

CLEAN ENERGY FINANCE CORPORATION

CEFC's role as a catalyst for investment in Australia's solar future

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CEFC Mission

Accelerate Australia's transformation towards a more competitive economy in a carbon constrained world, by acting as a catalyst to increase investment in emissions reduction

Agenda

1. Overview of the CEFC
2. CEFC's role in the solar sector
3. Factors influencing solar financing in Australia
4. Catalysing finance in new areas of growth for solar



Role of the Clean Energy Finance Corporation

Dedicated resources

- Private sector finance expertise with public purpose – to pursue energy efficiency and renewable energy across the economy
- Sector specialists focused on forming an in-depth understanding of clean energy projects, technologies and impacts on energy markets

Flexible and persistent

- Investment terms tailored to suit the unique characteristics and payback period of the project
- Willing to support projects banks find difficult, e.g. smaller, more complex or new to the Australian market

Paving the way for others

- Facilitate the participation of private sector banks by sharing our expertise, acting as a co-financier and pioneering new solutions

How the CEFC works

- Adopts a commercial approach – with tight criteria and filtering of investment projects
- Seeks investments with externalities that benefit the economy:
 - Assisting technologies to move down the cost curve
 - Building skills and supply chain capacity
 - Providing a demonstration effect
 - Emissions reduction

Co-financing and private sector leverage is integral to the CEFC's strategy



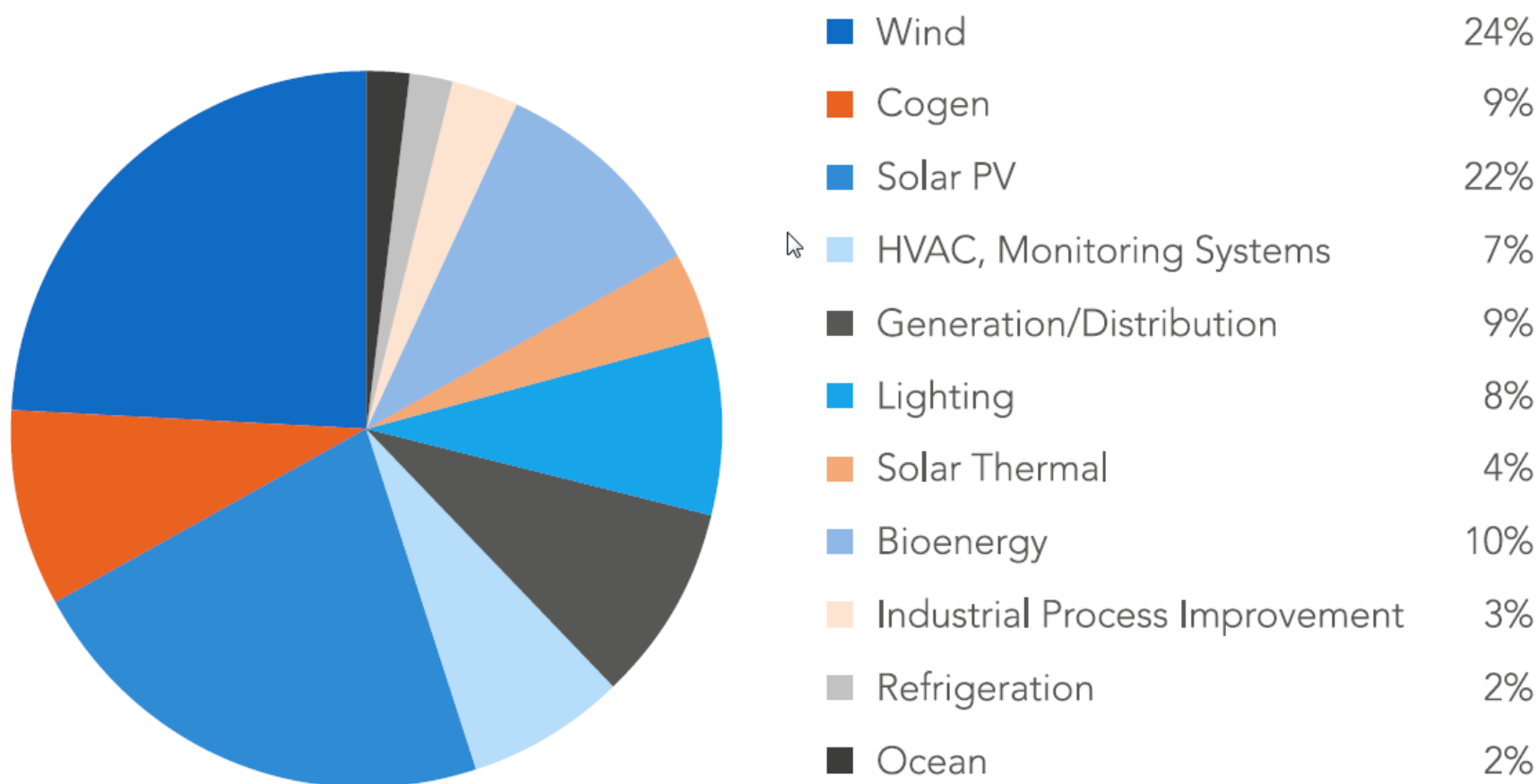
Outcomes after two years in operation

- Committed over \$1bn in investments for projects valued at over \$3bn
- Finance for over 70 projects, including
 - More than 40 direct investments
 - More than 30 under co-financing programs
- These projects are helping deliver lower energy costs for businesses – improving competitiveness as well as delivering 600MW of clean electricity generation capacity



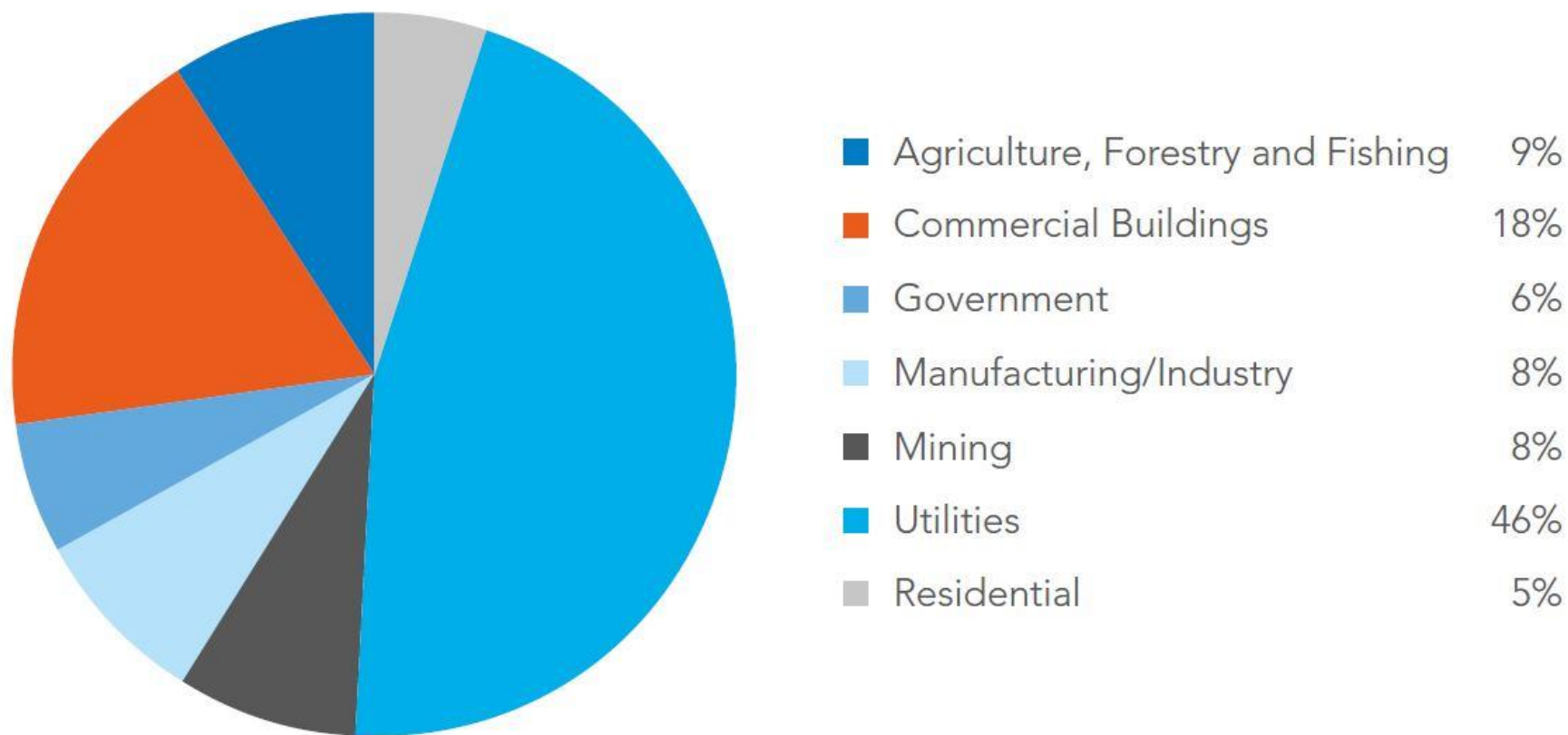
Solar represents more than 25% of the CEFC portfolio

CEFC portfolio by sector type (CEFC AUD\$ funded in %)



CEFC is working right across the economy

CEFC portfolio by sector type (CEFC AUD\$ funded in %)



CEFC's role in the solar sector

Cornerstone investor for new solar technologies

- e.g. Sundrop Farms solar thermal greenhouse



New financing models, setting a precedent for the financial market

- e.g. SunEdison solar residential and commercial PPA/lease financing



Finance for smaller utility-scale projects

- e.g. \$13m for 3.1MW expansion of Uterne PV plant in NT



Financing merchant solar, when needed

- e.g. 56MW Moree Solar PV Farm



Helping to catalyse more investment into the solar sector

Factors impacting solar financing in Australia



Technology innovation

Electricity prices and
demand forecasts

Electric vehicle
demand



Batteries

Policy environment

Input costs for solar



Factors financiers consider – large scale solar

Risk Factor

Low Risk

High Risk

Technology

Proven, domestically deployed technology (e.g. solar PV plant)

Technology unproven/not commercially tested in Aus (e.g. utility-scale solar thermal dish)

Offtake

Guaranteed customer e.g. 10+yr contracted offtake

No PPA, merchant risk

Equity

Substantial equity from quality sponsor

Non-investment grade equity sponsor e.g. high net worth

Construction

Fixed price EPC with liquidated damages regime with significant balance sheet and completion guarantee

Non-fixed price contract

Operation and Maintenance

Sponsor has significant experience operating and maintaining solar plants internationally or in Australia

No previous experience operating/maintaining utility scale solar

Policy environment

Bipartisan agreement on LRET and legislative certainty, REC price trending upward or guaranteed state-based FiT

Ongoing reviews and negotiations, outlook for REC price remains low

Factors financiers consider - Small scale

Risk Factor

Low Risk

High Risk



Tariff structures	Certainty surrounding tariff structures and fixed price connection charges, small FiTs remain in place	Potential of high fixed price connection charges, or removal of FiT and other policy measures which may limit uptake of solar
Equity	Substantial equity from quality sponsor	Non-investment grade equity sponsor e.g. high net worth
Installation	Experienced installer sub-contracted	No installation experience and intention to use range of installers ad-hoc
Panel quality	Tier 1	Tier 3
Operation and maintenance (PPA/Leases)	Experienced operator with significant balance sheet and experience in Australia/offshore maintaining and operating distributed PV over long time frame. Sophisticated monitoring system established.	No experience in operating or maintaining network of distributed PV. No established monitoring system in place.
Retail electricity prices	High and likely to remain high	Forecasts for prices to fall

Large scale solar is increasingly competitive

- In Dubai, ACWA Power is building a 200MW unsubsidized large-scale solar plant for ~**\$73 per MWh** – fixed tariff over 25 years
- In the US, Crescent Dunes' 110MW solar tower plus storage is expected to be built for ~**\$169 per MWh**
- In South Africa, the 100MW Redstone solar thermal project is expected to be built at ~**\$155MWh**
- In the UK recent auction for large scale solar PV bids ranged from ~**\$96 MWh-\$152 MWh**
- In Australia, 3 solar farms were successful at the ACT auctions in 2012 with FiT ranging between **\$178-\$186 MWh**



All prices in Australian dollars

CEFC solar pipeline

Pipeline of \$500m in potential CEFC investments

Total project value over \$1bn

- Solar PV and battery storage rollout for residential and business customers
- Solar PV-diesel hybrid storage for off-grid mine sites and remote areas
- Solar PV for health, sports and aged care facilities, universities and not-for-profits
- Commercial solar for office buildings and manufacturing plants
- Utility scale solar PV and solar thermal with storage
- Electric car charging stations using solar PV



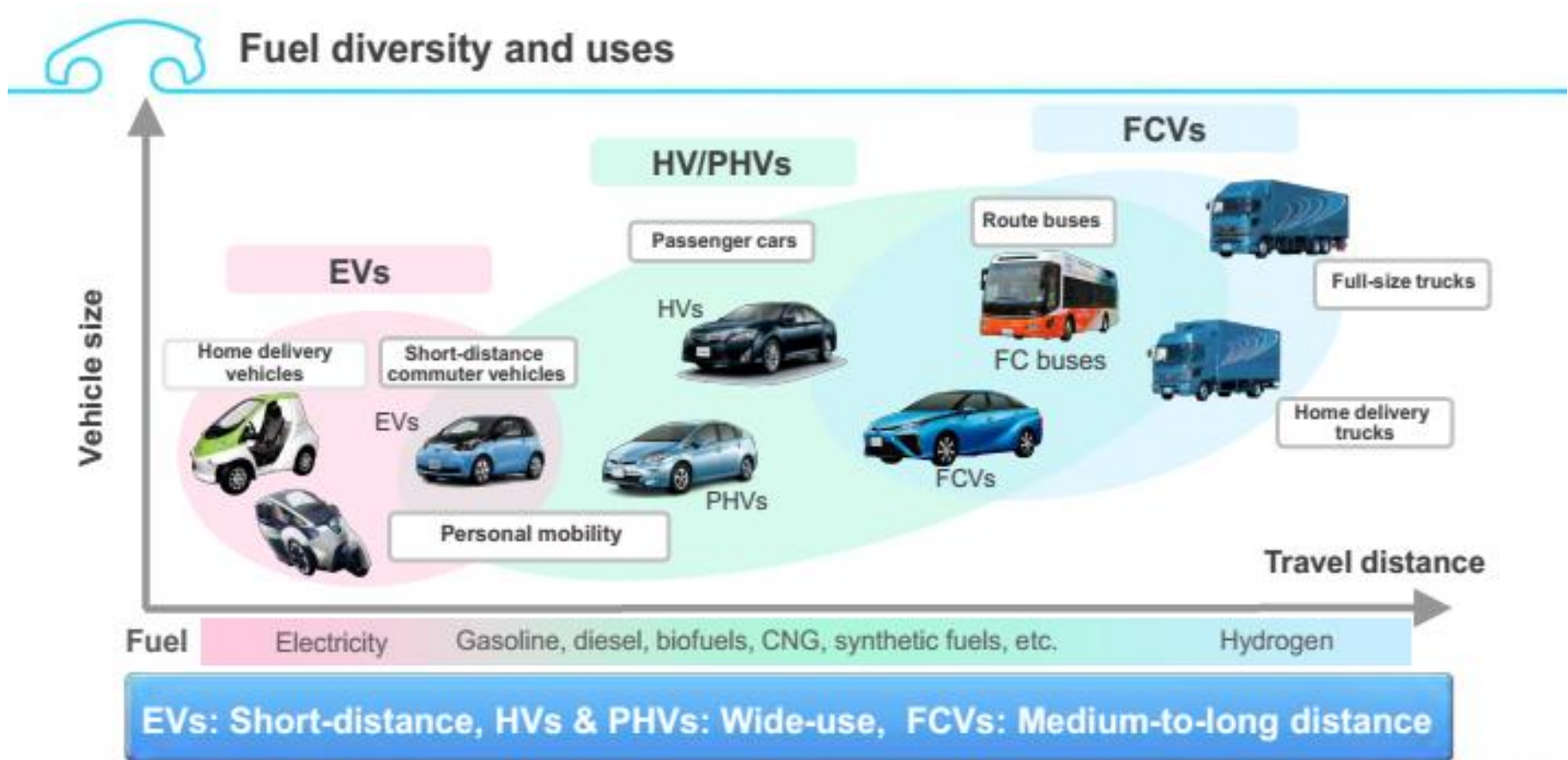
Solar for transport

Exporting Renewable Energy ... really?

- Potential to generate hydrogen from solar for cars instead of petrol and use it for electricity generation instead of gas
- Hydrogen cars can be refuelled faster than electric cars and can often drive longer before refuelling
- Hydrogen doesn't emit CO2 when combusted
- Ability to make "petrol" on site by combining renewable power and water is now available



Toyota's view of the future car market

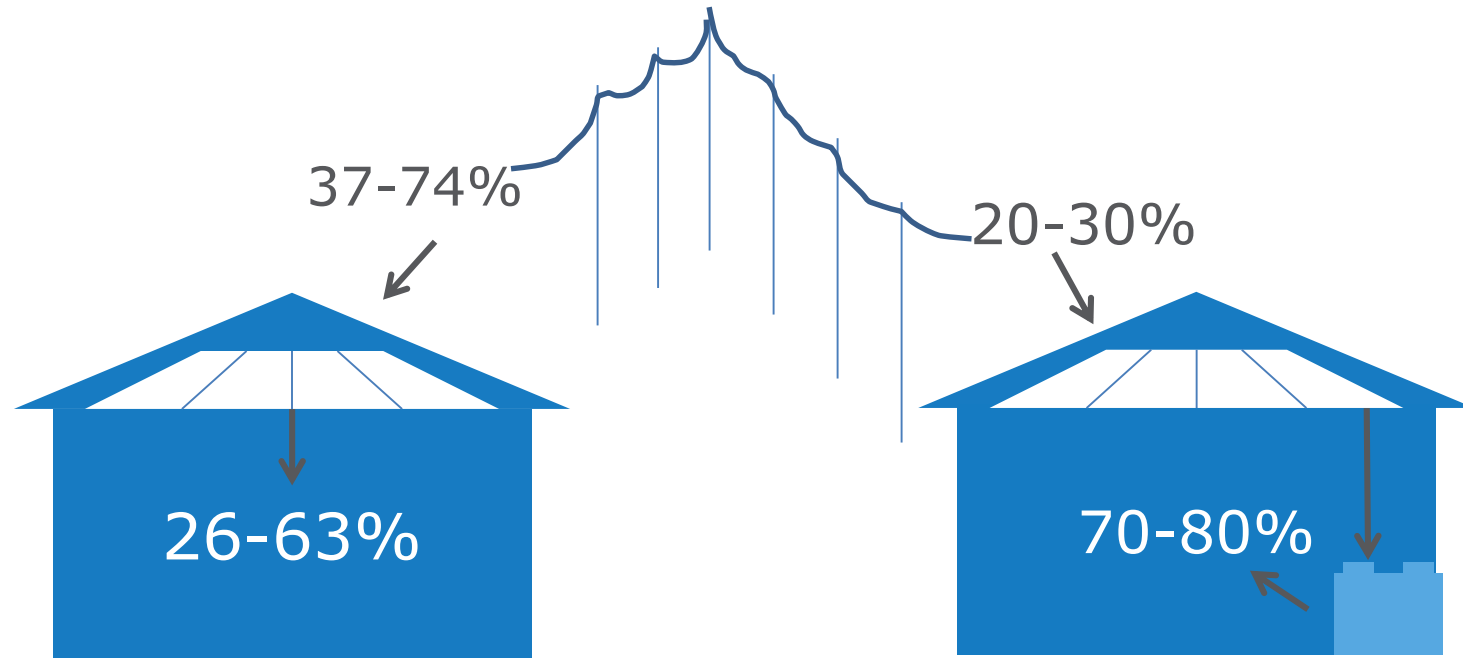


Rewarded with a smile

TOYOTA

Storage opportunities

Energy storage - How does it work?



SOLAR HOUSEHOLD

SOLAR + STORAGE HOUSEHOLD

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