Facilitating the Technical Network Integration of Distributed PV Generation

While the electricity grid at a food hub can accommodate distributed PV generation, at higher penetration levels there are expected to be impacts caused by voltage rise and variability. Addressing these will allow food-hub operators to plan appropriately and will contribute to the successful technical integration of distributed photovoltaic generation.

Competitive advantage

- Comprehensive characterisation describing the behaviour of PV generation variability over the course of the day and over the course of the year
- Simple and efficient method for estimating the level of PV generation a low-voltage feeder can accommodate without exceeding upper voltage limits
- Methods for integrating PV systems, controllable loads and other devices, such as electrical storage, to manage distribution voltage levels

Impact

- Simple and efficient methods for estimating maximum distributed generation capacity of a feeder or microgrid that require no new communication infrastructure and are shown to be more efficient and equitable than similar methods currently proposed
- Rapid assessment and determination of maximum PV generation for distribution feeders
- A novel voltage control method using residential PV systems and controllable loads to ensure voltage levels, upper and lower, are maintained within regulation limits

Successful applications

- Feeder modelling for distribution operators

Capabilities and facilities

- Software tools to expedite analysis of feeder capability
- Realtime digital simulation facilities to verify models

Our partners

- APVI
- Endeavour Energy

More Information

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