

PROUDLY OPERATED BY
 Keolis
Downer

2900

TRANSPORT ZERO EMISSIONS AND
SUSTAINABLE



Do Not Access
Bus Through
Window

CENTRE OF
EXCELLENCE



Newcastle
Transport

VICE IS OPERATED BY
DOWNER HUNTER
CC NO. 42558
NEWCASTLE



Operations in Australia



Snapshot

- Present since 2009
- Keolis Downer enables 350 million passenger journeys per year
- 25 sites across 5 states
- Employees 5300+
- 500+ trams
- 1300+ buses
- Operations and maintenance of Adelaide Metro train services



"ZEST Centre of Excellence cements Keolis Downer's commitment to accelerate the energy transition with large-scale deployments in public transport"

Julien Dehornoy
CEO, Keolis Downer

Keolis Downer

Keolis Downer aims to be the partner of choice for public transport authorities in Australia.

As such, our objective is to design and deliver services that are safe, efficient, reliable, sustainable and innovative, with a constant focus on the customer.

Think Like a Passenger is at the centre of our culture and what we do every day.

With the world moving to greener public transport solutions, Keolis Downer has embarked on an exciting journey to become the largest operator of zero emission public transport services in Australia, cementing our commitment to support PTAs and accelerate the energy transition with large-scale deployments.

With a pipeline of 200+ electric buses to implement in the coming years, Keolis Downer has established the Zero Emissions and Sustainable Transport Centre of Excellence (ZEST CoE) to accelerate the energy transition, encourage information sharing locally and internationally, be ahead of technology evolutions and market trends, with an approach based on continuous improvement.

ACKNOWLEDGEMENT OF COUNTRY

Keolis Downer acknowledges Aboriginal and Torres Strait Islander peoples as the First Australians and Traditional Custodians of the lands where we live, learn and work.

Value proposition



ZEST brings together all skills necessary to support the energy transition in Australia.

The team has a thorough understanding of operations, maintenance, vehicles and subsystems, infrastructure, modelling and costing. It has also established a strong ecosystem of partners with a focus on local players to develop skills and deliver value to the Australian market.



ZEST brings a comprehensive end to end solutions approach to support PTAs deliver on their commitments and accelerate the energy transition in Australia.

It is a hub for knowledge and experience for the energy transition across Keolis Downer's current and future operations. It brings together a multi-disciplinary team which can collectively support the many facets of the energy transition, including technical, commercial, operational, and reputational.



Leveraging International Experience

ZEST works closely with the international Keolis Group CoE based in France, which supports all subsidiaries around the world and provides unique insights on latest technologies, market trends and key players across the globe.



Upskilling and training future professionals

Through ZEST, Keolis Downer will also train future professionals, by providing opportunities for graduates and young professionals to have hands-on experience and contribute to the delivery of zero-emission transport.



What is ZEST's ambition?

With a constant focus on passengers, our ambition is to combine our global experience and local expertise to design and implement solutions which will create energy efficiencies and accelerate the energy transition in the transport sector.

To achieve this, we foster an ecosystem of partners to maximise local content, job creation and economic benefits unlocked by new energy technologies.



"It's an exciting time to be in public transport as we transition to a zero-emissions future and what better way to showcase our expertise than with our ZEST centre of excellence working group. ZEST will be critical in ensuring we learn from our project deployments, share best practices, and create a virtuous circle with other Centers of Excellence across Keolis Group."

Jay Zmijewski
Chief Operating Officer - Bus

International Expertise

Keolis provides made-to-measure solutions for PTAs transitioning fleets to more sustainable alternatives according to their local context, acting as a partner to support PTAs at every step of their energy transition journey.

To provide the best possible advice to the 300 Public Transport Authorities Keolis partners with across the world, we take into account the goals and challenges of each local region, current and future regulations and the project's technical and economic feasibility.

- Keolis operates 23,000 buses and coaches worldwide, 4,500 using alternative fuels in 9 countries.
- The group's objective for 2030 compared to 2019 include reducing greenhouse gases per km by 30% and tripling the kilometers operated by road vehicles using alternative energies to Diesel.
- We will achieve this by training our people, transitioning our fleets and our infrastructure, and being more energy efficient.
- We recognise that there is no one-size-fits all solution for lowering bus carbon footprint and emissions.

With its long-standing expertise in all forms of diesel alternatives, Keolis can offer energy solutions that best fit the context and local community's requirements. Keolis has taken advantage of its global presence in 13 countries to develop expertise in a range of all alternative energies, ranging from biodiesel to biogas, battery electric and hydrogen electric.

As each kind of combustion engine and each energy mode have their specificities, Keolis has adopted a customised approach, tailored to the context of each local community and focusing on a true ecology-energy balance that maximises asset lifespans.

Recognising both the complexity and importance of all environmental considerations: such as GHG emission, air pollution and noise, Keolis has dedicated team of experts and engineers to ensure that all dimensions – theoretical, technical, and operational – are addressed, the company supports PTAs in making long-term, well-informed choices, based on clearly defined parameters which take into account practical considerations for drivers and maintenance teams.

Keolis adds value to energy transition strategies across multiple associated areas including: decreasing the residual value risk of self-owned Diesel fleets; implementing energy efficiency solutions, optimising battery lifecycles; accessing public subsidies; specifying and testing IT supervision and management tools; forecasting logistical needs in fleet operations; and training drivers and the maintenance workforce.



What is ZEST's role?

The ZEST CoE's role is to accelerate the delivery of zero emission public transport by designing energy transition projects in partnerships with PTAs, encourage thought leadership by engaging with government and industry, monitor market trends, share international best practice and develop local skills.

The ZEST CoE brings together all skills necessary to support the energy transition in Australia from initial project concept and design to delivery.

We accompany PTAs at every stage of their energy transition projects including planning, procurement, commissioning, launch, operation and maintenance by providing our operational, technical and economic expertise and experience to take into account

crucial considerations like total cost of ownership, environmental regulations, access to subsidies and regional energy sources topography, service routes and fleet maturity.

Our experts are a perfect blend of engineers, project managers, commercial and operational experts and thought leaders.

The team includes experts and engineers who have a thorough understanding of the transitions from diesel to all other energy modes, including:

- Hybrid vehicles
- Battery-electric vehicles (slow or fast charge)
- Hydrogen fuel-cell vehicles.

The overall safety, economic balance of the system and the quality of service are at the heart of what the ZEST CoE delivers. The team's focus is on:

- Operational robustness (reliability of equipment, performance in degraded mode, etc.)
- The efficient deployment and operation of the necessary infrastructures (depots, chargers, etc.)
- The develop of skills and staff training.

Topics which the ZEST CoE is equipped and enthusiastic to assist with include:

- Battery-electric and hydrogen fuel-cell vehicles and powertrains
- BEV charging infrastructure at depot and on route
- FCEV refuelling infrastructure and hydrogen supply chains
- Holistic design of zero emissions fleet and supporting infrastructure to meet local needs and conditions
- Reconfiguration of depots for zero emissions or mixed fleet to balance capital costs of upgrades, operating costs, operational changes and flexibility, charging demand management and grid services, vehicle reliability and readiness for service
- Energy considerations for siting of new depots, routes and opportunity charging
- Opportunities to reduce operating costs by exploiting new ways to add value to energy sector (e.g. demand response, frequency control services, self-generation and energy storage)
- Exploring different ways to procure green energy for transport (e.g. renewable energy certificates, direct contracts with renewable generators, green hydrogen)
- Skills required for operating and maintaining zero emissions vehicle fleets.



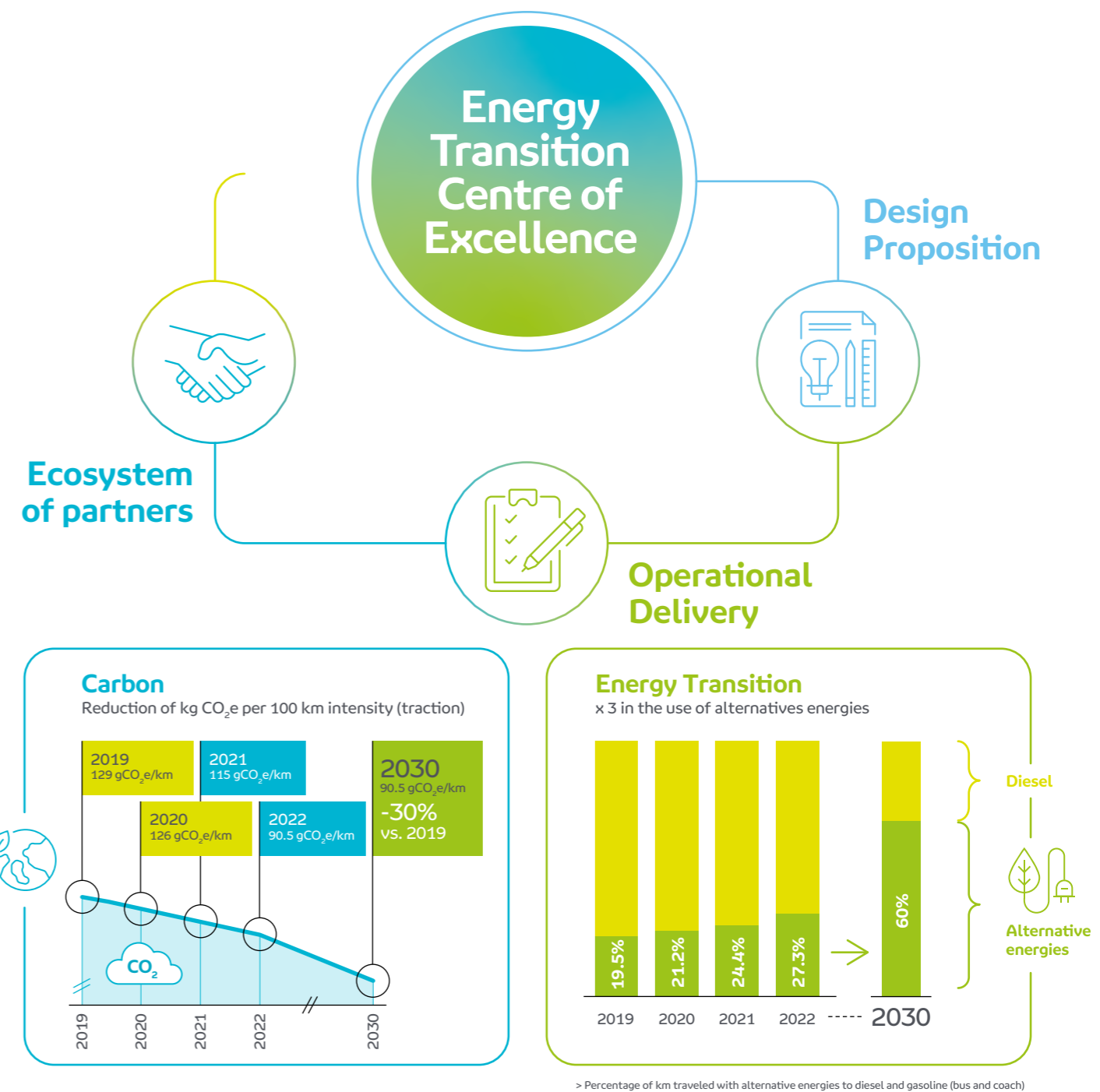
How does ZEST deliver value for PTAs in Australia?

The ZEST CoE has a unique value proposition to support PTAs throughout the lifecycle of their projects:

- Support across the project lifecycle from project creation and inception, to concept development and options assessment, through to design and business case development, procurement, delivery, operation and maintenance, and ultimately decommissioning, redeployment, and circular economy principles for end-of-life assets
- Access to international knowledge and to a pool of experts around the world through the Keolis Group CoE



- Practical experience from a global operator, independent of technology, manufacturer and energy suppliers: our focus is on bringing the best solution to achieve the PTAs vision and solve local challenges
- A clear understanding of what PTAs want to achieve and a constructive /solutions-driven approach
- A proven track record working collaboratively with all levels of government, industry and local partners to achieve a positive outcome and deliver benefits to local communities.



The diagram above represents Keolis Group commitments. By 2030, Keolis aims to:

- **Mitigate climate change:** decrease greenhouse gases / km by 30% in 2030 compared to 2019
- Mitigate climate change and/or **reduce air pollution** : multiply x2 in 2025 and x3 in 2030 the number of km operated by buses and coaches with **alternative energies** (compared to 2019)
- Manage our **overall impact on the environment**, including **waste** and **water**: increase the proportion of our revenue **ISO14001**-certified to reach 80% in 2030



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THINK — **LIKE A**
PASSENGER

