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Distribution Utility use of Batteries

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Introduction

Globally, many electricity utilities are exploring how batteries can help support their networks and deliver value to their customers. The network companies of Australia and New Zealand and state governments of Australia are no different, seeking to deploy batteries to provide security of supply to constituents.

Project

S&C Electric will deploy a 250 kW / 500 kWh Battery Energy Storage System for Counties Power at their newest sub-station in Taukau, North Waikato, in mid-2017. This pilot project will explore how electricity storage can help avoid reinforcement costs through peak shaving and access other income streams, through providing ancillary services such as demand management, to the Transmission system of NZ.

Discussion

Designing a Battery Energy Storage System (BESS) that can meet immediate utility needs, while providing the opportunity to provide additional wider system services is challenging. This challenge increases with the changing nature of the wider system and, as a result, new services are developed and specified. Not only does a BESS need to be delivered for now, but should be ready and capable of securing new income in the future. Incorrect or restrictive initial design, in both hardware and software, could result in a BESS that becomes stranded because the system that would be built today will not function for tomorrow.

As well as good technical specifications, an appropriate market framework and supportive regulation is required to ensure that the wide whole-system benefits of BESSs can be delivered at lowest cost to the consumer.

Conclusion

BESS projects internationally, such as the UK Power Networks 6 MW / 10 MWh battery, demonstrate that building in "future-proofing" flexibility is not only achievable, but maximises opportunities beyond the original utility owner-operator.

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