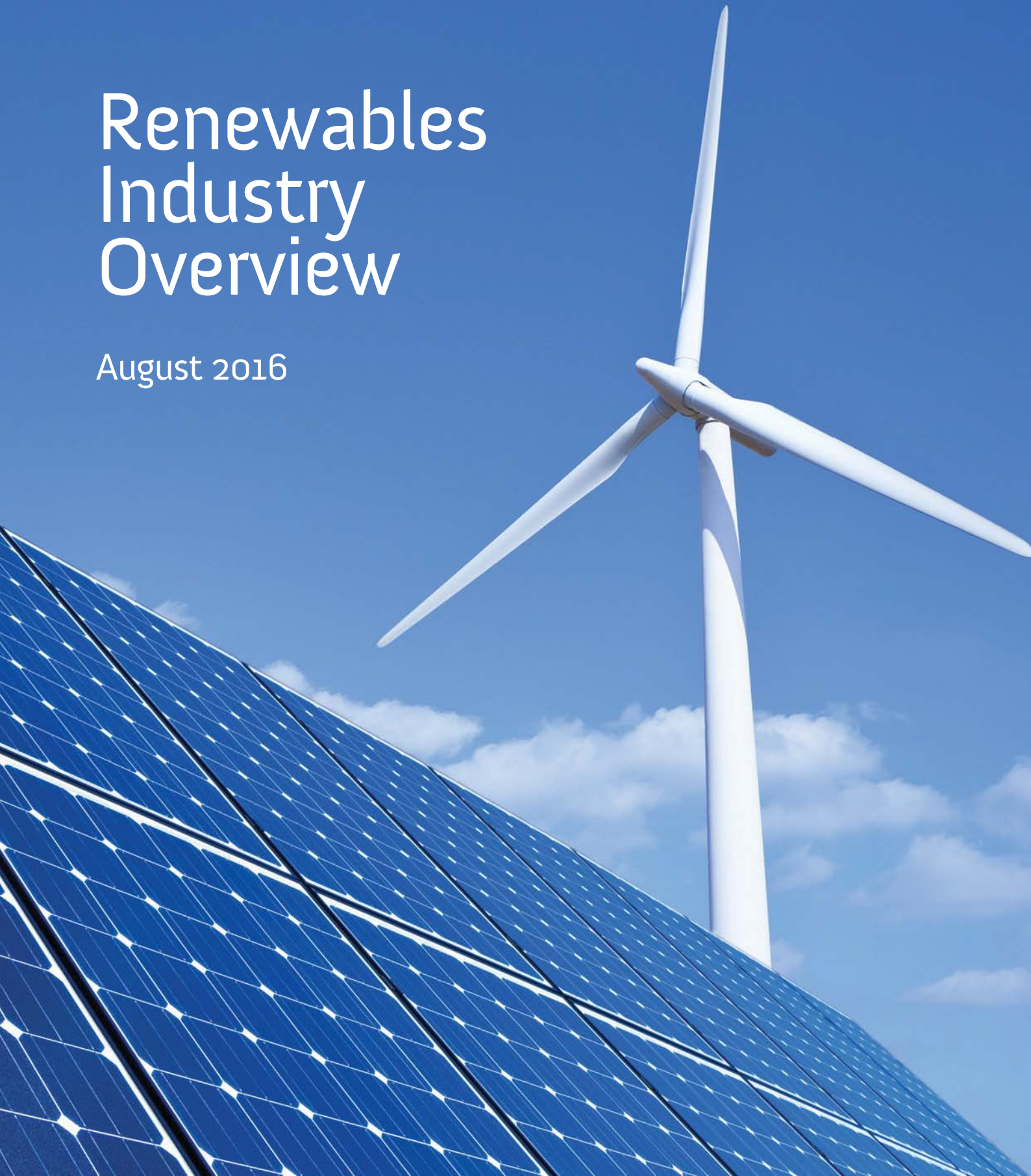


Renewables Industry Overview

August 2016



CLIMATE CAPITAL
rebalancing nature and humanity

Introduction

Australia is a country of extremes. Whilst it is considered to have some of the best conditions for wind and solar generation in the world, endowed with enough renewable energy resources to power the country 500 times over¹, it is also one of the top 10 global emitters of greenhouse gases from electricity and heat production, typified by its sub-critical fleet of coal-fired power plants, which is estimated to be the most carbon-intensive in the world².

More recently, there has been a clear shift away from fossil fuelled generators and towards alternative renewable focussed generators.

The Australian renewable sector is largely underpinned by the Renewable Energy Target, which is designed to encourage greater renewable electricity generation. Australia's Renewable Energy Target (RET) was first introduced in 2001 and was subsequently expanded in 2007 by the Labor Party. The scheme is designed to deliver 20% of Australia's electricity from renewable sources by 2020. This is achieved by mandating electricity retailers to source 20% of their energy from renewable sources developed after 1997.

The recently announced bipartisan agreement between the federal government, the opposition and industry bodies to amend the RET to 33,000GWh mandates approximately 5,000MW in new renewable capacity to be delivered by 2020. In spite of a reduction to the mandated target, the agreement at least provides certainty to the renewable industry in the medium-term.



Trends in the Australian energy market

The expansion of the renewable energy sector has seen a shift away from traditional fossil fuelled generators, leading to the decommissioning of over 4,000MW of fossil fuelled power stations across the NEM in 2015.

At present, renewables account for approximately 11% of generation capacity and it is expected to play a more pivotal role in the NEM as it continues to displace traditional fossil fuelled generators.

We have also seen the emergence of solar photovoltaic, most notably with at the household end, reaching around 40% of residential customers in South Australia.

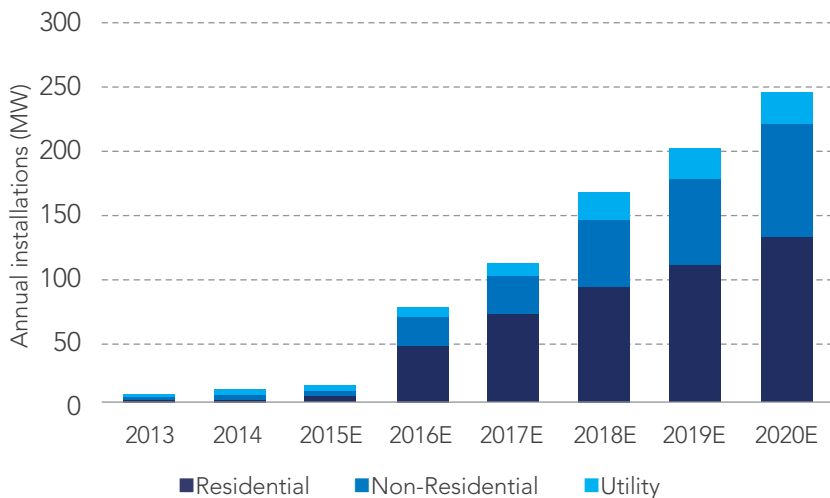
Increased volatility in electricity prices due to renewable generation, interconnector constraints, changes to customer behaviours (i.e. better demand-side management practices) and varying weather patterns provide a glimpse into the future for renewable integrated grids and highlights the opportunity for electricity storage.

Whilst at its infancy, the energy storage has the potential to change the face the Australian electricity market over the next five years. Storage technologies have the ability to solve a range of problems faced by generators, networks and customers, including:

- » smoothing intermittency of renewables;
- » providing quality support;
- » managing peak demands; and
- » reducing customer's cost of electricity through demand augmentation.

As illustrated below, the energy storage market is forecast to grow substantially from 2016 onwards.

Energy Storage Annual Installation Forecast by Customers Segment



Investment

In spite of the reduction to the RET, the reset has provided certainty to the renewable industry, and its investment decision paradigm, encouraging a new wave of investment in the sector.

Five new wind farms were completed in 2015, along with eight solar farms larger than 1MW of capacity. Two of the three largest solar plants in the country, at Nyngan (AGL/First Solar) and Broken Hill (AGL/First Solar) became operational during 2015, while the Moree Solar Farm (FRV) officially launched in the early part of 2016. All of these are in New South Wales and received financial support from the Australian Renewable Energy Agency.

The shift towards alternative renewable focussed technologies have also seen the emergence of innovative investment vehicles developed by the Clean Energy Finance Corporation (CEFC) and energy retailer, AGL.

The CEFC was established in 2012 to increase the flow of funds into renewable energy, energy efficiency and low emission technologies. Since inception, it has committed A\$1.4bn for projects with over A\$3.5bn in value³. CEFC's net portfolio grew by 29% across FY2015⁴.

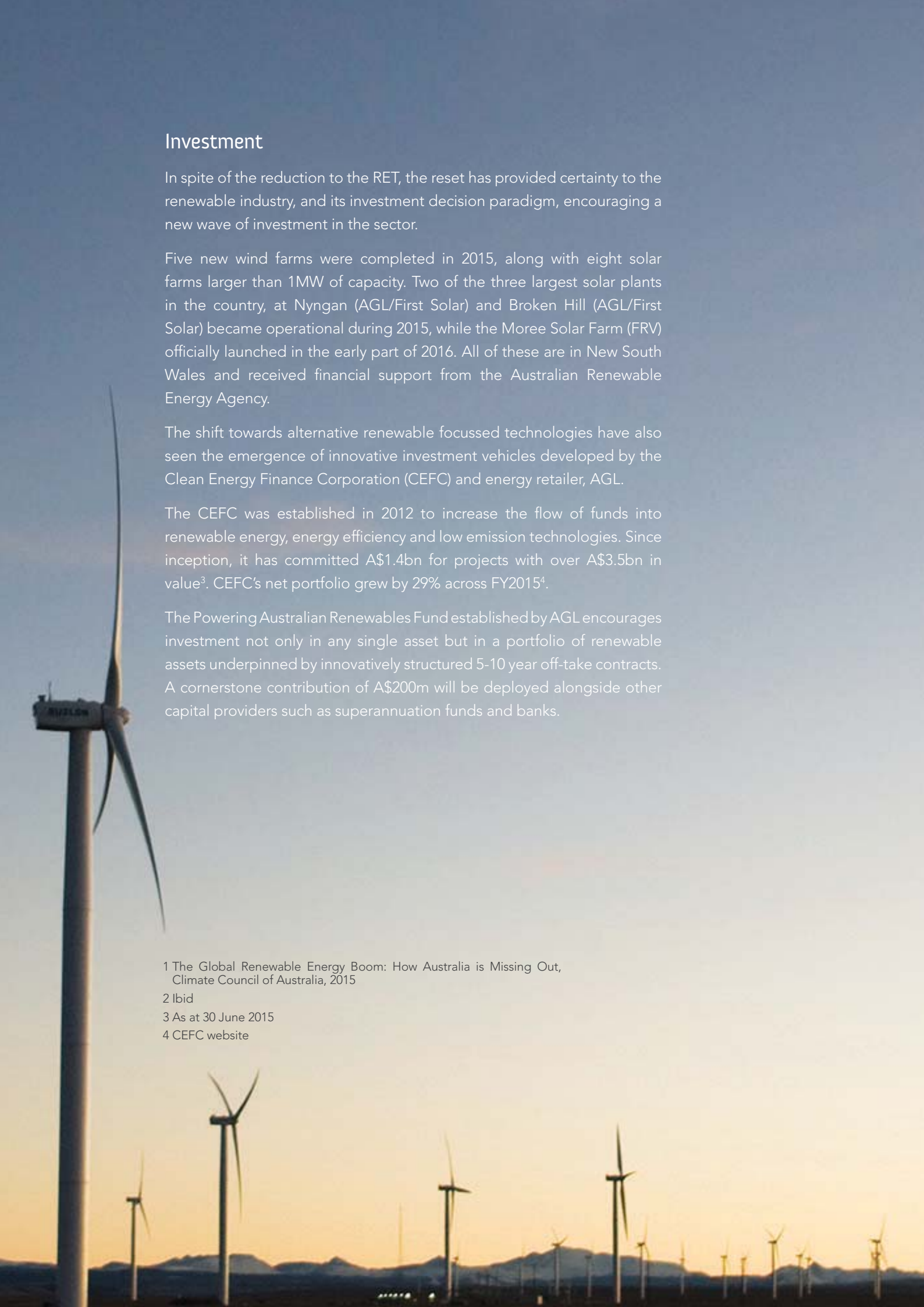
The Powering Australian Renewables Fund established by AGL encourages investment not only in any single asset but in a portfolio of renewable assets underpinned by innovatively structured 5-10 year off-take contracts. A cornerstone contribution of A\$200m will be deployed alongside other capital providers such as superannuation funds and banks.

1 The Global Renewable Energy Boom: How Australia is Missing Out, Climate Council of Australia, 2015

2 Ibid

3 As at 30 June 2015

4 CEFC website



Size of the opportunity

A RET of 33,000GWh mandates approximately 5,000MW of new additional renewable energy projects be developed in the medium-term with an estimated capital required of more than A\$12.5bn⁵.

The response to the CEFC has been significant. Since its commencement, it has received proposals from more 300 projects seeking CEFC financing of almost A\$8bn for total project cost of more than A\$25bn.

The vision of the Powering Australian Renewables Fund is to invest over 1,000MW of large scale renewable energy - sufficient to power more than 400,000 homes - with a combined value of A\$2-3bn⁶.

Continued advances across a range of storage technologies points to 2016 as being the tipping point for residential storage take-up domestically, with commercial and utility scale storage following soon thereafter. The total market opportunity for energy storage technologies is estimated to be as much as A\$500m by 2020.

⁵ Estimate based on A\$2.5m/MW for wind technology

⁶ CEFC website

Outlook and uncertainties (upside and downside)

Certainty in the RET has provided clarity in the investment decision paradigm of developers. Accordingly, it comes as no surprise that there has been a noticeable shift away from fossil fuelled generators to alternative renewable focussed generators.

This presents a number of opportunities for developers to invest directly in the renewable energy projects, whether wind or solar. But moreover, it also presents opportunities for innovative investment vehicles such as that created by the CEFC - who invests not only in renewable energy but also other technologies intended to improve energy efficiency and low emissions, and AGL - who through its Powering Australian Renewables Fund provides exposure to a portfolio of renewable energy projects, supported by innovative off-take agreements, thus diversifying the risks to investors.

Advances in storage technologies may also present itself as a 'game changer' across the NEM in the medium-term at both the residential and utility scale.

The potential in the innovative renewables space is extremely promising, the key is to identify what are the immediate opportunities, and what it takes to mitigate key risks (e.g. construction, operating and maintenance, market, etc. that can present significant downside exposures to investors), including scale up, which is especially applicable to new and innovative modes of technology.





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