be expected.

Networks Renewed is a project funded by ARENA to demonstrate voltage regulation with customer inverters. By reducing voltage rise and other effects of distributed generation, this will address an important barrier to reaching even higher penetrations of rooftop solar PV generation connected to Australian distribution networks. The pilot-scale demonstration, completed in September 2017, installed customer inverters on a variety of network segments in Victoria and NSW. This proved the technical capability and determined the scale necessary to have a corrective impact on network voltage.

This paper reports how the market-scale demonstration uses a working commercial model for voltage regulation using customer inverters. Inverter controls are presented to distribution businesses as network services and two suitable contracts, one in NSW and one in Victoria, have been executed to enable voltage support actions and rewards. The market value of voltage support services has been explored and initial findings are presented. These are important steps in establishing this service-based model as a common practice.