Integration of Low Carbon Technologies

Client TasNetworks

Client Need

EA Technology was asked to develop options to facilitate the connection of low carbon technologies such as Solar Photovoltaics (PV) and Electric Vehicles (EVs) to the LV network. The work was delivered for a Distribution Network Service Provider (DNSP) TasNetworks, the electricity distributor for Tasmania, Australia. The project aimed to identify the most cost-effective method for resolving network constraints predicted to arise due to forecast uptake rates of Distributed Energy Resources (DER), by minimising the need for costly network reinforcement.

Our Approach

EA Technology utilised the Transform Model® to perform a cost-benefit analysis for Tasmania's LV electricity distribution network. The Transform model was populated with representative network data, forecast DER scenarios and usage profiles.

EA Technology was able to identify that the primary challenge TasNetworks will likely face in future was due to the high adoption rates of EVs. This was noticeably different to previous assumptions based on analysis completed for South Australia Power Networks (SAPN) which recommended dynamic operating envelopes to manage solar PV related network constraints.

For TasNetworks, EA Technology performed multiple studies considering different management strategies available to manage the load on the LV network caused by EVs. These included the development of time of use tariffs and demand side management of EV charging. These were compared with the counterfactual of no smart management strategies and costs were compared to quantify the savings available to TasNetwork from adopting these innovative network management approaches.

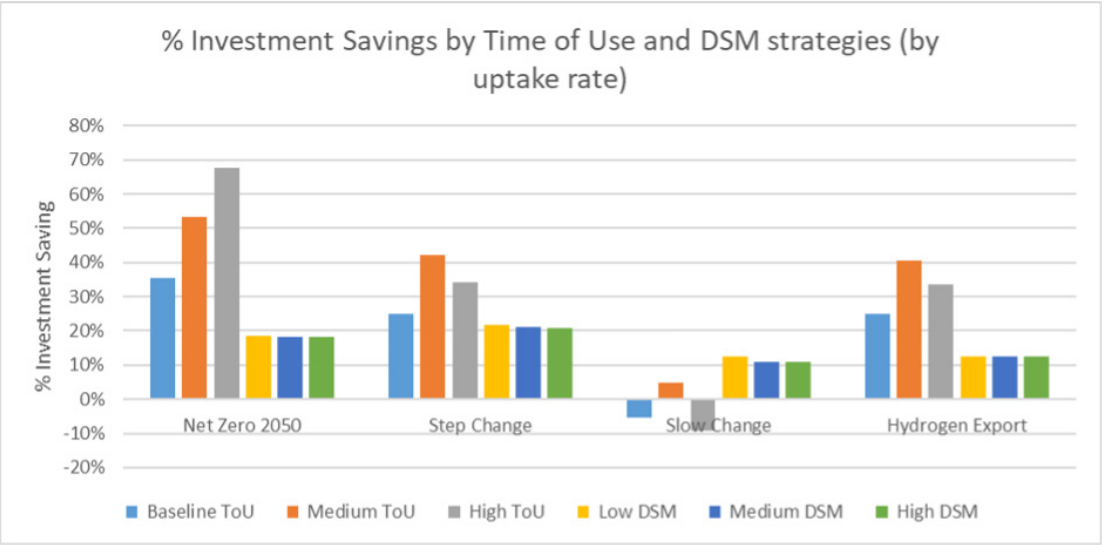
Benefits

EA Technology are experts in parametric modelling (utilising Transform), which ensured that the modelling was accurate and reliable. EA Technology drew from their international experience to ensure that best practice and findings from across the globe were considered.

EA Technology produced a comprehensive report summarising the findings from this project, and since the Transform model is EA Technology's own software, the models used in this project were able to be provided to TasNetworks along with a training session to ensure good understanding of the model and how to use it.

Case Study

Given below is an example from the study estimating the investment savings by deploying alternate strategies:



Why this is relevant to your project

While the results from this project will be directly applicable to the electricity distribution network in Tasmania, the concepts of managing LV network constraints caused by DER uptake to extract better value from the existing LV network and minimise the need for costly network reinforcement is applicable across many other areas. EA Technology can help you understand the challenges facing your network and opportunity for alternative and novel operating arrangements to minimise costs.

"The adoption of DER by consumers globally pose different challenges for DNSPs. In this study, the forecast EV uptake across Tasmania has shown to facilitate this. Significant network reinforcement will be required if left unmanaged. It is encouraging to see that through the use of management strategies such as Time of Use tariffs and Demand Side Management, the necessary investment required can be reduced, keeping electricity distribution costs down for consumers."

Thomas Stone, Project Manager, EA Technology.

" We're at the front-line of efforts to double Tasmania's clean energy by 2040. Embedded generation like solar PV, batteries and electric vehicles will be increasingly important. Results from this study wil help us better plan for integrating larger levels of DER in the future."

Adeel Rana, Future Networks Team Leader, TasNetworks.

Case Study

Global Footprint

At EA Technology we specialise in asset management solutions for owners and operators of power network assets.

Founded in 1966 we have over 50 years' experience in the industry and 5 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimise cost.

ea technology

Safer, Stronger, Smarter Networks

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