



CREATE CHANGE

Stepping Up the Pace: Fossil Fuel Free Construction

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Our mission

MISSION ZERO

As a 1.5°C aligned company, we have set ourselves ambitious science-based emissions reductions targets.



NET ZERO CARBON BY 2025

The reduction of greenhouse gas emissions from business activities as far as possible, with the remainder offset with an approved carbon offset scheme.

Our net zero target applies to scope 1 & 2 emissions.



ABSOLUTE ZERO CARBON BY 2040

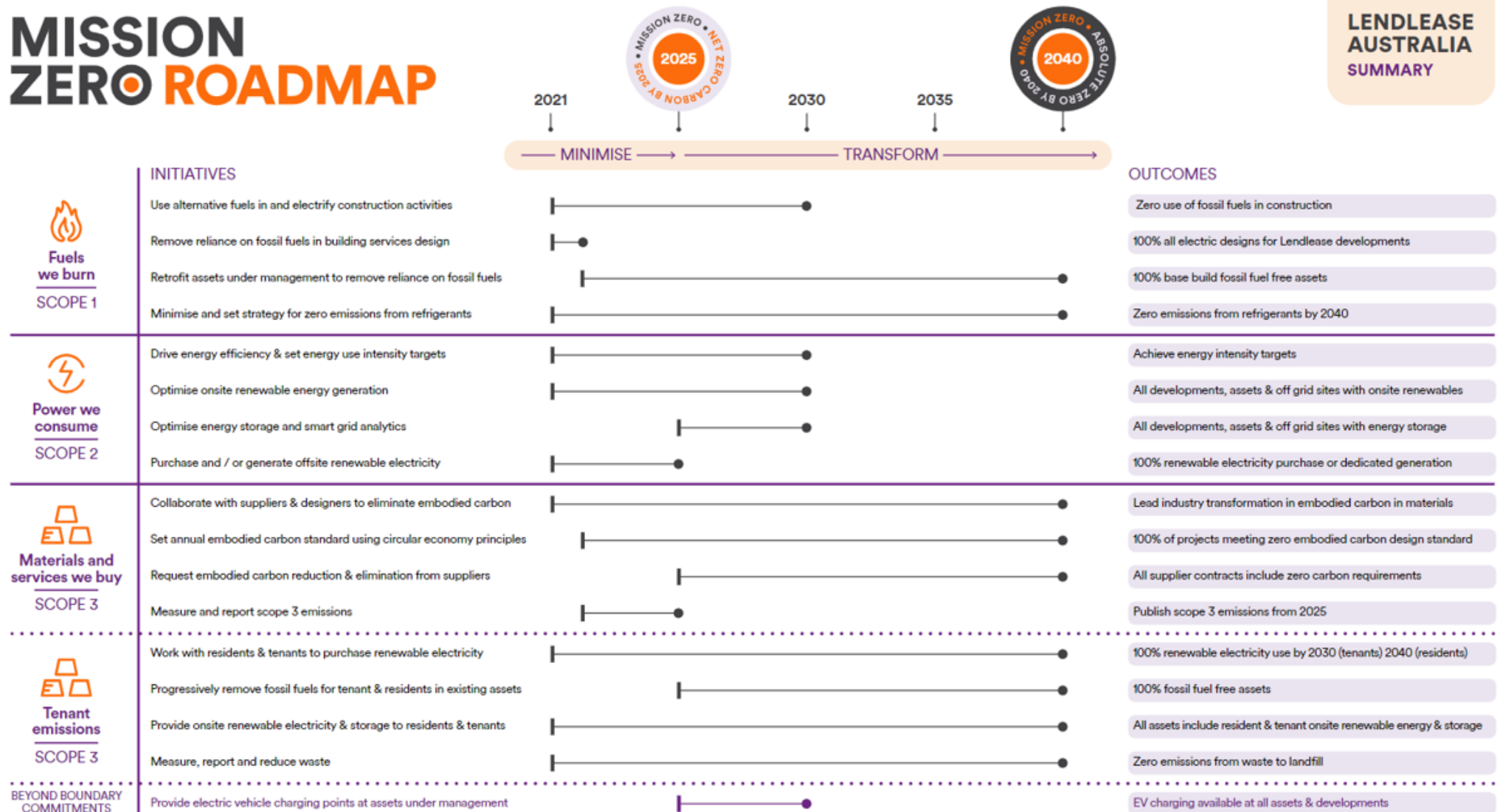
The mitigation of all greenhouse gas emissions produced from business activities to absolute zero, without the use of offsets.

Our absolute zero target applies to scope 1, 2 & 3 emissions.

The roadmap

MISSION ZERO ROADMAP

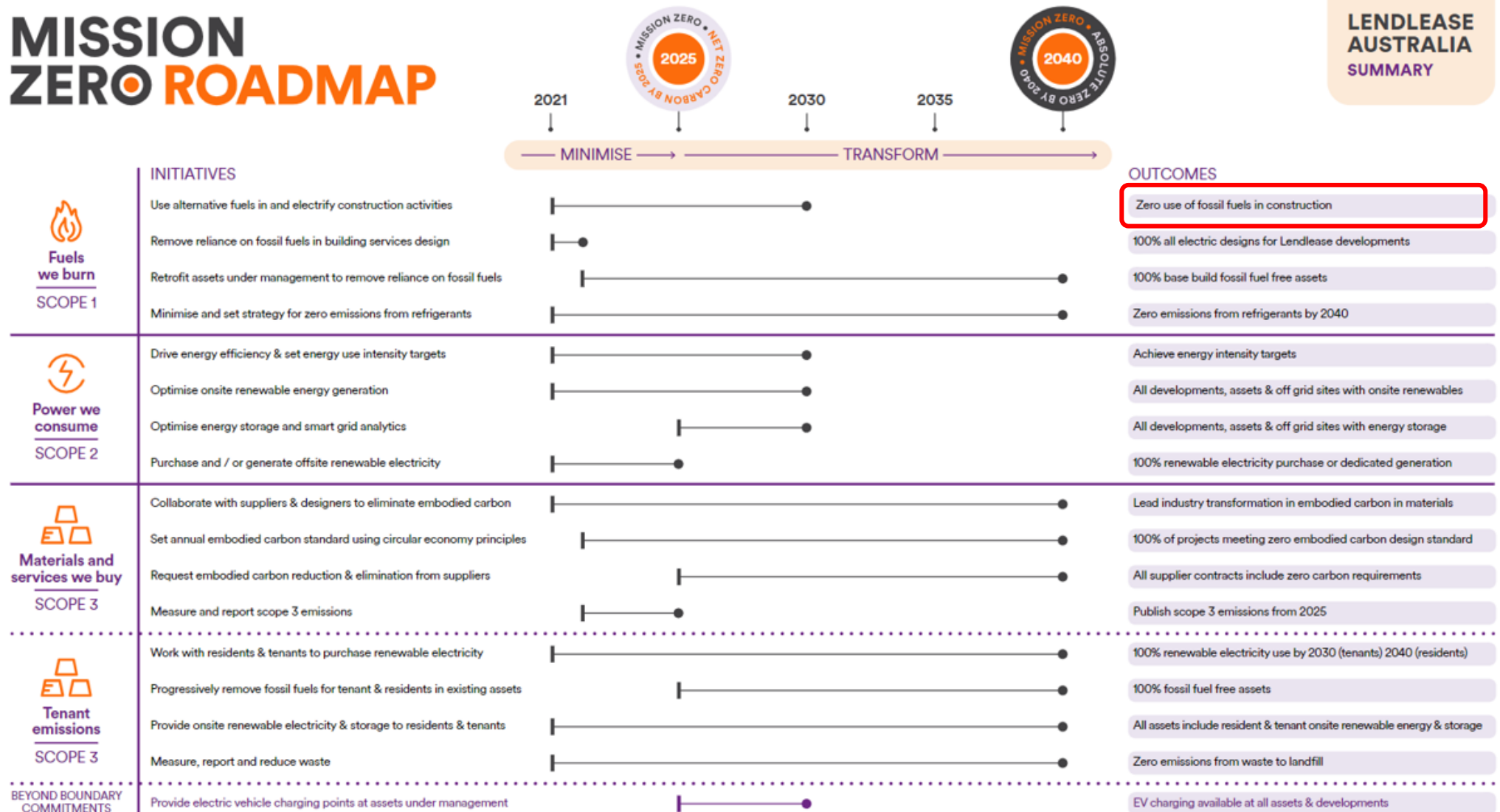
LENLEASE
AUSTRALIA
SUMMARY



The roadmap

MISSION ZERO ROADMAP

LENLEASE
AUSTRALIA
SUMMARY



The challenge

Construction is
a major source
of emissions

5.5% from fossil fuels
powering machinery
and equipment

23% of
global
carbon
emissions



Let's explain

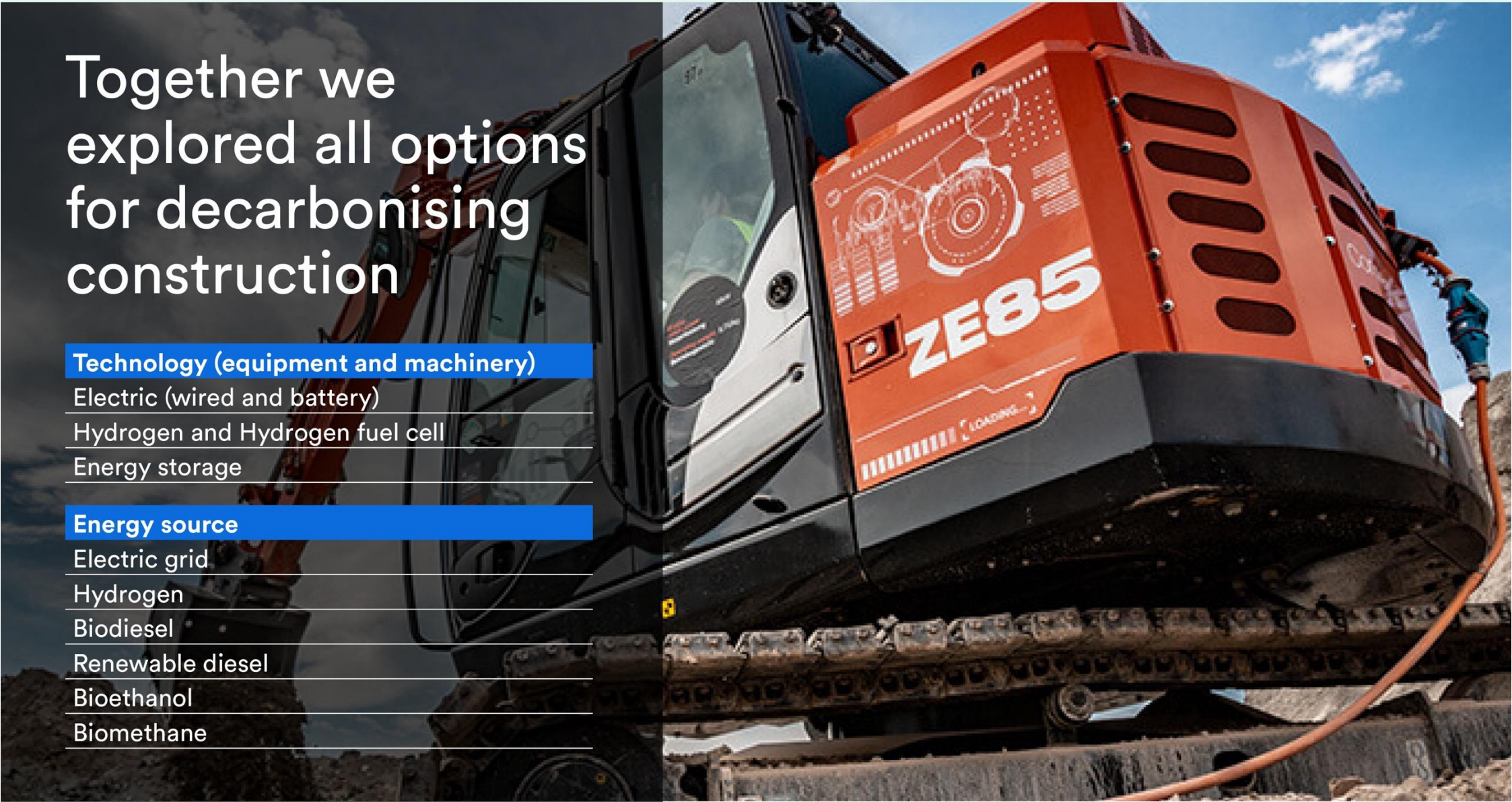
Together we explored all options for decarbonising construction

Technology (equipment and machinery)

- Electric (wired and battery)
- Hydrogen and Hydrogen fuel cell
- Energy storage

Energy source

- Electric grid
- Hydrogen
- Biodiesel
- Renewable diesel
- Bioethanol
- Biomethane



Key takeaway

Construction is a hard to abate sector.

Achieving Mission Zero requires acceleration of electric construction machinery and equipment.



Two winners emerged

The most promising decarbonisation options are electrification and renewable diesel



Use of **electric** construction machinery and equipment where options are available



Renewable diesel to substitute mineral diesel where electric options are not available

So what's the plan?

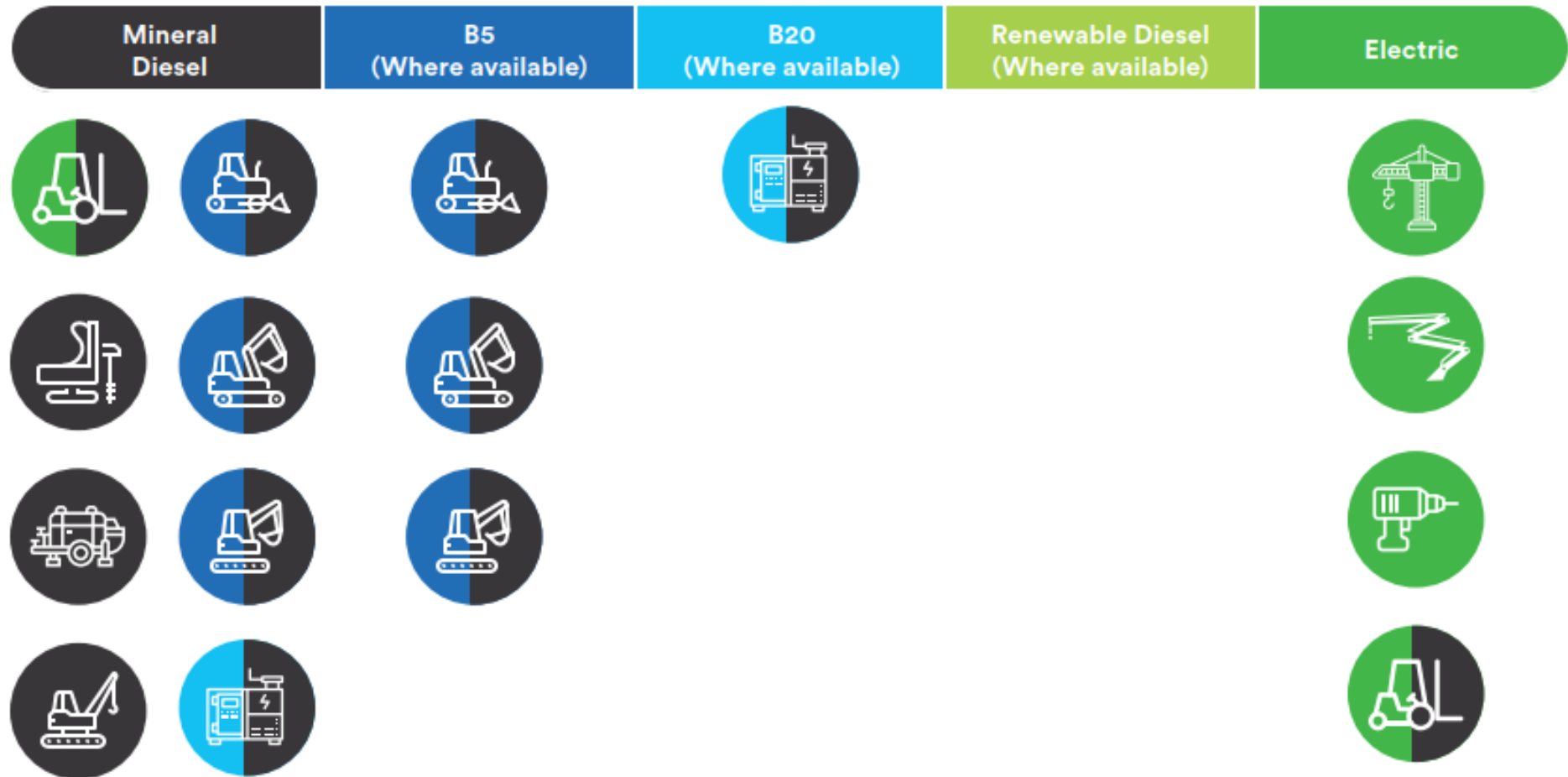
Prioritise and
advocate for
electrification

Advocate
for
renewable
diesel

Use biodiesel
now and
renewable
diesel as soon
as we can

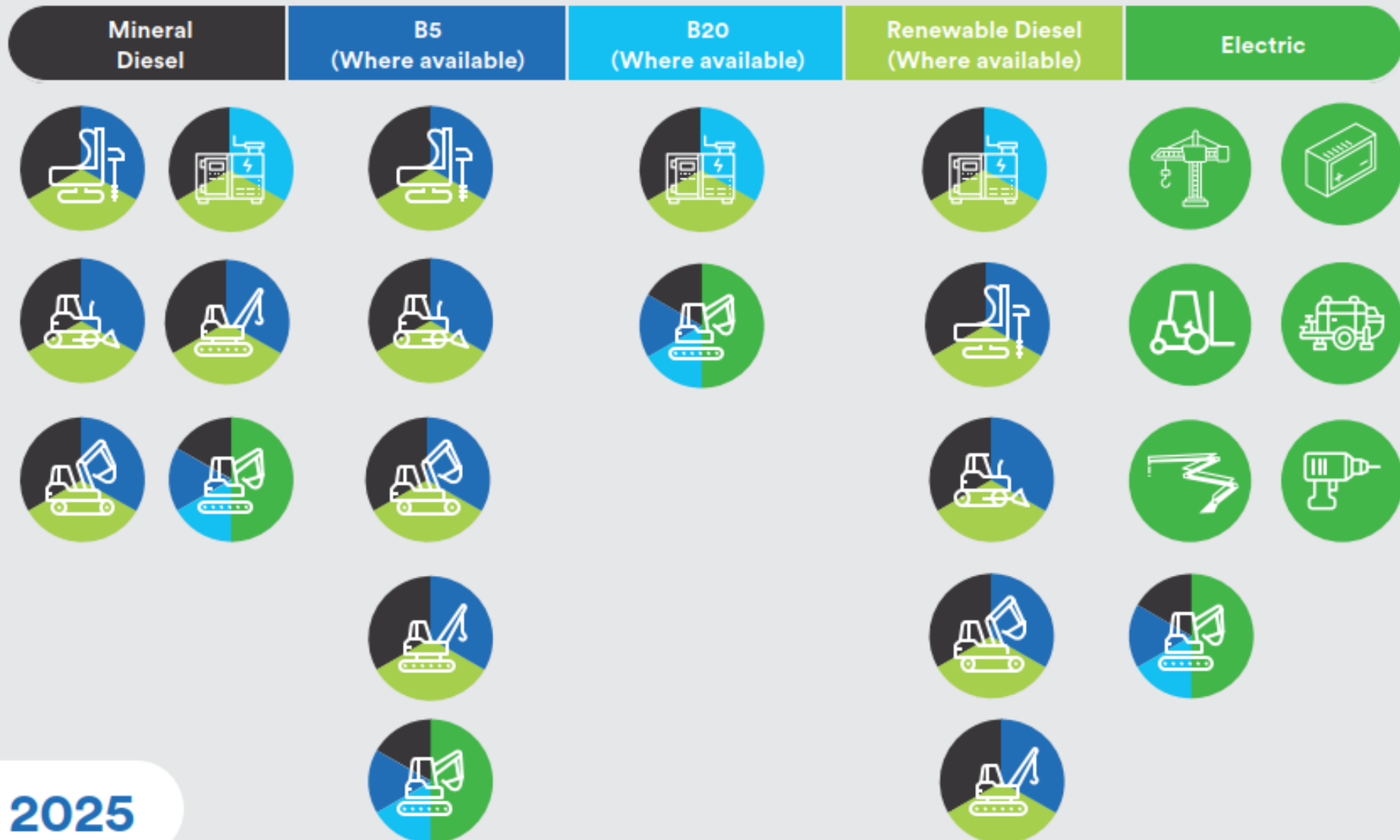


What does the transition look like?



2022

What does the transition look like?



2025

What does the transition look like?



What does the transition look like?



We have begun: Australia



Caboolture Hospital
Redevelopment,
QLD

B20 biodiesel



Sydney Metro
Martin Place,
NSW

B20 biodiesel



Alternative Fuels Policy
From July 2021
in the UK

Renewable Diesel



One Sydney
Harbour R3,
NSW

Electrification



Parramatta
Powerhouse,
NSW

Renewable Diesel in
cranes



Queensland Performing
Arts Centre,
QLD

Renewable diesel in
mobile crane

Electrification and
battery powering
tower crane

Renewable diesel: Powerhouse Parramatta, NSW

- Renewable diesel (HVO)
- 3 x Favelle Favco Tower Cranes
- Estimated total use of 85,500L renewable diesel in tower cranes
- Estimated 230 tCO₂e carbon emission savings



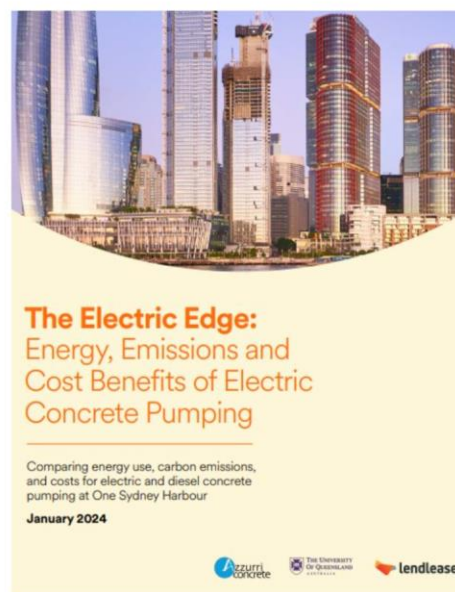
Fossil Fuel Free Construction Pilot:

Watermans Residences, One Sydney Harbour, NSW

- Prioritised electrification
- Electric equipment and machinery included concrete pump, two tower cranes, two hoists, elevated work platforms and a formwork hoist
- Up to 94% fossil fuel free construction achieved by energy use

Electric concrete pumping:

- Reduces energy consumption by 67%
- Reduces operational costs by 59%
- Creates zero carbon emissions when powered by renewable electricity
- Has the same initial capital cost as diesel pumping
- Total cost of ownership was cheaper than the diesel pump



Battery and Renewable Diesel:

New Performing Arts Venue for Queensland Performing Arts Centre, QLD



AMPD Entertainer Battery powers tower crane

- Battery overcame grid capacity constraints
- Substituted 500 kVA diesel generator and 27,000L diesel
- 73tCO₂e carbon emission savings
- 8% lower overall cost compared to diesel generator



Renewable diesel in Liebherr 230t mobile crane

- Installed large structural steel beams and precast concrete panels
- 3,880L of renewable diesel used
- 10.5tCO₂e carbon emission savings saved

What are key enablers?

- Government policies and targets
- Financial support
- Upgrade the grid
- Industry commitment to absolute reductions (no offsets)
- Advocacy for acceleration
- Training and upskilling



Further findings

Since our research, we have learnt that:

- Liquid fuels represent 45% of Australia's energy use¹
- We are not alone. Other 'hard to abate' sectors are also unable to decarbonise without renewable diesel including road transport, maritime, mining, rail, agriculture and forestry
- These sectors represent 29% of the Australian economic output²
- Renewable diesel is needed to meet Australia's net zero carbon emissions by 2050 target

¹BioEnergy Australia Transitioning Australia's Liquid Fuel Sector: The Role of Renewable Fuels (Deloitte 2023)

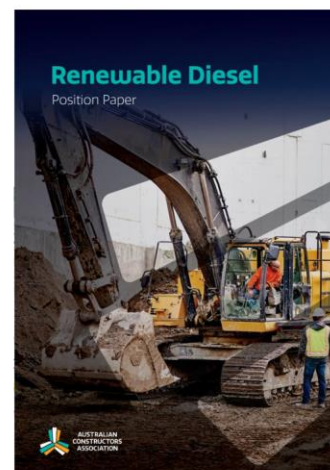
²Remplan Economy, Jobs and Business Insights <https://app.remplan.com.au/eda-australia/economy/industries/output?state=PO1ghg!A9WwFjLd2FmvdOEi64bgehrHVf5rBhNbobei0nLnGfdfZYswfRIzz5JcAwy>

Advocating for change


We are advocating for strong policy signals such as a Low Carbon Liquid Fuel Policy and the urgent establishment of a domestic renewable diesel industry.

We are doing this through:

- Partnering with key peak bodies, including the Australian Constructors Association, Bioenergy Australia and the Property Council of Australia
- Uniting with 13 industry representatives to send a joint letter to key Federal Ministers
- Participating in media discussions and opinion pieces
- Sharing our project initiatives and learnings
- Meeting with State and Federal Ministers, and key government departments
- Key policy consultation



Big co-benefits are ahead



Lower air
and noise
pollution

Growth
in local
industries
and jobs

Stronger
national
energy
security

Less reliance
on foreign
fuel

Stepping Up the Pace: Fossil Fuel Free Construction

<https://www.lendlease.com/au/insights/stepping-up-the-pace-fossil-fuel-free-construction/>

Fossil Fuel Free Construction resources

<https://www.lendlease.com/au/sustainability/climate-and-environment/mission-zero/scope-1/open-source-library/>

University of Queensland:

Planning a Transition to Low and Zero Emission Construction Machinery

<https://doi.org/10.14264/93110de>

Low and Zero Emission Construction Machinery and Equipment Database

<https://doi.org/10.48610/6973e0a>

