



**ACT**  
Government

# TRANSPORT CANBERRA'S FIRST TRANCHE OF 90 BATTERY ELECTRIC BUSES

**Delivering the ACT Government's  
vision of a zero emission public  
transport fleet by 2040**

**INDUSTRY PROJECT BRIEF**



# DELIVERING TRANSPORT CANBERRA'S FIRST TRANCHE OF 90 BATTERY ELECTRIC BUSES

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# WE ARE ON THE PATHWAY TO A RESILIENT, NET ZERO EMISSIONS CITY

The ACT Government is taking nation-leading action to transition its city bus fleet to zero emissions, including the infrastructure, investment and skills needed to make the transition a success.

The 2019 ACT Climate Change Strategy outlines the ACT's commitment to a 100% zero emission Territory by 2045. The Strategy also outlines ACT's commitment to lead the transition by achieving a zero emission ACT by 2040, and to reduce ACT emissions by 33% by 2025.

While comprising around 3% of total Territory emissions, the current Transport Canberra fleet of diesel and gas buses make up over half of all ACT Government emissions. With light rail already delivering a zero emission transport solution, bus public transport is the next priority in reducing overall emissions and paving a way for the rest of the transport sector.

The 2020 Transport Strategy outlines the ACT Government's vision for a world class transport system that supports a compact, sustainable and vibrant city. The transition to a zero emissions bus fleet, will help deliver a modern public transport system that meets the vision and drives positive change for all Canberrans.

## The Zero Emission Transition Plan

Released in September 2020, the Zero-Emission Transition Plan for Transport Canberra (the Plan) outlines the objectives

(see chart below) key drivers, opportunities and constraints of this transition. The Plan maps out a practical pathway to commence the transition away from fossil fuels and a strategy to achieving a complete zero emissions fleet by 2040. The Plan is centred around five strategic priorities:

1. Building the infrastructure we need.
2. Procuring zero emission buses.
3. Partnering with the energy sector.
4. New skills, protecting jobs and growing the economy.
5. Increasing public transport use through better buses and a better service.

## Progress to date

Implementation of the Plan has begun, with investigations into the future infrastructure, network, energy requirements and workforce needs underway.

Transport Canberra has also progressed the replacement of its ageing bus fleet. Procurement for 34 replacement buses via a short-term lease will commence in the second quarter of 2021. This will allow us to meet our immediate operational needs with the tender being open to lower emission diesel and battery electric bus technology.

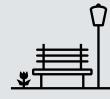
The chart on the following page provides an overview of the plan and status of action.

## Transition objectives

The Plan is guided by six objectives aligned to Government's broader priorities. These objectives will guide future investment and decision making to ensure the decisions we make at the local level contribute to city and global outcomes.



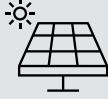
Build a better public transport service



Support health and active places



Deliver a cost-effective service



Foster technological change



Meet changing customer needs



Provide innovative, integrated solutions

		Status
Release of the Zero Emission Transition Plan for Transport Canberra	Complete ✓	
<b>Strategic Priority 1</b>		
Action 1.1	Deliver an interim infrastructure solution for the first tranche of zero emission vehicles.	Planning commenced 
Action 1.2	Undertake a depot feasibility study to identify the timing and scope of future needs.	Underway 
Action 1.3	Upgrade Woden Depot to support zero emission buses.	Planning commenced 
Action 1.4	Build a new zero emission depot by 2026.	On track 
<b>Strategic Priority 2</b>		
Action 2.1	Procure a first tranche of battery electric buses which are supported by a temporary infrastructure solutions.	Market sounding commenced 
Action 2.1	Continue to monitor changing commercial models, technology developments and power advances.	On track 
<b>Strategic Priority 3</b>		
Partnering with the energy sector.		On track 
<b>Strategic Priority 4</b>		
New skills, protecting jobs and growing the economy.		On track 
<b>Strategic Priority 5</b>		
Increasing public transport use through better buses and a better service.		On track 



Belconnen Bus Depot

# THE BRIEF – DELIVER A FIRST TRANCHE OF 90 BATTERY ELECTRIC BUSES

## What we have promised

In accordance with the Zero Emission Transition Plan, the *Parliamentary and Governing Agreement for the 10<sup>th</sup> Legislative Assembly* outlines the ACT Government's commitment to continuing the transition of Canberra's entire public bus fleet to zero emissions by buying an initial 90 battery electric buses, building a new zero emission bus depot in Canberra's north and building electric bus infrastructure at a new depot in Woden.

This project refers to the delivery of the first tranche of 90 battery electric buses and supporting infrastructure, training and skills development.

## What we are trying to achieve

The procurement of a first tranche of 90 battery electric buses will kick-start the transition to zero emission fleet while learning, upskilling and de-risking the future steps.

The first tranche is designed to accelerate Transport Canberra's transition to a zero emission fleet while the longer-term infrastructure and policy to support the larger scale transition is developed. This first tranche aims at minimising upfront capital costs and accelerating learnings across industry and other jurisdictions.

At a minimum the future procurement will be seeking:

- 90 battery electric buses;
- all vehicles to be delivered by 2024;
- to have up to or around 40 vehicles housed at a new bus depot in Philip, Woden. This depot is proposed to operate as a mixed fleet depot initially with around 60% diesel buses and 40% battery electric buses. The depot will be converted to a 100% zero emission depot in future years;
- to have the remaining vehicles (up to or around minimum 50) housed and / or charged at an alternate facility. The existing depots at Belconnen and Tuggeranong will not have provision for additional battery electric buses through this project;
- the supply of relevant infrastructure to charge the vehicles for service including the housing (where required), energy supply and charging infrastructure;
- workforce training and support to begin to upskill our local workforce and to work with the vocational education sector to establish requisite skills packages;

- driver training and support to enable safe and efficient driving practices; and
- systems and solutions needed to operate and maintain the battery electric bus fleet as part of the day to day operations.

We are looking for parties who:

- can deliver a solution that meets the operational requirements of Transport Canberra while offering the opportunity for innovation and service improvement;
- are willing to partner with Transport Canberra and other suppliers to deliver learnings across industry;
- are committed to enhancing customer and environmental outcomes through public transport and its transition to zero emission fuels;
- are innovative, open minded and keen to be involved in delivering the Territory's first tranche of 90 battery electric buses; and
- can play a key role in enabling and/or supporting the transition through technical, regulatory, financial and other types of partnerships.

## Project status and current commitments

- Transport Canberra has now commenced market soundings with interested parties invited to register their interest.
- The preferred market sounding includes industry briefings, questionnaires and select interviews and provides a genuine opportunity to receive input from all industry sectors to inform the upcoming procurement.
- Following the market sounding, and subject to subsequent budget and procurement approvals, the procurement process will commence through either the release of a Request for Expression of Interest or direct progression to Request for Proposal depending on which is deemed the most appropriate for this procurement activity.
- All future procurement processes will be subject to requisite ACT Government funding and procurement approval processes.
- The procurement of the 90 battery electric buses will commence only after these approvals are received.

# MARKET SOUNDING

## Objectives and process

The aim of the market sounding is to inform the design and development of an effective procurement approach that delivers a value for money procurement outcome for the Territory across the project lifecycle.

The market sounding is designed to explore key delivery concepts and assumptions with the private market including market capacity, viability project specific issues (such as technology, timing, scale) and risk allocation.

## Key items for exploration

Theme	items
<b>Scale and deliverability</b>	Market capacity to meet the timing and scale of the procurement.
<b>Timing and production</b>	Timeframes and production considerations which might depart from traditional supply chains.
<b>Charging without impacting services</b>	Impact of battery electric buses on service delivery and design now and in the future.
<b>Use of batteries and power optimisation technologies</b>	Opportunities for optimising infrastructure and batteries.
<b>Grid impacts &amp; upgrades</b>	Opportunities for power supply, optimisation, reliability, security, sustainability and partnerships.
<b>Emissions</b>	Opportunities and incentives to deliver emissions reduction.
<b>Risks</b>	Main technical risks in delivering infrastructure and requisite service levels.
<b>Workplace practices and skills</b>	New and revised workplace practices and skills that might be required.
<b>Technology, systems and specifications</b>	Systems requirements to effectively manage a large fleet across the network and what technology exists already. Level of vehicle and system specifications.
<b>Battery life, risk and second life</b>	Battery life and performance management.
<b>Whole of life considerations</b>	Managing technological obsolescence, whole of life asset costs and cradle to grave impacts.
<b>Business and contract model</b>	Delivering a value for money outcome for the community through the innovative operating, delivery, commercial and contract arrangements.
<b>Funding and financing</b>	Opportunities for Government and non-government funding, financing, cost reduction and revenue streams.
<b>Operations and maintenance</b>	Meeting the operating and maintenance requirements of the Territory to protect jobs and deliver service outcomes.
<b>Regulatory and supply barriers</b>	Regulatory and supply barriers to market participation.
<b>Territory role and enablers</b>	The Territory's role in enabling or assisting participation to deliver shared outcomes, including land supply.
<b>Complementary opportunities</b>	Other opportunities and synergies that might exist i.e. circular economies, local economic development, ACT battery storage programs, other passenger and non-passenger vehicle transitions.

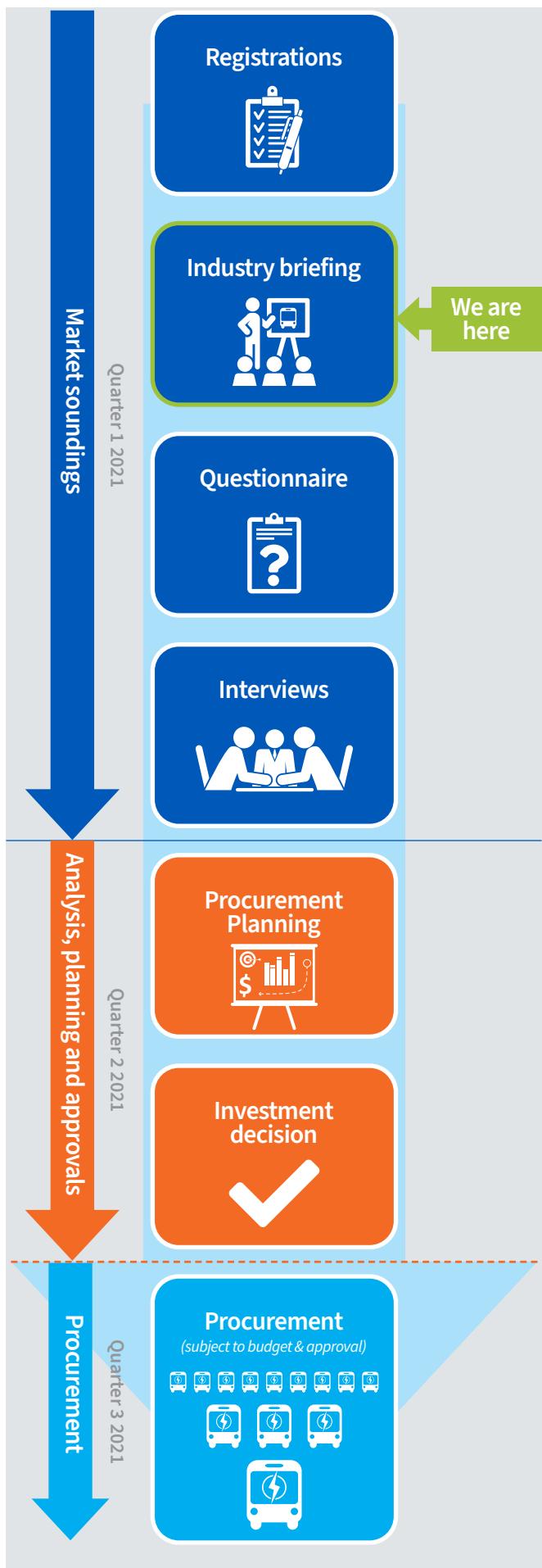
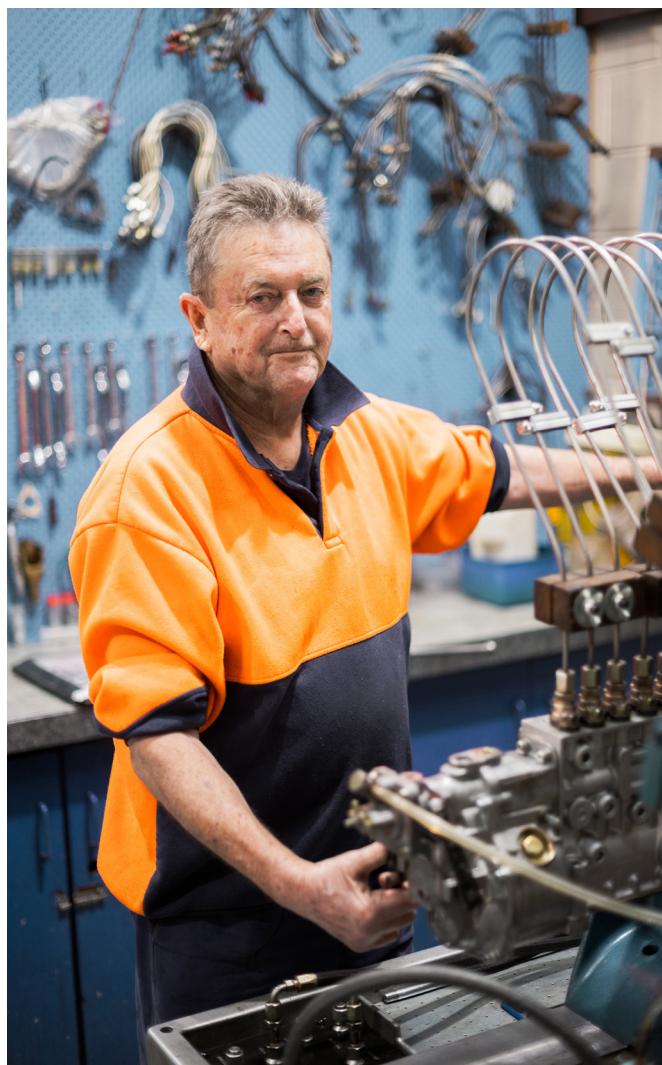
## Limitations and disclaimers

Any information provided by participants will be for general information and analysis and will be relied upon for the purpose of the procurement planning only.

Market sounding is a pre-procurement process to inform the preferred procurement approach. Participation in the market sounding will not offer any advantage in any subsequent procurement process. Similarly, those not participating will not be disadvantaged in the future procurement process. All industry briefing materials will be made publicly available at the Transport Canberra website.

Any interviews will be at the discretion of the Territory and will have no bearing on the final procurement outcome.

The market sounding does not commit the Territory to undertaking any future procurement and is not intended to bind the Territory. All future procurement will be subject to procurement and government funding approval. All information supplied by the Territory is preliminary only and does not constitute the final procurement approach or material.



# PROJECT OVERVIEW

## Project objectives

The objectives of the first tranche of 90 battery electric buses for Transport Canberra are to:

- Deliver 90 battery electric buses and supporting infrastructure;
- deliver a service outcome that meets the operational needs of Transport Canberra and their customer;
- help meet the Government's interim climate change target of reducing Government-led emissions by 33% by 2025;
- develop and foster industry partnerships and innovation;
- facilitate organisational and industry learnings to support the broader transition to a zero emission economy;
- position the ACT to leverage its competitive and comparative advantages of size, scale, human capital and ambition;
- up-skill the Transport Canberra workforce to deliver a future zero emission fleet and provide job security for its workforce;
- optimise value for money for the Territory and minimise capital costs of the first tranche of battery electric buses for Transport Canberra; and
- de-risk the implementation and operation of the future transition including the delivery and operationalisation of Transport Canberra's first 100% zero emission depot.

## Scope

Items which are currently considered in scope include:

- Supply of 90 battery electric buses to meet Transport Canberra operating requirements;

- supply of supporting infrastructure including, power supply, charging equipment, energy infrastructure and management systems;
- training and development programs for drivers, depot and workshop staff;
- integration of up to or around 40 battery electric buses in the new Woden Bus Depot;
- supply of off-site facility for charging, housing and/or stabling of up to or around 50 battery electric buses; and
- all vehicles must be operated and maintained by Transport Canberra.

Items which are currently considered out of scope for this process include:

- Hydrogen and other alternate fuel technologies;
- maintenance and operations of the vehicles by others; and
- housing and stabling of vehicles in Tuggeranong and Belconnen Depots.

## Expected project outputs

### Expected output – Fleet replacement

Transport Canberra is seeking 90 battery electric buses to replace its retiring diesel and CNG fleet. These 90 battery electric buses are in addition to the initial procurement of 34 short term leased replacement buses, due to commence in early 2021. Transport Canberra expects the first of these vehicles arrive in 2021-22 with the final vehicles supplied by no later than 2024.



## **Expected output – service and operational continuity**

These 90 vehicles and supporting infrastructure will be aimed at giving real life application and learnings in a fully operational environment. Certainty of performance, deliverability and minimal service disruption will be key considerations in any future procurement design and evaluation process.

## **Expected output – innovation and partnerships**

Transport Canberra will be seeking innovative solutions that respond to the infrastructure, power, training and technology opportunities of a zero emission fleet that deliver on Transport Canberra's Transition Principles (Refer to Figure 1 below).

The ACT has been a leader in demonstrating how these interests can be leveraged to accelerate change and improve customer outcomes. The initial 90 battery electric buses will encourage opportunities to develop and export learnings and innovations.

Solutions will need to consider opportunities to enhance the service offering and promote the ACT Government's commitment to a diverse, knowledge-based economy, principles objectives of a sustainable, compact and efficient city.

## **Expected output – workforce training, skills development and protecting local jobs**

The transition to new technologies and processes will drive new opportunities for industry, local jobs and skills both in the Transport Canberra workforce and the local economy.

Transport Canberra is seeking to develop a more agile business to manage the new models presented by the transition. Workshop staff will be skilled across multiple areas and technologies and Transport Canberra will be an employer of choice.

## **Expected output – use of infrastructure**

Transport Canberra's Tuggeranong and Belconnen Depots have limited space to facilitate the requisite conversion for, and operation of, any battery electric buses.

While the Territory undertakes feasibility studies for the future depot in Canberra's north, the 90 battery electric buses will be expected to be housed and charged in a mixture of alternate off-site locations at the new Woden Depot, and will optimise the use of existing grid infrastructure where possible.

It is expected that up to or around 40 of the 90 battery electric buses will need to be integrated with and operate from the new Woden Depot.

Construction of the Woden Depot is expected to commence in late 2021 with the depot to start operations in early 2023. The ACT Government has now committed to deliver

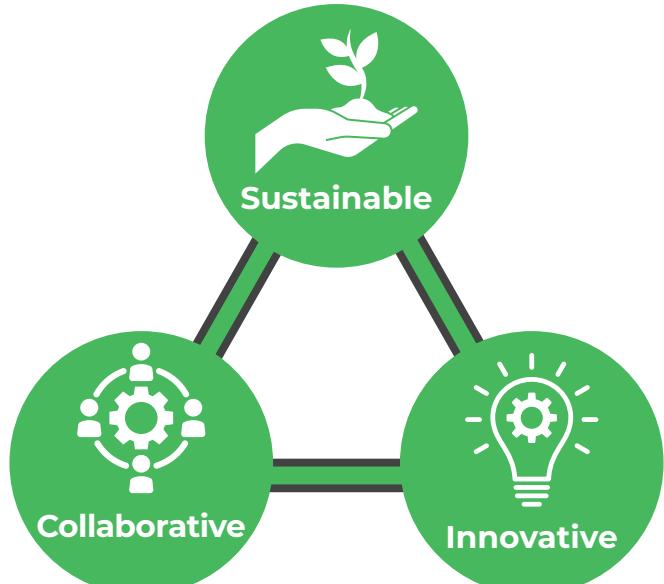
the project as a single phase with the Woden Depot to be constructed with the expectation it will deliver up to 60 diesel buses and up to or around 40 battery electric buses. The transition to a 100% zero emission depot will take place in future years.

## **Preliminary risk identification**

- Business and service continuity risk due to delayed retirement of ageing vehicles.
- Business and service continuity risk due to system incompatibility and technological reliance.
- Provision of necessary infrastructure for housing and charging vehicles.
- Timely planning approvals and acquisitions.
- Staff training and workforce capability.
- Need for additional infrastructure requirements and grid upgrades.
- Availability of funding.
- Whole of life costs and technological obsolescence.
- Insufficient energy requirements.
- Insufficient market capacity to deliver vehicles and training.

## **Anticipated economic and social benefits**

The transition will focus on delivering sustainable outcomes that benefit the community, environment and economy. New supply chains will present a range of commercial models and the zero emission industry is already organising in new ways to provide effective solutions that meet the need of governments and operators with the changing nature of energy and renewables markets.



**Figure 1. Transport Canberra Zero Emission Transition Principles**

The ACT Government has an important role to play in facilitating this collaboration, including as a participant, customer, regulator or through specifically designed interventions and initiatives that drive a shared approach to learning and progress.

A key benefit of the transition will be improved service outcomes for customers and the community, and more sustainable, environmentally friendly travel options. By adopting complementary technology, information and systems investments, the transition will enable improvements to real time customer information, service frequency, travel times and comfort on-board buses.

Economic diversity is another benefit of transitioning to zero emissions. Transport Canberra will concentrate on developing a flexible, highly skilled workforce in its own operations as well as considering opportunities to drive skills and training as part of the Territory's broader ambition for a diverse, knowledge intensive economy, to create more jobs and allow all Canberrans to benefit from economic transitions.

The 2020 ACT Jobs and Economic Recovery Plan outlines Government's commitment to building a strong, resilient,

diverse economy that adapts and prospers in the face of change. Secure jobs, high employment standards and fostering wellbeing are key priorities under the Recovery Plan with Government setting a target of more than 250,000 jobs by 2025.

Under the Recovery Plan the ACT Government will establish a Canberra Economic Recovery Advisory Group. The Advisory Group will bring together economists, industry representatives, community sector partners and unions to provide advice on how the ACT Government can continue to protect and create local jobs. Priorities for the group will be:

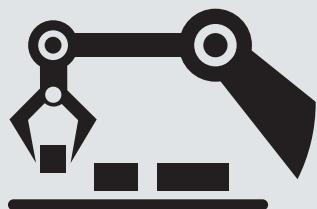
- Regulatory reforms to increase the flexibility of business and reduce red tape;
- Government measures to attract new investment to the ACT;
- future stages of tax reform to increase productivity.

The Recovery Plan also acknowledges the role of Government in supporting business development, training, skills and learning to keep up with the demands of the new economy and to foster business investment through high quality infrastructure, progressive tax reform and reducing regulatory burdens.

## Advanced technology and manufacturing

**The ACT Government's strategic partnerships and investments in key emerging industries take advantage of Canberra's competitive strengths, and support future jobs growth.**

The Government will build on these strong foundations as part of the ACT's Recovery Plan, ensuring the Territory continues to be Australia's leading knowledge-based economy.



Northbourne Ave, Canberra City

# PROJECT SPECIFIC INFORMATION

## Working fleet systems and specifications

Working assumptions	
<b>Total fleet number</b>	90 battery electric buses (minimum). Up to or around 40 vehicles assumed to be housed and charged at new Woden Depot. Up to or around 50 vehicles housed and charged at location yet to be specified.
<b>Delivery</b>	First vehicles to anticipated to arrive in 2022 with vehicles to be delivered by end of 2024.
<b>Fuel type</b>	Battery electric. Transport Canberra has identified that battery electric buses offer the best fit for current operating conditions and technological maturity. Hydrogen may be considered in future procurements, but this current procurement will largely focus on battery electric technology. Battery electric buses have an electric motor and a large battery that recharges by plug connection to external power. (This does not preclude hydrogen solutions being considered in future procurement planning process.)
<b>Carrying capacity</b>	(43 seated 20 standing) minimum passenger capacity.
<b>DDA compliance</b>	Built to meet 2022 DDA compliance standards.
<b>Rear opening doors</b>	Yes.
<b>Maximum length</b>	12500mm.
<b>Maximum width</b>	2500mm.
<b>Design</b>	Two door city bus Australian Design Rules compliant.
<b>Drive</b>	Right hand.
<b>Fare-collection and transactions</b>	Cashless.
<b>Climate controlled</b>	Saloon, separate for driver's cabin.
<b>Regenerative braking</b>	Preferred – options welcomed.

## Stabling and infrastructure

Working assumptions	
<b>Location</b>	Up to or around 40 vehicles housed and charged at new Woden Depot.
	Up to or around 50 vehicles housed and charged at location yet to be specified.
<b>Energy capacity</b>	To be specified in the future procurement materials to allow inclusion of the market sounding findings.
<b>Supply of charging infrastructure</b>	To be specified in the future procurement materials to allow inclusion of the market sounding findings.
<b>Cost of infrastructure upgrades</b>	To be specified in the future procurement materials to allow inclusion of the market sounding findings.

## Existing depot infrastructure

Depot		
<b>Depot</b>	Belconnen	Tuggeranong
<b>Current fuels</b>	Diesel	Diesel, CNG, Electric
<b>Original design capacity</b>	175	165
<b>Number of vehicles currently housed</b>	226	225
<b>Age</b>	45 years	30 years

## Woden Depot

Working assumptions	
<b>Status</b>	Design and construct (construction to commence in late 2021).
<b>Funding</b>	Partly funded.
<b>Expected design capacity</b>	Circa 110 vehicles maximum (including up to 60 diesel).
<b>Construction commences</b>	Late 2021.
<b>Construction complete</b>	Early 2023.
<b>Electric capacity</b>	TBD with energy supplier. All charging types to be considered.
<b>Network deployment of electric vehicles</b>	A range of deployment options will be considered and further specified in the future procurement process to allow inclusion of the market sounding findings.

## Power, charging and infrastructure

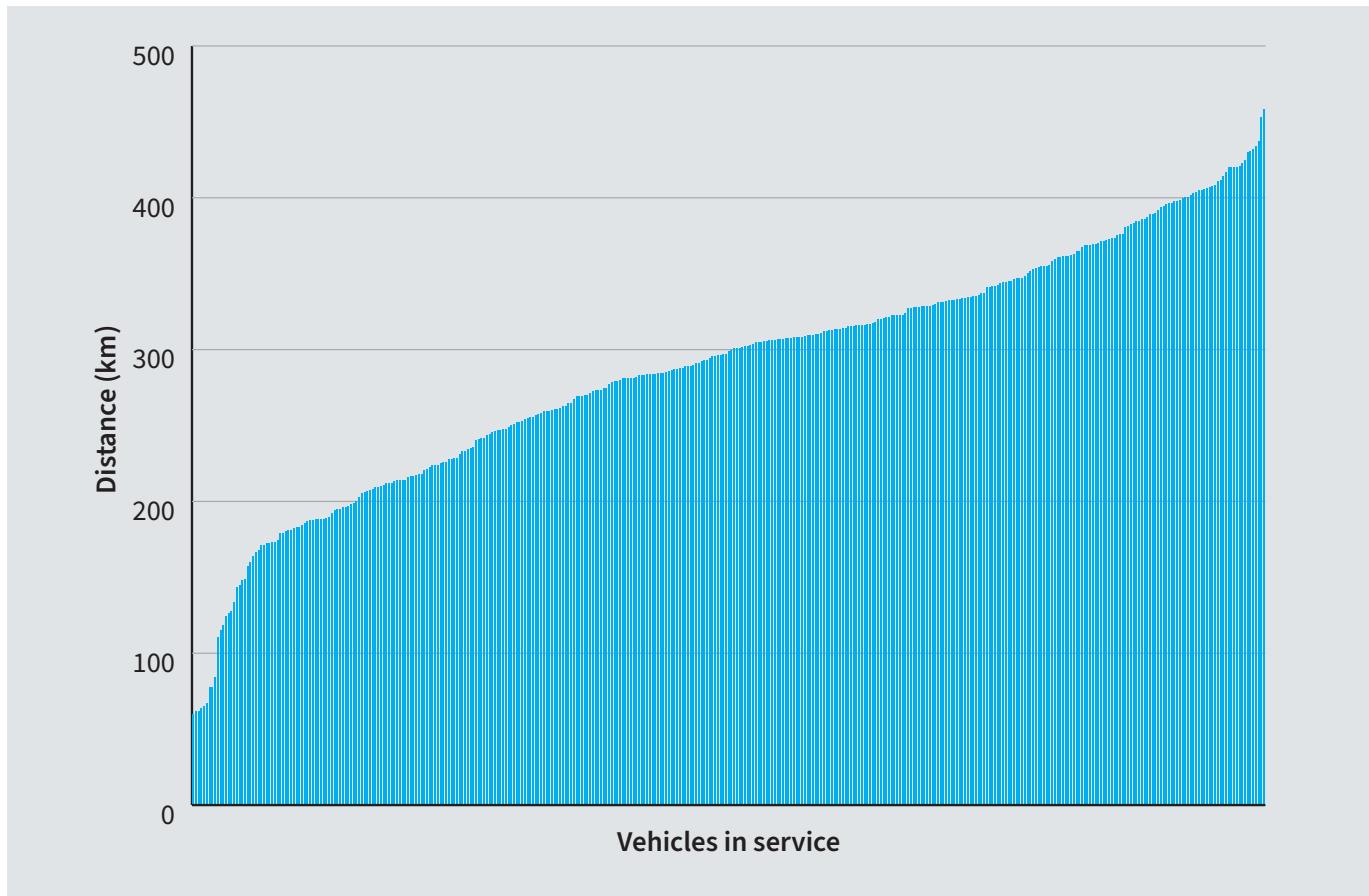
Working assumptions	
Power supply	(noting the ACT electricity supply is now powered by 100% renewable energy).
Charging strategy	Further information will be specified in the future procurement materials to allow for the inclusion of market sounding findings with on-route, midday and overnight charging all currently being considered.

## Network and operations

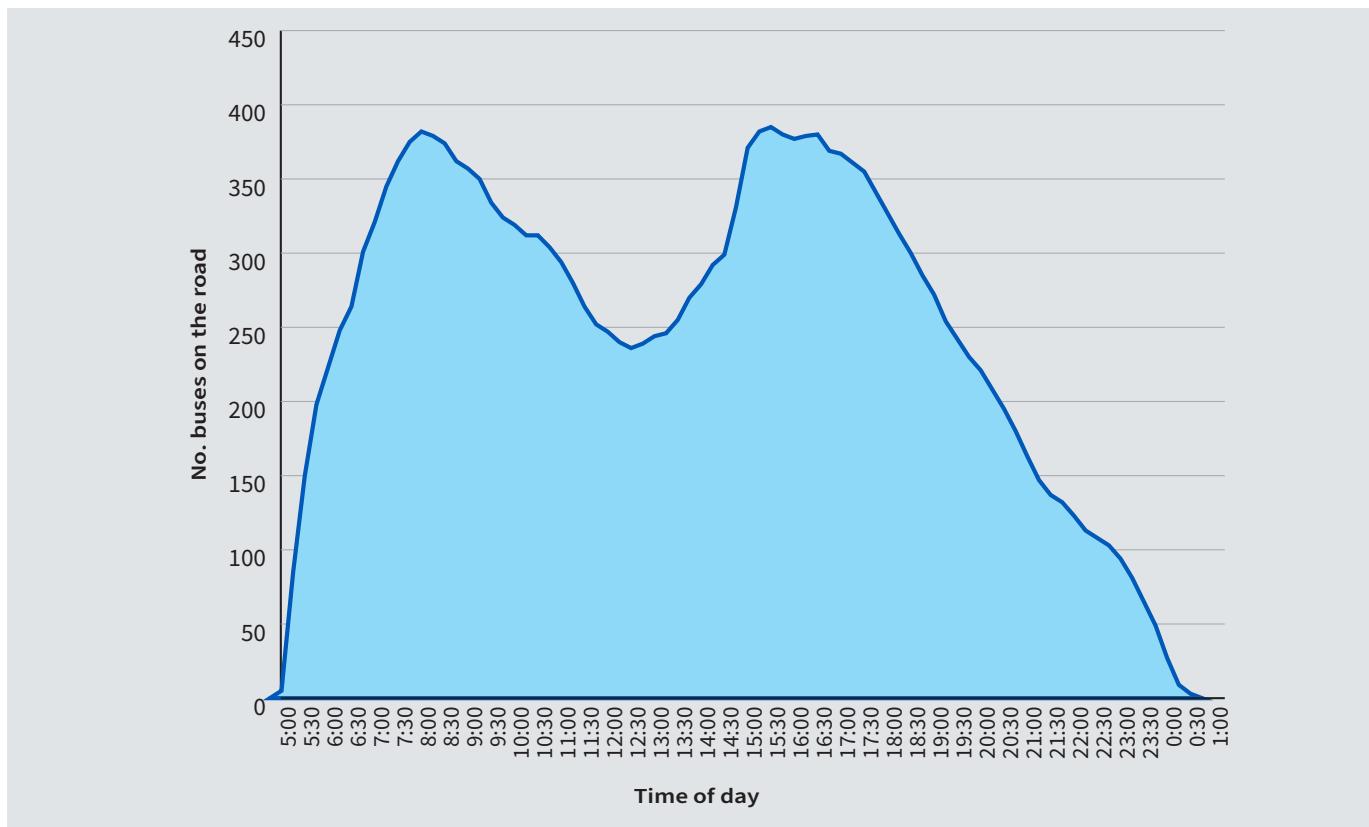
Working assumptions	
Service and supply	Vehicles to be operated and maintained (where relevant) by Transport Canberra.
Average kms	300kms per day.
Span of operating hours	5am – 1.30am.
Workforce	To meet with current Transport Canberra Enterprise Agreement & work health and safety requirements.
Network deployment of electric vehicles	A range of deployment options will be considered and further specified in the future procurement process to allow inclusion of the market sounding findings.
Network scheduling	To deliver current network design as required of all Transport Canberra bus fleet.

## Contract, delivery and commercial arrangements

Working assumptions	
The Territory will be considering contract and delivery mechanisms that are best able to meet the project objectives around innovation, integration, customer outcomes and value for money. The preferred contract and commercial arrangements will be determined in accordance with the ACT Government's procurement policy and partnerships framework and will be further specified in future procurement process to enable inclusion of the market sounding findings	



*Figure 2. Distribution of bus kilometres travelled per day by individual vehicle (Source: Transport Canberra 2021)*



*Figure 3. Number of buses in service by time of day (Source Transport Canberra)*

# ADDITIONAL RESOURCES AND LINKS

-  [Transport Canberra Network](#)
-  [Zero Emission Transition Plan for Transport Canberra](#)
-  [2019 ACT Climate Change Strategy](#)
-  [2020 ACT Jobs and Economic Recovery Plan](#)
-  [2020 ACT Transport Strategy](#)
-  [ACT NoWaste](#)
-  [Big Batteries Program](#)
-  [Arena](#)
-  [2020-21 ACT Budget Papers](#)
-  [More information about Transport Canberra](#)
-  [Actsmart](#)
-  [The Partnerships Framework](#)

# TRANSPORT CANBERRA'S FIRST TRANCHE OF 90 BATTERY ELECTRIC BUSES



Transport Canberra and  
City Services

March 2021