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Energy Transformation

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In the midst of the Australian Energy Transformation Process

Australia is in the midst of an energy supply and distribution transformation. This transition is twofold and includes not just bridging the gap from conventional fossil fuels to renewable technologies (due to their reduced carbon footprint, lower levelized cost of energy and improved reliability levels by comparation), but also requires the shift from a centralised to a decentralised energy system. This evolution is not simple and will require adjustments from all stakeholders.

There are a number of centralised and distributed renewable technologies that are competing for opportunities in the market including more established options like rooftop and large-scale solar and wind as well as other emerging technologies that are at various stages of commercialisation including batteries (both residential and utility scale) pumped hydro, solar thermal, hydrogen, etc. Understanding the growth trajectory for rooftop PV and storage will allow participants to identify what the real addressable market opportunity for large scale renewables would be (either as stand alone projects or as co-located hybrid developments).

We need to get proficient at forecasting how the supply and demand balance will change over time, together with the additional energy needs and requirements coming from fossil fuel power stations decommissioning across the Australian states coupled with the increasing uptake of electrical vehicles.

There are opportunities for clean energy investment in Australia, but now more than ever careful due diligence and sophisticated project analytics is of paramount importance to remain competitive. To fully understand how; compensation for energy, ancillary services, and the role that new markets being evaluated today will play in the future will be key to any projects success. Also it is integral for all future investment that the most suitable energy technology mix is identified as adding further benefits long term, such as: wind only projects could compensate for a heavy regional solar duck curve, or to better protect against negative pricing experienced during the middle of the day (irradiation peaks), batteries and solar thermal could compensate for the inertia lost in the system (currently offered by conventional fossil fuel power stations). Matching the optimal technology mix with the local area needs and requirements will need to take into account: local demand patterns, transmission infrastructure capacity, existing and planned energy mix, Renewable Energy Zone availability and constraints, etc. Every geography is unique, understanding its differences will be the ultimate maximiser for investment certainty and achieving yield expectations.

During May 2020 the "Technology Investment Roadmap Discussion Paper" was published. A framework to accelerate low emissions technologies by the Australian Government. As we find ourselves deeper into the energy transition the level of complexities across regulation, technical issues, and market processes continues to increase.