

# CLEAN ENERGY FINANCE CORPORATION

## Thermal Waste to Energy Forum

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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

# “A guide to the financing issues & requirements for successful thermal waste-to-energy projects”

## Outline

1. Role of the Clean Energy Finance Corporation
2. Examples of CEFC finance for thermal waste-to-energy projects
3. How to make projects bankable
4. CEFC pipeline in thermal WtE
5. Summary



# CEFC's role – partnering with the private sector to encourage investment

## **Dedicated resources**

- Private sector finance expertise with public purpose – to pursue energy efficiency and renewable energy across the economy
- Invest the time and resources to understand the project, technology, the potential wider impact and develop innovative financing structures

## **Flexible and persistent**

- Loans can be tailored to suit business and life of project
- Can work on projects that are smaller, more complex or new to the Australian market

## **Paving the way for others**

- Operate as a co-financer to encourage greater bank participation in the sector

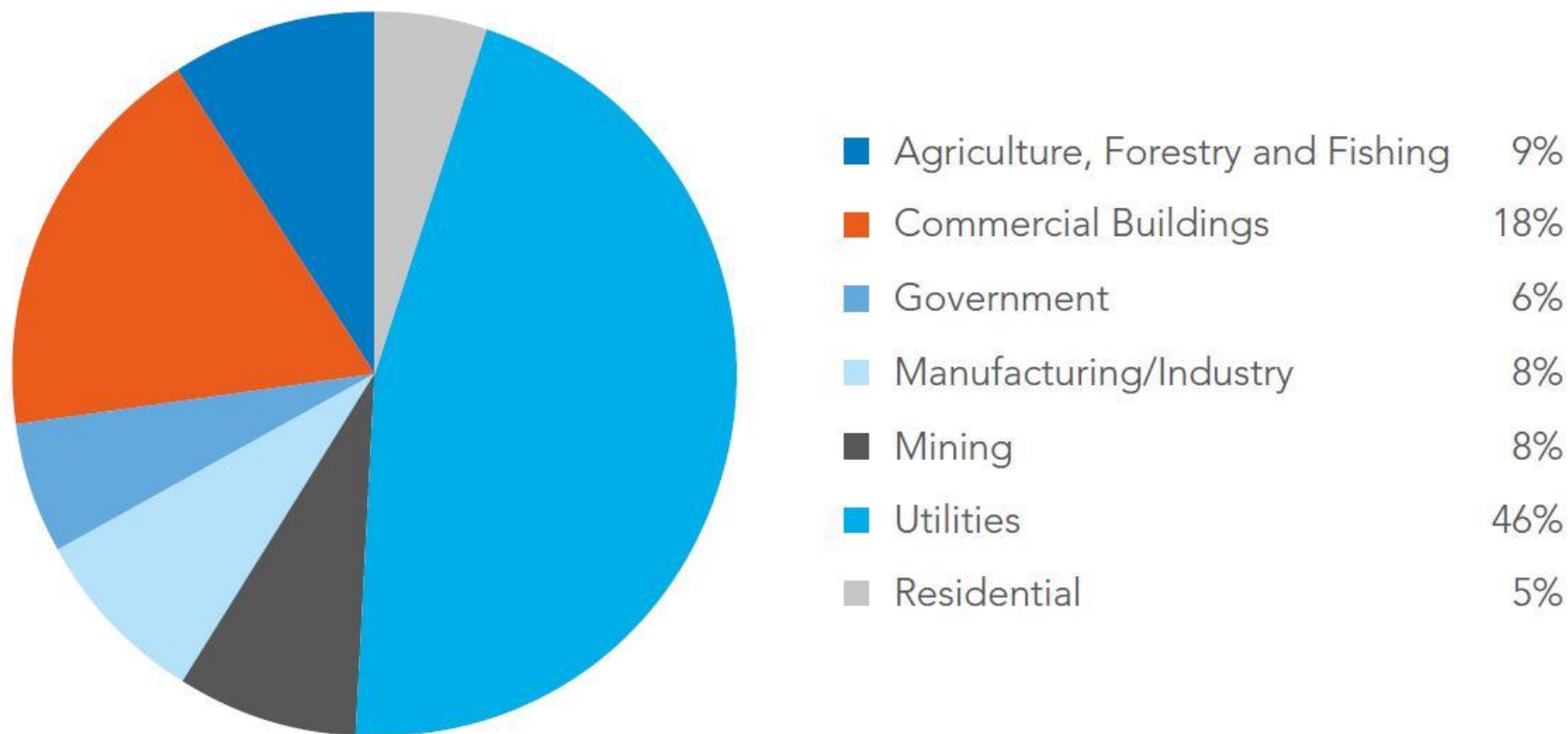
# How the CEFC Works ...

- 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 & private sector leverage is integral to CEFC strategy



# CEFC is working right across the economy

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





# Why the CEFC is working in thermal-waste-to-energy

- More than 800 thermal waste-to-energy plants operating in 40 countries, but not many in Australia
- Globally, sector is expected to grow, generating at least 280TWh of electricity and heat by 2022
- So, strong growth potential in Australia given we are one of the highest per capita producers of waste
- Range of benefits to our economy from growth in this sector: less waste going to landfill; more clean energy; lower emissions; improved biodiversity; less soil & water contamination; and job opportunities
- Individual benefits to business: lower waste disposal costs; lower energy bills; and improved productivity



# Types of thermal waste to energy projects the CEFC can finance

## LOCAL COUNCILS

Municipal waste- to-  
energy

## WASTE

Thermal waste treatment  
(hazardous/non-  
hazardous)

## MANUFACTURING

Biogas & biomass using  
boilers

## AGRICULTURE

Biogas in piggeries

## FORESTRY

Wood pellets for export

## Case study: municipal waste-to-energy

- CEFC committed up to \$50m in finance for the new waste-to-energy plant in the Pilbara utilising Australian gasification technology
- Pilbara facility can process 75% of all waste generated by Port Hedland & East Pilbara Council areas and convert non-recyclable components of this waste to base load renewable energy
- Capacity of 16.6MW, saving 135,000 tonnes of CO<sub>2</sub>-e p.a.





# Key factors influencing bankability of projects

1. Technology
2. Construction, operation & maintenance risks & contract regime
3. Source of feedstock, cost/revenues, risk
4. Offtake and supply contracts for the energy & location of customer
5. Quality of counterparties and sponsors (sufficient equity)
6. Regulatory environment



# How the technology impacts on financing

- A lot of the thermal waste to energy market are in earlier stage of development than other renewable technologies like wind & solar PV
- Within thermal WtE there is scale of technologies, some are very mature (e.g. incineration compared to pyrolysis)
- The technology can be complex and the conversion of source to energy can be up to 7-step process
- Limited projects developed in Australian market compared to overseas (e.g. Europe and UK)
- Technology and fuel source differ substantially from application to application



## How the feedstock producer impacts on financing

- Commercial viability of project dependent on feedstock cost/revenue and exposure to price fluctuations
- Favourable conditions where project uses waste-feedstock and where avoided waste-gate fee revenue can supplement project
- Ideal conditions for a financier where partnership between feedstock provider, energy producer and end user with each dependent on one another for products



# How the off-taker/PPA impacts on financing

- Some forms of thermal waste to energy, such as fuel and pellets are a commodity, meaning long-term offtake agreements will generally lock in volume but not price
- No contracted price, this leaves financier exposed to market price and fluctuations
- This exposes financier to price risk and means significant market due diligence and generally lower gearing
- For an electricity or gas generation project, a power purchase agreement (PPA) makes it much more likely that a project will attract finance
- However, difficult to obtain long-term off-take (i.e. 5+ years) or renewable energy PPA at the moment



## Quality of project counter-parties

- The bankability of a project is closely correlated with the quality of the parties involved and their ability to execute their roles
- All parties must be highly experienced and clearly financially viable
- The involvement of each party must be secured by a comprehensive set of binding long term contracts (eg. construction contractor, feedstock supplier, power offtaker and operator / equity)
- These are critical risk mitigating elements for financiers
- Ideal conditions if at least some of the equity is contributed by the feedstock supplier and the end user



## Regulatory environment

- EPA process can be more complicated and protracted for thermal waste to energy projects than other renewable energy projects
- Most financiers won't engage until the EPA process is complete
- Policy uncertainty can also impact the bankability of a project (for example, changing waste levies)
- On the other hand, government incentive programs such as the Emissions Reduction Fund can favourably impact the bankability of a project



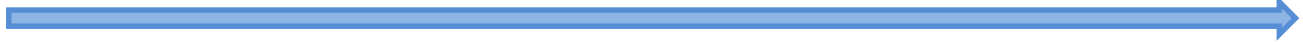


# Summary of factors financiers consider

## Risk Factor

**Low Risk**

**High Risk**



### Technology

Commercially deployed in Aus e.g. biomass boilers/wood pellets

Not commercially deployed e.g. pyrolysis, gasification

### Feedstock

Long contract for supply & no cost e.g. waste that provides gate-fee revenue

Paying for feedstock & uncontracted

### Offtake

Guaranteed customer e.g. 10+yr contracted offtake

Commodity exposure & foreign exchange

### Equity

Substantial equity from quality sponsor

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

### Construction

Fixed price EPC with LD regime with significant balance sheet and completion guarantee

Non-fixed price contract

### O&M

Experienced operator with significant balance sheet

No experience

## Project finance

- **Project Finance:** for larger scale renewable projects as well as smaller projects that have specific features that may make them harder for commercial banks to finance alone
- Example is the new waste-to-energy plant in the Pilbara utilising Australian gasification technology. Capacity of 16.6MW, saving 135,000 tonnes of CO<sub>2</sub>-e p.a.



## Corporate finance

- **Corporate Loan:** for creditworthy corporates that may have one or more clean energy or efficiency projects of various sizes
- Examples of projects financed or under consideration by CEFC include:
- Corporate loan for an existing wood pellet facility to expand operations
- Garden products supplier Richgro is turning organic food waste into energy through a \$4m anaerobic digestion plant with a capacity of up to 2MW
- JBS is using corporate loan of \$4.4m to generate biogas from waste from its meat processing operations and use it to power its gas boiler plant



## Build, own, operate model (BOOM)


- We also provide **aggregation funding**: to provide finance for a number of smaller projects in conjunction with commercial banks or other service or finance providers
- This could be in the form of a build-own-operate financing model where the provider of the waste-to-energy technology, installs the system on a third party premises and continues to retain ownership, operate and supply energy to the third party via a contract for supply. The fuel source is usually provided on-site by the third party (e.g. organic waste from operations)





## Closing Remarks

- Project bankability and viability is critically dependent upon the quality of a multitude of parties involved - each with a different role
- To be successfully realised, a project must be anchored by a supportive and mutually beneficial partnership structure between these parties with the ability to leverage their respective market positions
- There is a large portfolio of potential thermal waste to energy projects in Australia. As yet there are very few bankable partnerships supporting these projects
- Unlocking the potential of this market in Australia, means this shortcoming must be addressed as a priority
- CEFC is here to work with the industry to help make this happen

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