Attachment 1
to
Item 4

Hawkesbury City Council Electric Vehicle Scoping Paper, August 2021

Date of meeting: 26 April 2022
Location: Council Chambers
Time: 4:00 p.m.

HAWKESBURY CITY COUNCIL ELECTRIC VEHICLE SCOPING PAPER

Sustainability Advantage

Program support

August 2021

WHAT WE DID

Foundation advice to support Council in developing a future EV strategy or roadmap.

HOW WE DID IT

Practical advice linking local targets to state/regional/national plans and resources.

WHY IT'S IMPORTANT

EVs are crucial to reduce emissions but need to reduce mystique and avoid mis-steps & misinformation.

Summary

- The transition to EVs is accelerating and will only become more mainstream in coming years
- There are barriers to the adoption of EVs BUT all barriers can be overcome with enough will and resources
- Strategic objectives and targets should drive the EV strategy, but strategy alone is not enough: Council should decide how fast or slow it wants the transition to occur because there are different pathways/trajectories
- Council should assess and leverage national, state and regional EV resources before embarking on its own
- Provision of public charging could be part of a coordinated plan, but it's not necessarily Council's role
- Cost of EV charging equipment is much less than most people assume – try several suppliers
- Fleet transition is the most direct, influential path to support EV uptake – but it needs fleet assessment and a transition plan
- Within Council's fleet, EV charging is not a barrier – it is an opportunity to control your energy and emissions
- Current fleet and procurement policies may not support a switch to EVs – appetite for change will determine how much needs to change
- Change management and engagement of staff is important to a successful EV transition
- There are many actions Council can take – what and how much it does depends on level of ambition (leadership spectrum)
- Potential actions have been grouped into four themes, in order of importance/urgency:

Foundations → Council Fleet → Charging → Advocacy

Background and Contents

- In March 2021, Hawkesbury City Council (Council) approved the Net Zero Emissions and Water Efficiency Strategy. The strategy sets objectives and targets for reducing emissions from both Council operations and the community.
- Among the suite of measures in the Strategy are 6 pathways, one of which is low carbon and local transport. Electric vehicles (EVs) are seen by the NSW government and many other councils as the most promising way to achieve this objective.
- Council initially identified three priority areas to support the adoption and uptake of electric vehicles, which led to this project:
  - Supporting public charging infrastructure
  - Developing EV infrastructure policy and guidelines
  - A path to transitioning council's fleet.
- Council is also seeking to understand how other NSW councils have responded to the emergence of electric vehicles in terms of policy and infrastructure.
- This initial project was funded by the NSW Government's Sustainability Advantage program. The program provides Council with limited funding to explore projects.
- This initial paper provides a high-level foundation to guide subsequent activities that could be undertaken by Council, by MOV3MENT, by another consultant, or by the Sustainability Advantage program. It includes both generic and tailored background information as well as high-level recommendations for Council to pursue.

Contents

ELECTRIC VEHICLE INTRODUCTION & BASICS

What is an EV?

An EV gets some or all of its energy from external electricity or Hydrogen. A conventional hybrid like a Prius is NOT an electric car.

PHEV
Plug-in Hybrid Vehicle

ICE engine and small battery

25-40km electric range

e.g. Mitsubishi Outlander, MINI PHEV

BEV
Battery Electric Vehicle

Battery only

150-600km range

e.g. Hyundai Kona, Nissan Leaf, Tesla

FCEV
Fuel Cell Electric Vehicle

Hydrogen tank & small battery

Up to 500km on tank

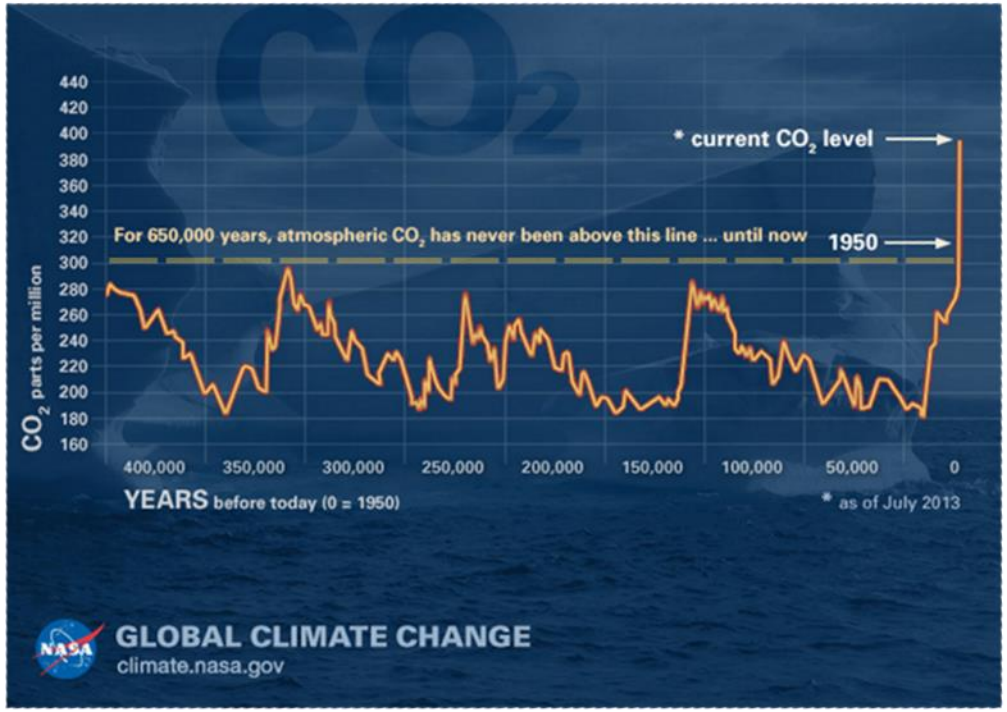
e.g. Toyota Mirai, Hyundai Nexo

Why go electric?

> *"With more than 3000 people dying each year from air pollution-related illness, governments cannot afford to delay any longer"*
>
> Environmental Justice 2014

The potential benefits of EVs include:

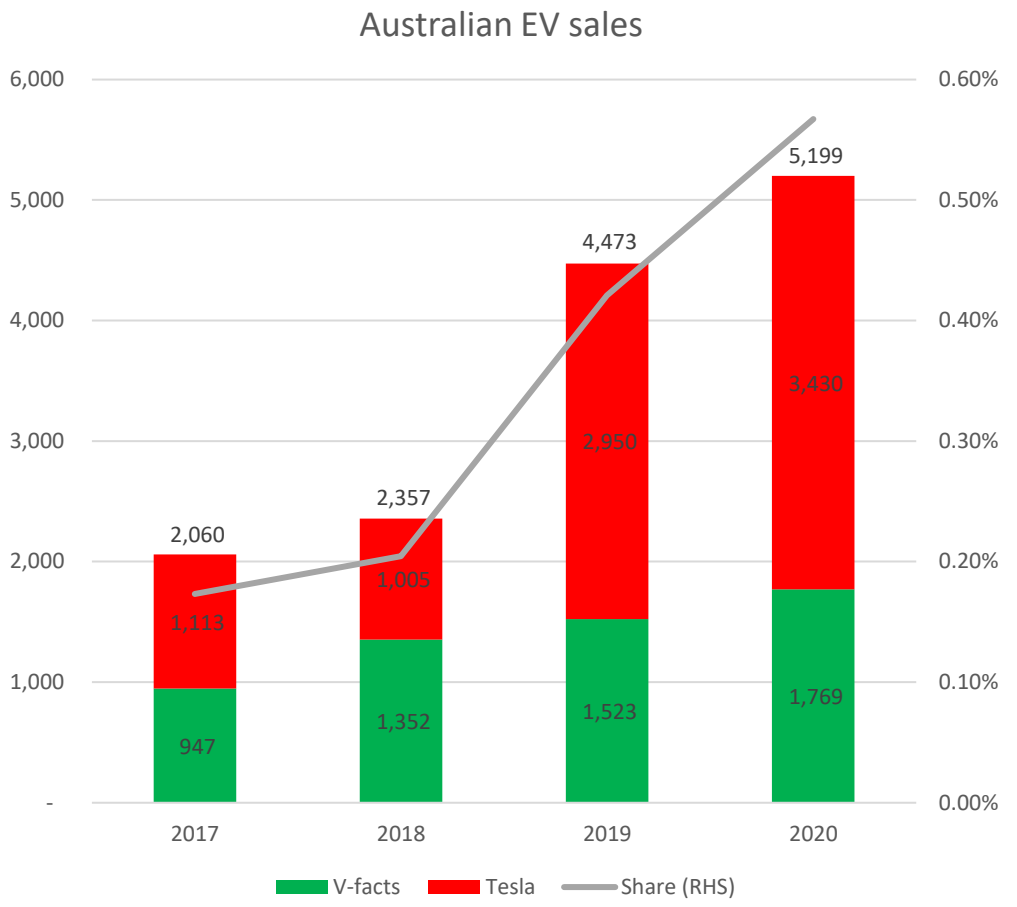
- Reduced fleet fuel costs
- Lower maintenance costs
- Reduced air pollution (with associated health benefits)
- Lower greenhouse gas emissions to slow climate change (potentially eliminated with renewable energy)
- Reduced road noise
- Enhanced energy security, reduced oil imports
- An improved driving experience
- Often fitted with advanced safety equipment
- An opportunity for Council to demonstrate leadership



The EV market

- Australia's EV market is growing strongly, but from a very low base. At the end of 2020 there were 20,000 registered plug-in vehicles on the road (PHEV & BEV) across all states.
- Current EV market share of annual vehicle sales is less than 1%. But by 2030 they could represent 30-50% of all new car sales.
- Sales data (see graph at right) include Tesla (not publicly reported) and all other brands (reported by FCAI). Tesla represents over half of current EV sales in Australia.
- Leading overseas markets are reaching EV market shares many times higher than Australia.

Norway >70%	Germany >25%
UK >15%	USA 2%



Sales will grow as more models become available

	Passenger Vehicles (<$75k)							Light Commercial Vehicles		Heavy Vehicles				
Segment	**Light**	**Small**	**Medium**	**Large**	**Small SUV**	**Medium SUV**	**Large SUV**	**Pick up <4.5t**	**Van/Bus <4.5t**	**Rigid 6.5-9t**	**Rigid 9-20t**	**Rigid 20-26t**	**Bus**	**Artic-ulated**
														
Available 2021	✗	✓	✓	✗	✓	✓	✗	✗	✓	✓	✓	✓	–	✗
Expected by 2022	✓			✓			?	?					**It Depends**	?

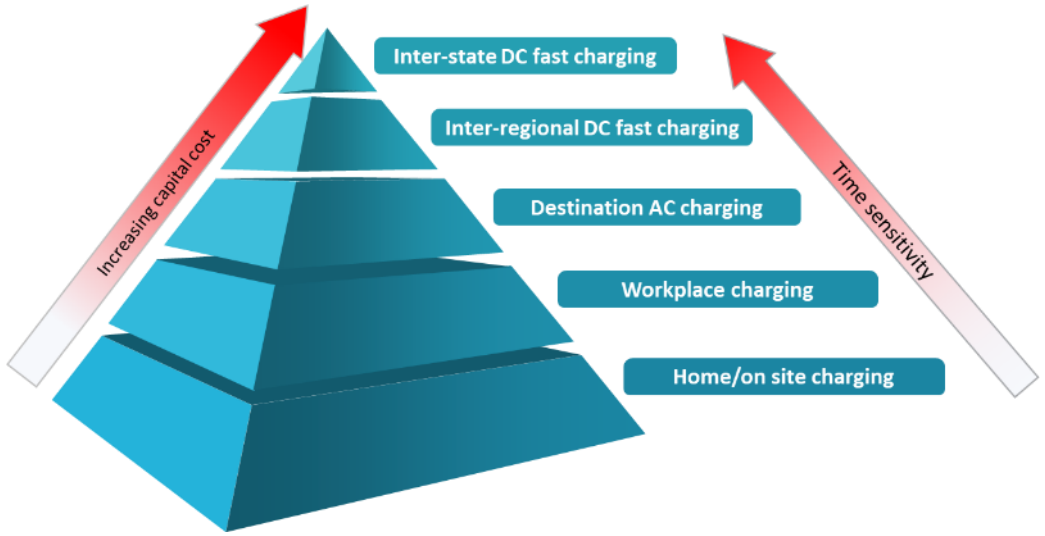
Potential for Chinese models

Model availability is a major barrier to EV adoption as fit for purpose vehicles must be available to make a transition.

Not all segments of light and heavy vehicles currently have electric options in Australia. Overseas markets have more models available, but many are not expected to come to Australia in the near term. Models that are available are well established here and overseas and have good track records.

Model availability is expected to increase in the coming years but the rate will likely depend on the balance of supportive policies both here and overseas. Europe and China are both very strong EV regions because legislation there ensures greater demand. Greater demand and limited production supply means that stronger markets get more volume, limiting models and volume to markets like Australia that have a weaker policy and regulatory environment. Two examples are Honda E and VW ID3.

Charging is part of the EV ecosystem, but often misunderstood



Over 90% of charging is done at the location the EV is based, where it spends time parked. This is typically AC charging at home for private users and depot/office for corporate users.

A common statement is “there is no infrastructure”.

- The truth is public infrastructure is not necessary to transition most of the fleet
- On-site charging is the main requirement (bottom of the pyramid)
- Fast DC charging is only required if the trip exceeds the vehicle range (>300km)

Main types of charging infrastructure

Level 2 AC Wall charger – *5 - 22kW*

20-85 km per hour of charge

Full charge <8hrs

Typically cost: ~$2,000 per unit installed

Level 3 DC fast charger – *50 - 350kW*

300-1000 km per hour of charge

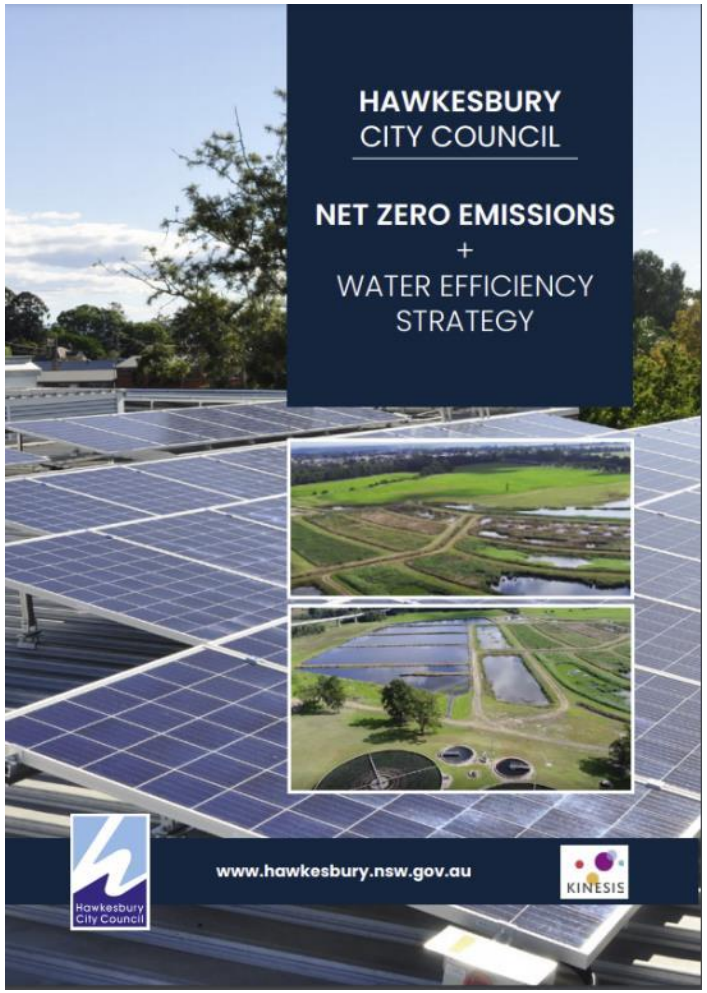
Full charge <1hr

Typically cost: >$50,000 per unit installed

Charging speed (kW) should be as much as required but not excessive: speed = cost

COUNCIL CONTEXT

Council's strategic drivers for supporting EVs



Under the Net Zero Strategy, Council is using six strategies to drive emissions reductions and water efficiency across the LGA. Two of these relate directly to electric vehicles:

#3 Low Carbon and Local Transport

#6 Council Leading by example

These strategies support both broad and specific targets and outcomes including:

For Council:

- Council operations to be net zero emissions by 2030
- Transition to an all electric Council fleet
- Publicly accessible EV charging infrastructure

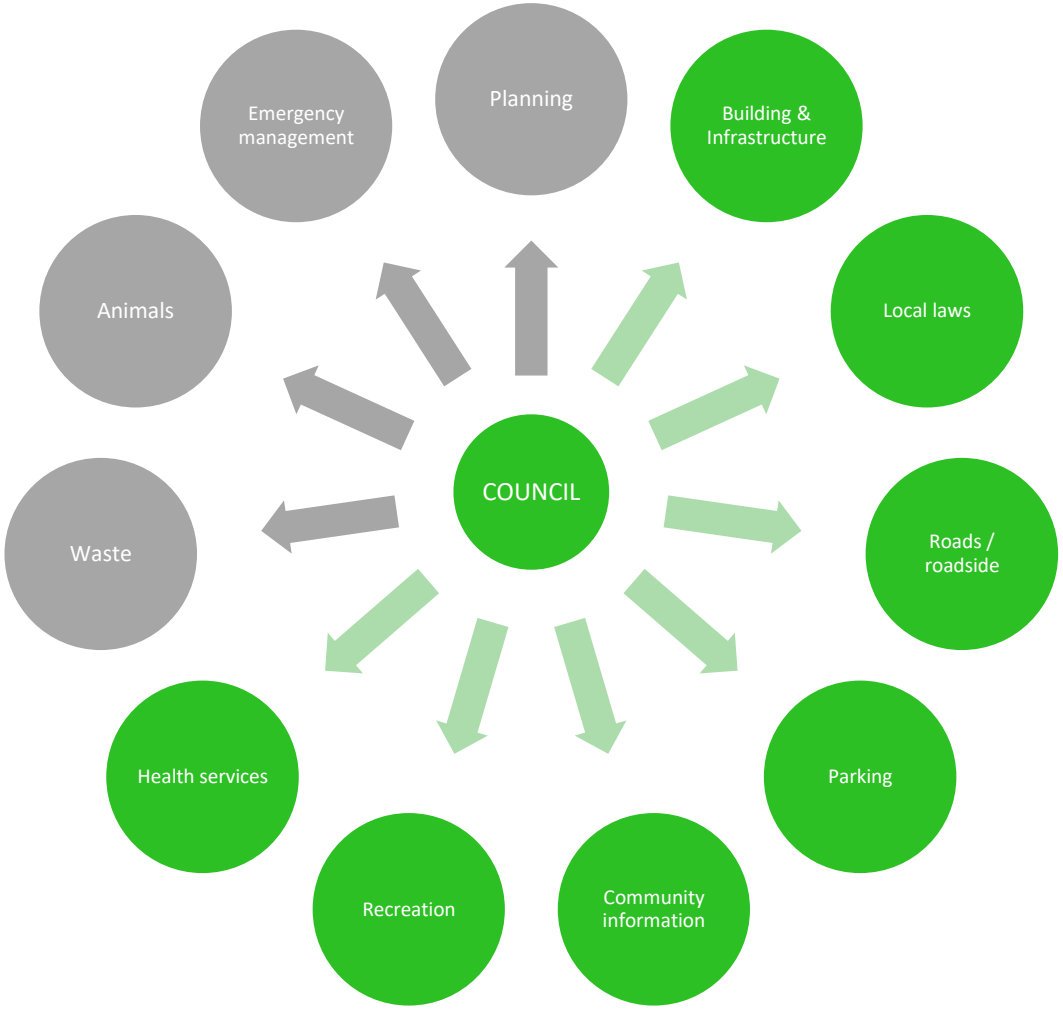
For the community

- Encourage the uptake of electric vehicles (particularly via charging infrastructure)
- 25% reduction in emissions by 2028
- 60% reduction in emissions by 2036
- Net zero emissions by 2050

Council can also support the NSW *Electric Vehicle Strategy* target (100% EV by 2030).

Electric vehicles overlap with many Council functions

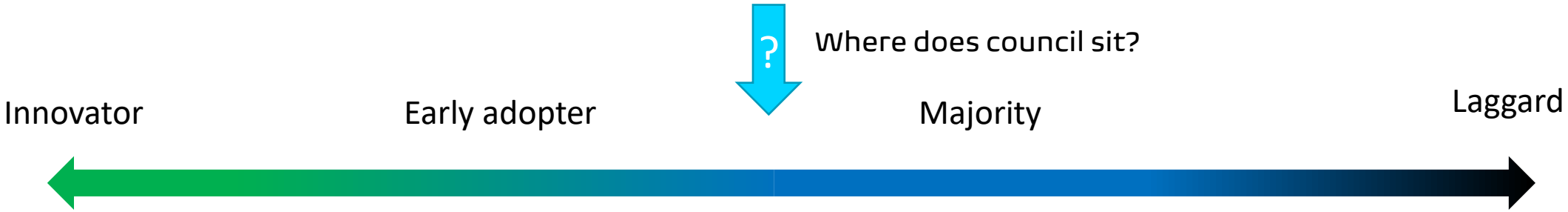
- Councils typically perform a myriad of functions, represented by the perimeter circles in the diagram on the right. Of these, the green areas represent functions or services that can either impact or be impacted by the emergence of EVs.
- Each of the green functions represents an opportunity for Council action to better support or align itself with EV users and stakeholders. Some areas have multiple pathways or opportunities.
- For example, health services:
  - See reduced community illness from air pollution (zero tailpipe emissions)
  - Respond to fewer road casualties (EVs tend to have more safety features)
  - Offer a highly utilised and well-connected public spaces for EV charging
  - Provide an opportunity to promote EV benefits to system users
  - Represent a good opportunity for EV fleet substitution.
- Which opportunities Council pursues depends largely on their strategic alignment and how influential Council wants to be.



Objectives & targets are not enough

Strategic alignment is a start. Targets and goals define the destination. But the trajectory is just as important.

Whether it be to transition its own fleet or support community uptake of EVs, Council's EV support should be driven by its level of commitment and leadership appetite. This can be represented by a spectrum spanning from the most proactive innovator to a slow laggard – as seen below.

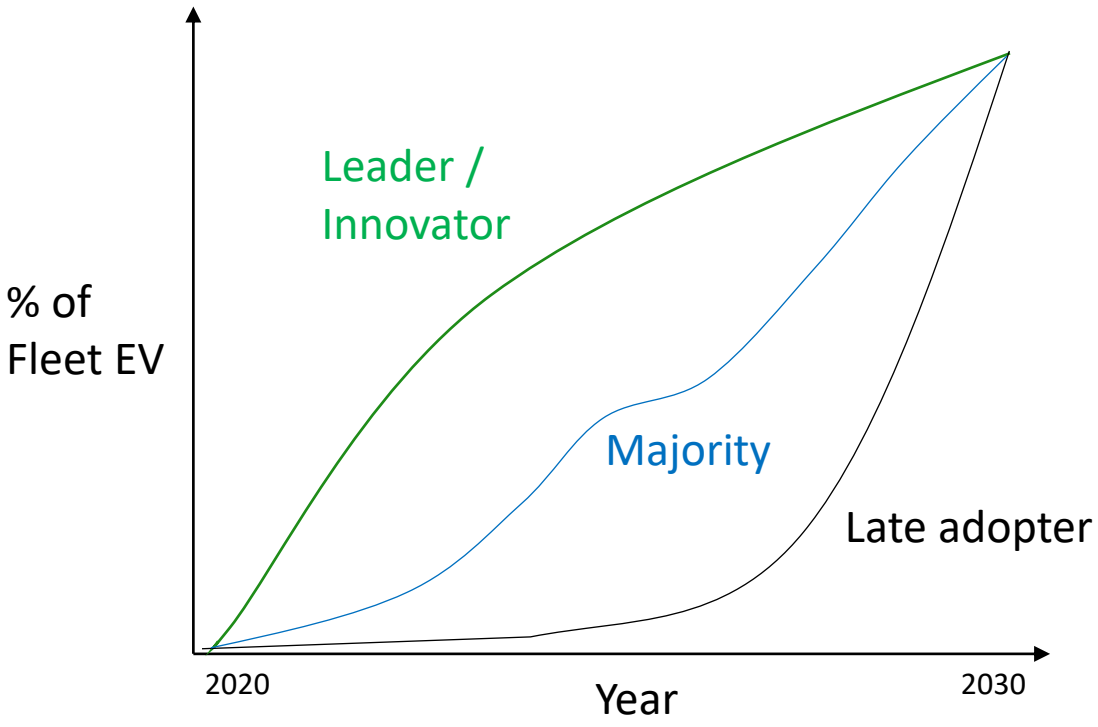


Council's position on the spectrum is influenced by many aspects: political, policy, financial, knowledge/gaps etc. But ultimately it is a decision to lead or follow, and how ambitiously to do so, that determines when things should happen – or even what to do first.

Council can assess its position on this spectrum through an assessment of intention and action to date combined with commitments into the future. Financial cost is often the great leveller: If council is willing to transition despite a higher cost, or it is prepared to change policies and rules to reduce the overall cost of new technology, then it sits further to the left of the scale. If costs or other constraints hold back action to adopt EVs, and there is unwillingness to change policies/practices, Council sits further to the right of centre.

The adoption of EVs is a choice to make change to policy, funding models and organisational behaviours in the early years. The simple driving question is "*What are you prepared to do to achieve the goal?*"

Example: An EV fleet by 2030 can be achieved in many ways



Council's Net Zero Strategy includes an aim to transition to an all-electric Council fleet. But no date is set for this transition, making it unclear what the main driver will be to ensure this happens. Yet even if a target date was set (say, 2030), the graph shows this can be achieved in different ways.

Many jurisdictions have made commitments to a 100% EV fleet by 2030, yet the rate at which they achieve it and when they start could vary:

- An organisation wanting to lead might choose the green trajectory – accepting higher costs and more uncertainty in the short term to rapidly reduce its emissions as quickly as possible.
- A risk-averse organisation might follow the black path, waiting until the last possible moment yet still achieve the target.

An organisation's commitment to leadership, or position on the spectrum, determines the trajectory. This mostly defines early activity.

In Council's case, a 2-3 year fleet turnover means it could potentially wait until 2027/28 and then change its entire fleet for EVs in the normal replacement cycle. But that would not be leading by example.

This highlights the importance of defining urgency and level of commitment.

Why is this important? It defines what is done and when

Being a leader with a disruptive technology like EVs is exciting, but also involves significant change. This should not be underestimated. Three areas of EV-related council activity are shown below, with actions varying based on the position on the spectrum.

The diverse range of actions shows why it's important to define or commit to a position on the leadership spectrum, because it defines how far one goes to reduce emissions or transition the fleet. Bold, expensive action is not required or cost-effective if Council only wants to follow the market. In contrast, Council cannot be a leader if it waits for EVs to reach cost parity – that is a mainstream position. The position should define and reflect the path Council takes to support EVs.

	INNOVATOR / LEADER	MAINSTREAM	FOLLOWER / LAGGARD
Own fleet transition	Set transition target, accept higher costs, adjust procurement rules, work with suppliers, advocate/support others.	Assess TCO, monitor market, run EV trials, limited procurement, apply for grants.	Wait until up-front price parity.
Public charging	Coordinate and support regional charging plan, DC public fast chargers, destination chargers, workplaces.	Assess demand, instal in public carparks, support workplaces and destination charging.	Do nothing, rely on people to charge at home, wait for external providers.
Building & infrastructure	Mandate charging for new public spaces, events, developments, homes. Reserve parking space, trial Vehicle to Grid (V2G).	Make carparks EV-ready, make public developments EV ready.	Regulate/monitor EV parking spaces, conduct demand studies.

What are other Councils doing?

Many LGAs are choosing to commit to a transition now with policy and process to ensure decisions result in desired outcomes. They have set the intention which often includes a target or formal strategy and decision framework. Both the political and corporate leadership are committed to the transition, with funding and corporate permission to enact change through amended procurement rules (e.g. 5-7 year service life or relaxations on price).

Ambition

Vision

- ACT net zero by 2045; 100% renewable 2020
- Melbourne Water full electric fleet to support net zero emissions 2030

Strategy

- ACT Zero Emission Vehicle Action Plan
- Melbourne Water: all cars electric by 2023
- Q-Fleet doubling EV numbers each year
- Northern Beaches Council recently went to public consultation with their draft EV Charging Infrastructure Plan

Commitment

- City of Sydney grew Australia's largest EV fleet at a time when technology was immature
- Tasmanian Govt committed to 100% EV fleet by 2030
- Melbourne Water buys its first EV in 2018; bans purchase of new ICEs in car fleet; staff training
- ACT all new vehicles EV from 2021 (if suitable)
- Adelaide building 46 public chargers

Engagement

- The EV100 initiative recognises and links fleets committed to switch entirely to EV by 2030
- City of Melbourne joins group PPA for 100% renewable electricity
- City of Canterbury-Bankstown runs webinars for public on EV ownership
- NSW councils like Parramatta, Nambucca, Northern Beaches exploring costs through total-cost-of-ownership modelling for their fleets.

City of Canterbury-Bankstown now has one of the largest EV fleets and its getting bigger.

Other detailed examples and case studies available in Local Government Resource Pack (link).

WHAT CAN HAWKESBURY COUNCIL DO?

Focus on 3 main areas:

1. Transition the Council fleet
2. Analyse demand for charging
3. Building and infrastructure guidance

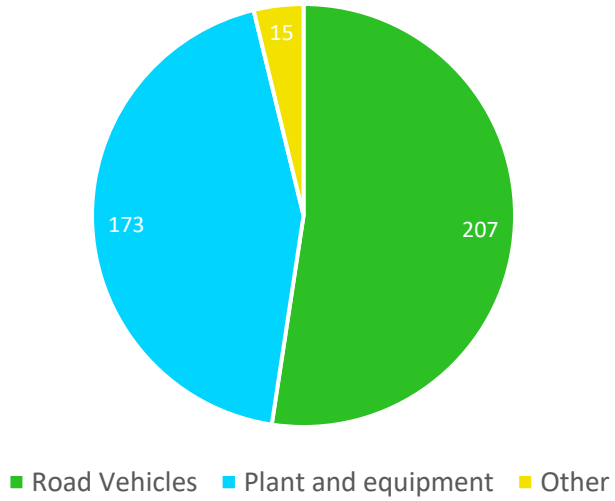
4.1 START WITH MOST INFLUENCE: COUNCIL'S FLEET

Hawkesbury fleet data

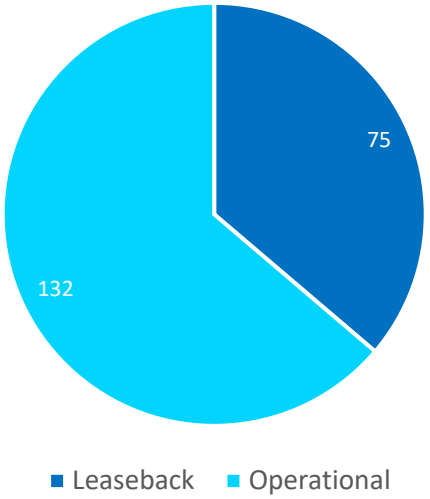
Council's fleet data showed 395 units of active plant, equipment and vehicles. Other units are included in the data provided but classed as non commissioned and include units ordered but yet to join the fleet or disposed of. These were set aside from the review.

The fleet was then segmented into similar vehicle types using the vehicle descriptions and best judgement, as summarised in the left graph below. Of the road going vehicles, around two-thirds were "operational" vehicles performing specific functions or tasks within Council (see right side chart). The remaining one-third of road vehicles were leaseback vehicles used by officers for personal and work use.

Total Commissioned Fleet by Type



Road Vehicle Fleet



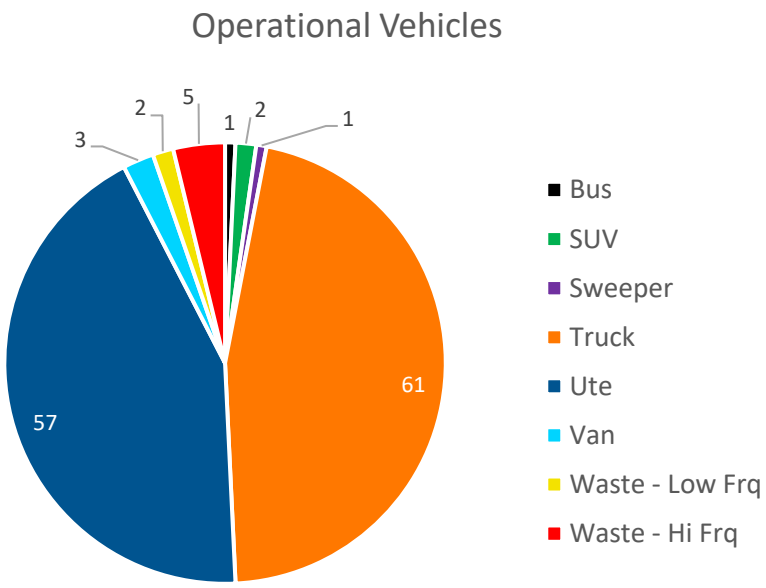
Council's road vehicle fleet is split into:

- **Operational vehicles** – used to carry out a task, often light or heavy commercial vehicles
- **Leaseback vehicles** – available to senior staff and double as pool vehicles in working hours providing transport to council staff as required.
- **Pool cars** - Council doesn't have dedicated pool cars.

There is an opportunity to adopt EVs through the addition of dedicated pool cars as outlined in action # 5

Hawkesbury fleet data – Road Vehicles

Operational vehicles – this potion of the fleet consists mostly of utilities and trucks, including 7 waste collection trucks. Model availability is the greatest barrier to transitioning vehicles in this segment. Electrification of some vehicles is possible depending on their tasks and use case. Sweepers are a high energy requirement vehicle and for this reason not suitable for electrification today.



Potential EV transitions opportunities

Light/medium tray truck

Many councils have already adopted SEA Electric trucks to provide hard waste and parks maintenance services. The 4t to 9t Rigid truck can be configured in many ways and can be cost effective now in the right operation. Benefits include lower carbon emissions, no tailpipe pollution, and much quieter operation. Providing on-site power could also provide opportunities.

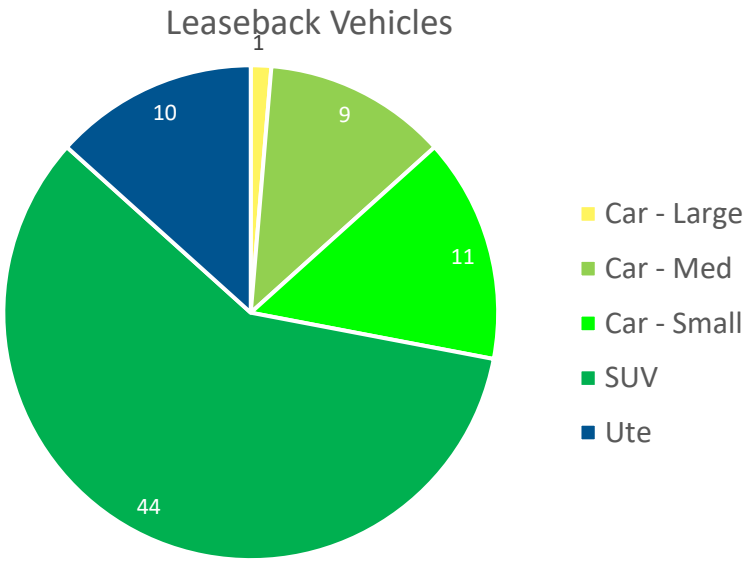
Waste compactor truck

Several councils and waste contractors have purchased electric waste compactor trucks. The operational case for larger, high frequency stopping, domestic side loader units can be borderline and a detailed assessment of the task is required to ensure it is fit for purpose. The low frequency stop, lighter, rear loading units can often be compatible and fit for purpose with models available today. New electric truck models are expected to expand capabilities in future.

Hawkesbury fleet data – Road Vehicles

Leaseback vehicles – SUVs feature heavily in this side of fleet with utes and car segments sharing the remaining volume. EV models are available in the Small SUV, Small and Medium Car segments. EV Ute models may become available in the coming years. The cost of providing an EV for leaseback will need to be investigated further.

Fringe Benefits Tax (FBT) is a major barrier to switching to EVs in this type of vehicle. The FBT applied to a leaseback vehicle may be reduced where kilometres are driven for business purposes.



Plug in Hybrid Vehicles

Some councils have purchased plug-in hybrid vehicles (PHEVs) as part of their transition to EVs. As these models have both a petrol engine and a battery that can be externally charged, the energy they are provided governs their cost to run and green credentials. Users who don't plug them in regularly lose these benefits and often see fuel costs twice that of a typical petrol model.

EV Tip

Fringe Benefit Tax (FBT) has a significant impact on the total cost for vehicles and this is amplified with electric vehicles. With higher purchase costs, EVs attract proportionally more FBT due to their higher price. Council could advocate for changes to FBT but until something changes Leaseback vehicles are unlikely to make economic sense to switch to EVs.

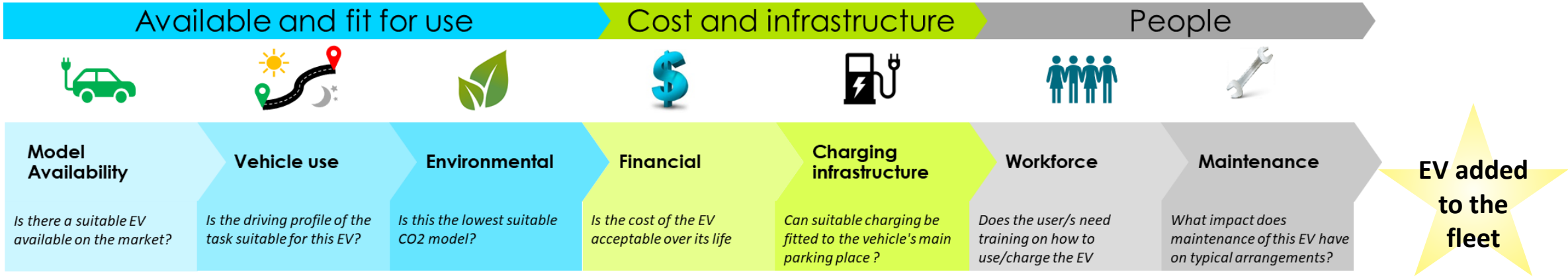
Review of Leaseback Operational Management Standard: observations

- A 2 year or 60,000km replacement period is quite short, certainly shorter than the typical lease period of 3-5 years for council fleets*. The short retention period likely results in higher depreciation related costs for EVs, hindering their adoption.
- Some eligible vehicles do not provide the most fuel efficient options and no electric vehicle options are available to staff with Leaseback.
  - Where an equivalent low emissions variant is available, it should be the only available choice (e.g hybrid versions of Camry, Corolla & Yaris – remove non-hybrid versions as options)
  - Low and zero emissions models excluded from the current list should be available as an option, and could even replace the current petrol and diesel versions.
- Fees for leaseback models do not seem aligned with industry norms. With a similar starting price, around half the fuel cost, and better resale value, Camry hybrid is not likely to be the same TCO as a Camry petrol and therefore should have a lower lease fee. TCO costs related to Mitsubishi Outlander are typically much higher than a Camry hybrid.

* https://fleetautonews.com.au/how-long-should-you-keep-your-fleet/

Transitioning council's fleet to EVs

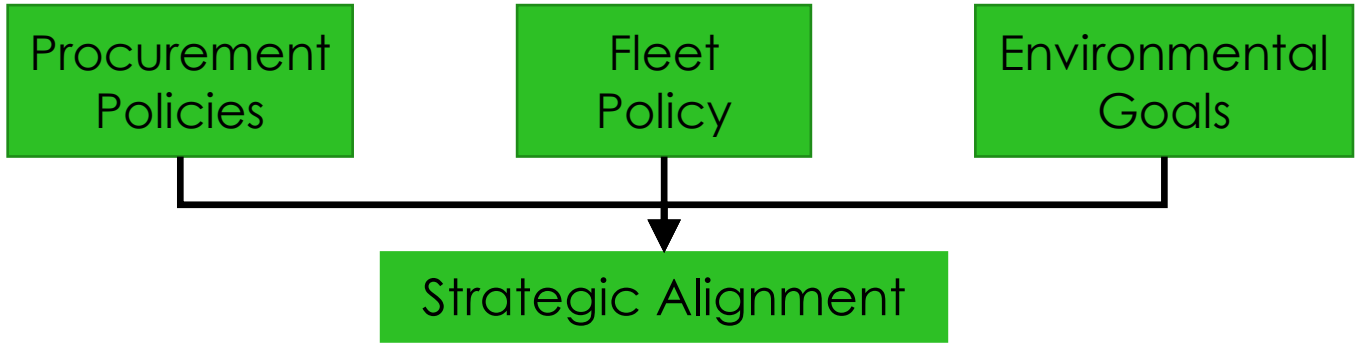
Once Council has decided to transition some of the fleet to electric, each candidate vehicle needs to be assessed to ensure it meets Council's needs. MOV3MENT's framework below can be used to assess if a particular fleet unit is suitable for transition to EV. This works best when Council sets a threshold for each decision element and assesses the replacement vehicle against it. Thresholds are based on the leadership appetite described earlier.



This framework can be used for light and heavy vehicles but will require some vehicle and energy knowledge to make effective decisions. Knowing which models are available, their driving range and charging parameters are all new topics for many councils. As is understanding where and how many chargers to fit for your fleet (the answer is usually one AC charger per EV where they dwell overnight or for long periods).

Council fleet managers are often not aware of the real costs of their incumbent fleet (never mind a new technology) yet they cite cost as the number one barrier to change. A key foundational step for Hawkesbury Council is to clearly understand its true total cost of ownership (TCO) for each vehicle so that it can be compared to any business case for an EV. Our work with other councils has shown that EVs can have a lower TCO in many cases, especially when vehicles travel many kilometres per year or have very high fuel consumption or maintenance costs.

Strategic and operational alignment of policies



Understanding leadership appetite (see earlier section on spectrum) and having a clear picture of barriers (framework on previous page) provides an integrated view of what needs to be done and what the organisation is prepared to do to transition to EVs.

This ensures that operational policies are aligned with strategic intent and targets.

It also explains to what degree changes can be made – such as substituting vehicles from other segments, adjusting price limits, redefining fit-for-purpose, incorporating externality costs like a company carbon price, making good models eligible, and changing fleet retention periods. These are the true enablers of EVs in fleets, not the often-repeated generic statements about public charging and vehicle price.

Perhaps the most important aspect of setting a supportive framework to transition are the assumptions that feed it, including understanding the pervasive myths and misunderstandings that continue to circulate about EVs. Sometimes the conventional “wisdom” is not wise at all. These are summarised on the next page.

EV “groupthink” is often based on false assumptions

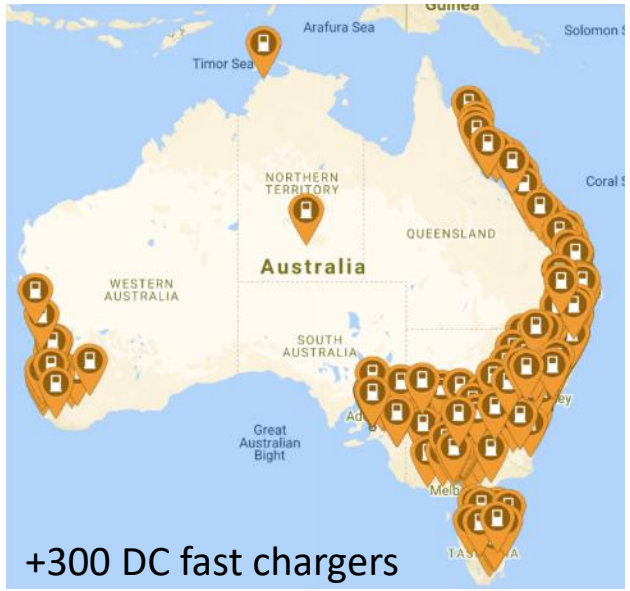
Many rules of thumb for EVs lack solid evidence, and indeed conflict with the evidence.

EV groupthink	Reality
EV Purchase price parity before 2025	Already in some segments, not likely in others. Even if battery cost was suddenly halved, it would take $10k off the price of the most EVs that are currently $20k more expensive. Focus on TCO not price.
EVs cost almost nothing to service	Overstated: on average about 20% to 40% lower than ICE (but one EV model is also higher!)
Petrol/diesel fuel costs	Often grossly underestimated, real-world data is best, but each fleet is different. TCO is more important, but free/public tools vary greatly and some perpetuate bad assumptions.
Electricity is cheap	Can be free, but public fast charging can be as expensive to “fill up” as a petrol/diesel ICE.
EV resale value is low	Teslas have about the best retained value of any vehicle, EV or ICE. Depreciation rate on other EVs varies but ~average. Some FMOs take overly conservative positions resulting in high lease cost.
Zero emissions at no cost	Charging with Grid power does not eliminate CO_2; need to build in renewable electricity costs in TCO.
Group buy discount	Highly unlikely in a supply constrained market. EU and China will continue to draw much of the global EV volume leaving little for Aus. When demand exceeds supply, price stays high.
Fleet charging is complex & expensive	Usually because it’s over-specified. Fit-for-purpose charging is simple and much cheaper. Match dwell time to charge speed, rather than chasing fast speed (kW) for fear or “just in case”.
Need fast public charging everywhere	The need for fast charging is rare, less than 10% of users rely on them.

2. ANALYSE DEMAND FOR CHARGING

There is a lot of public charging already

DC Fast Charging

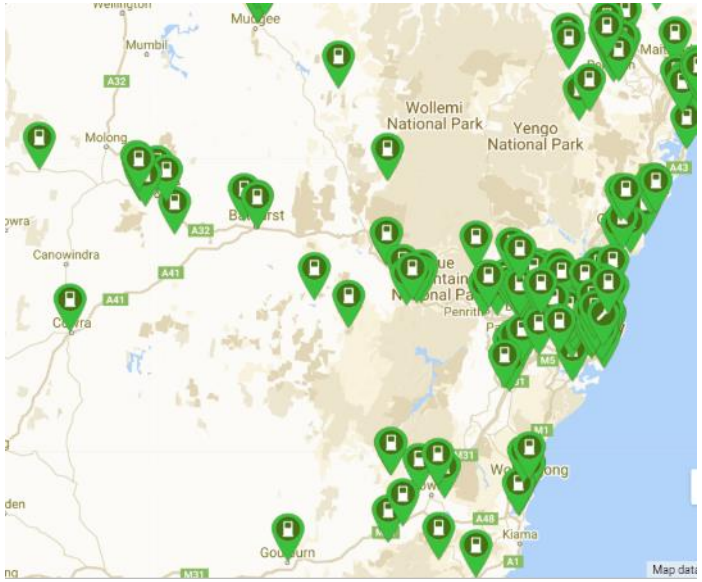


Australia has seen a rapid increase in charging infrastructure over recent years, enabled by significant investment by government and charging providers. More is coming with $171m from NSW and $24m just announced for 406 units from the Commonwealth.

DC fast charging – Sydney area

In the wider Sydney area, DC fast charging is mostly aligned to main trunk roads. Most are provided by the NRMA or Tesla (only available to Tesla vehicles). The cost to use these varies from free to more than 50c/kWh.

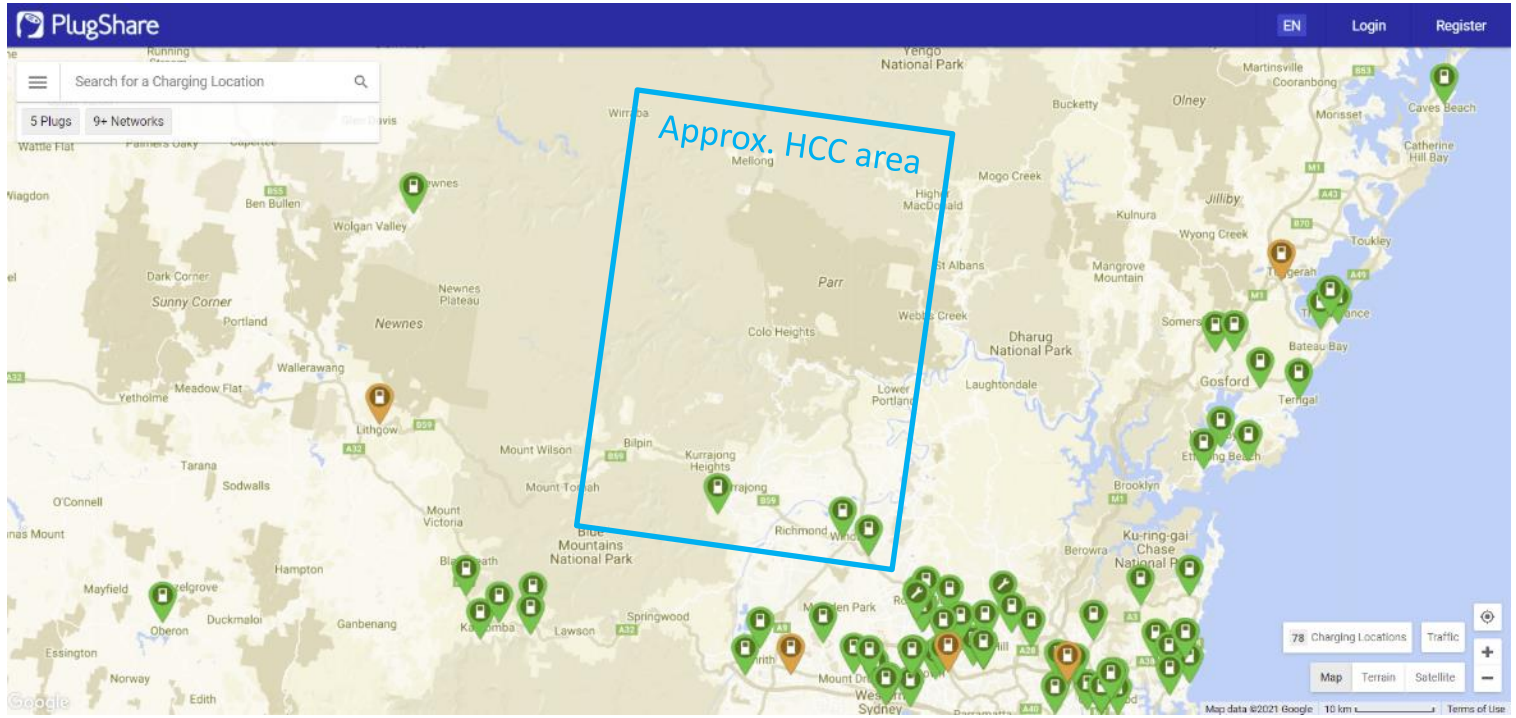
AC slow charging – Sydney area



In the wider Sydney area there are also many slower AC chargers, often placed at shopping centres, hotels and other sites where EVs can charge over longer periods. The majority of these sites are privately owned and often free or for patrons/customers.

(Source: PlugShare.com)

But limited public charging options in the LGA (August 2021)

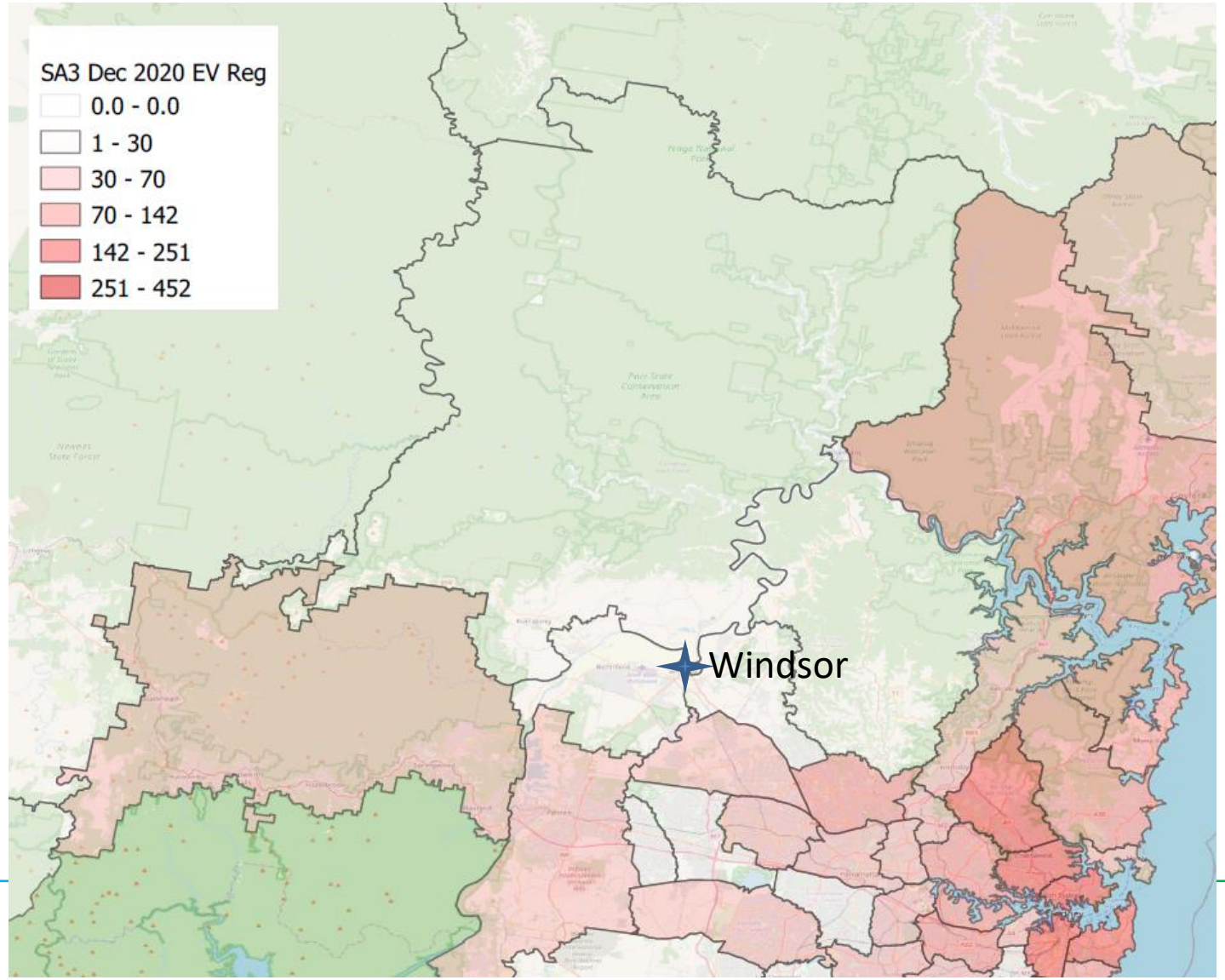


DC fast charger >40kW

AC slow charger <25kW

- The best source of information about public charging can be found at www.plugshare.com
- This is a crowd-sourced map that identifies location, speed, plug type, and reliability of public chargers.
- The Council area has just three chargers in it:
  - All are privately owned
  - All are the slower type and <11kw
  - 2 of 3 are Tesla only
- There are no fast chargers in the LGA
- The closest DC fast chargers are:
  - Seven Hills - 28min/23km from Windsor
  - Kingswood – 28min/24km from Windsor
- It is understood that a DC fast charger is proposed for the UWS campus at Richmond.
- The NSW government's [EV Fast Charging Master Plan] identifies Bilpin as an optimal zone for future fast charging.

Match charging to demand: spend wisely as there are few EV in the LGA



- This map represents EV registrations by ABS Statistical Area 3 regions as at end of December 2020.
- The data shows that between 1-30 vehicles are registered in each of the SA3 areas that cover the Hawksbury LGA as at the end of 2020.
- Some greater volume can be seen in surrounding areas with the highest concentration closer to central and northern Sydney areas.
- At the same time, the population density in the LGA is 23 people/km^2 c.f. greater Sydney at 430 people/km^2 – nearly 20x lower. Suggests most residents live in detached houses so charging can occur at home.
- And a high 44% of residents also work in the LGA (short commute), reinforcing the fact that home charging or workplace charging could suffice for most EV owners.

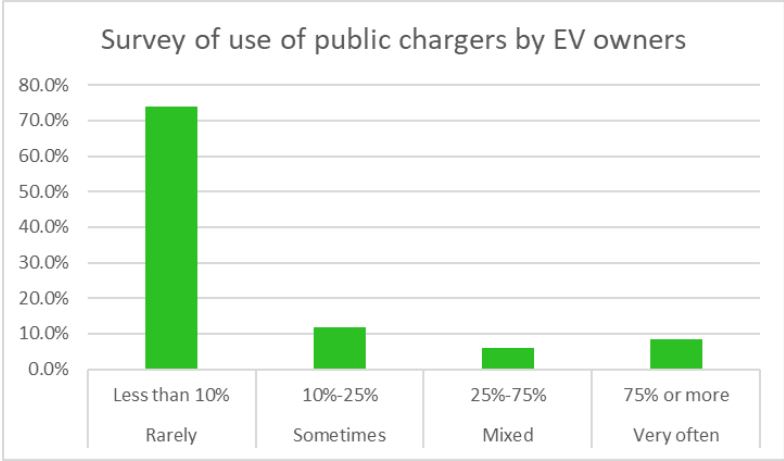
Source: Data - IHS Markt, Tool - QGIS

Don’t just fit chargers and hope for the best – use data

Concern about EV charging is often cited as a barrier to sales. But most EV users have access to off street parking to charge at home, and some at work. Various analyses of Australian EV user charging data show that between 60% and 95% of charging is done at home. A recent poll (right) taken from several EV user group forums suggests nearly three quarters (74%) of EV owners use public charging for less than 10% of their charging needs. The data also showed that just 8% were heavily reliant on public charging.

Council’s Net Zero Strategy recommends providing charging to the public where feasible. This is not uncommon among councils, but often not as simple or successful as expected. Fast chargers are expensive, and the commercial business case for nearly all types of charging is not clear. Where chargers are priced too high for the user, they will go unused. The cost should be aligned to the convenience and utility of the charger. Slow AC chargers do not often incur charging fees, and EV users will pay very little for them.

Residents may use local chargers but only where convenient. Shopping centres are a successful deployment. EV drivers that charge stay longer at the site and spend more money. Council may play a role here but any deployment of chargers for residents is unlikely to resolve a barrier to private EV adoption. (Most residents will charge at home).



Survey of EV users on Australian Facebook groups, Gaud 2021, n=351

Providing visitors and tourists access to charging may increase patronage and economic benefit while showing leadership to residents and surrounding areas. As with shopping centres, well placed charging can increase dwell times for visitors and attract those who may otherwise pass by.

Council should assess tourist destinations, volumes of visitors, typical dwell times and the distances they travelled to develop the highest potential sites for charging in the local area matched to a suitable charging speed. Working with tourist site owners and charging providers will likely provide opportunity for greater amenity and leadership for Council, at little or no capital cost.

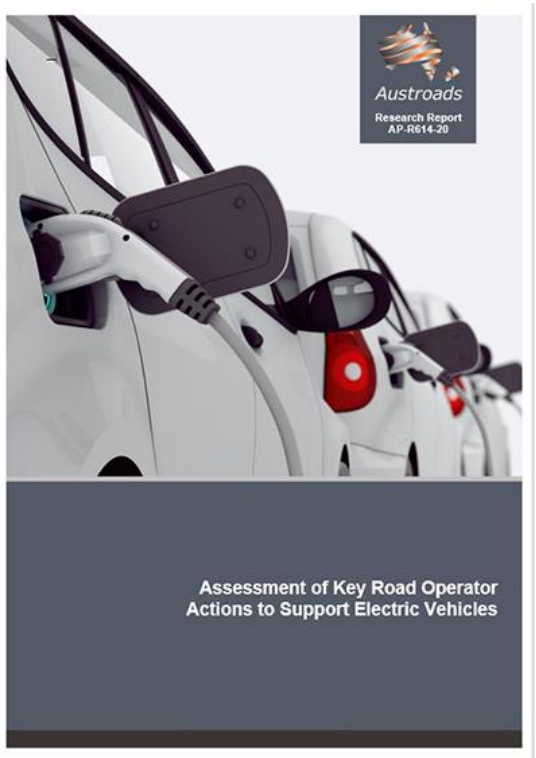
Fast charging may be well placed at high traffic interchanges where drivers often pass by while travelling elsewhere. For example: Cnr George St and Blacktown Rd Bligh Park or Hawkesbury Valley Way and Macquarie St Windsor. Sites with amenities nearby are more successful as are those that bridge gaps in the network.

3. BUILDINGS, DEVELOPMENT & INFRASTRUCTURE

EV Infrastructure Policy and Guidelines

This area of focus is already well serviced with many resources and publications.

- The need for guidelines for all developers was identified in an Austroads report (link).
- Austroads has commissioned a project to deliver guidelines for installing charging within a road reserve, due to be delivered in November 2021 (link).
- Austroads have also commissioned a project to provide EV charging place marking guidance to support with enforcement and identification due to be completed in November 2021 (link).
- NSW and ACT governments have recently conducted projects to fit charging to carparks – engage with them and seek any insights / publications.
- The EV Council has published a Resource Pack (link) with specific guidance for councils on supporting the transition to EVs. It includes case studies from other councils and stepped guidance in areas including fleet transition, charging infrastructure, and make developments EV-ready.



These provide a great starting point. Developing specific actions will require a detailed analysis of Council's current position and opportunities.

LINKING & SUPPORTING

NSW Government EV strategy

The most comprehensive package in the country

The NSW Government released their Electric Vehicle Strategy in early 2021 along with a commitment to support it with $490 million. The strategy seeks to: overcome the barriers to EV adoption, unlock the benefits of EVs, support the Net Zero commitment and ensure future road funding is sustainable.

The associated support packages will provide Council and its residents with opportunities to adopt EVs quicker than the likely organic rate.

Helping to buy EVs

Specifically for Council, the NSW government are expected to provide a fleet focussed incentive package for the purchase of BEVs. However, the details are yet to be released. Council should work through the actions recommended in this roadmap to be ready to engage with the program on offer if it is deemed Council will begin to adopt EVs.

The NSW government has also targeted 100% of its fleet to be EV by 2030. This commitment will shape the transition of other fleets by providing confidence in the fleet sector of the market. Council could be a close follower of the State's approach matching adoption rates in different vehicle segments.

Building charging

In arguably the most comprehensive element of the NSW EV strategy, $171 million has been committed to charging infrastructure across the state. This will likely be sought by charging companies, businesses and land owners like Council to install both fast and slow EV chargers. Council is likely to be best placed to support and work with charging providers on planning approval and land access for suitable charging sites. The State has committed to work with councils on trials for kerbside charging in areas with limited off street parking. This work will inform guidelines being developed for future deployments.

Commuter parking sites have also been identified for a targeted program to install slow charging (due to the long dwell time). Council may interact with this program where land ownership dictates.

Council can take a proactive approach to this suite of charging infrastructure activity depending on its capacity and leadership stance.

Making it easier to drive EVs

The strategy outlines that EVs will be able to access to T2 and T3 lanes with one occupant for a limited time (next few years). More relevant to Council is the State's commitment to provide guidance on carpark signage and location for best access for EV charging.

EV related economic growth

The fourth action of the strategy is maximising the benefit from the adoption of EVs across the state. This includes supporting the mining of the minerals required for batteries and skilling the workforce to support this growth industry.

The NSW government is also keen to work with regional areas to develop "EV tourist drives" and support local tourism.

Fair and sustainable road funding is the final action of the strategy providing a vision for the introduction of a road user charge following EV reaching 30% share of the new vehicle market. This provides Council confidence in the development of total cost assessments for EVs and a saving over ICE vehicles which attract fuel excise duty.

Strategy opportunities

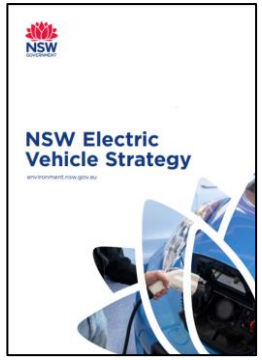
Council has an opportunity to participate in the fleet incentive program when it is launched along with the various charging infrastructure programs. The regional tourism program could provide an opportunity for business in the LGA to install destination charging, attracting out of area visitors.

Council will be supported by the guidelines being developed by the State to reduce variation and cost to develop local standards in charging and parking developments.

Strategy next steps

Council should take an active role in monitoring the various programs that come from the action outlined in the strategy. Many are expected to be deployed in the late 2021 and early 2022.

Agreeing Council's ambition and approach to a transition of its fleet and support for the LGA is the most important first step. This will dictate how Council's engagement with the programs coming from the actions.



Western Sydney Electric Vehicle Roadmap

Policy and strategy first

The roadmap identifies that most councils in the WSEP group do not have EV policies. As identified earlier in this paper, this is an important first step.

Regional collaboration

The roadmap suggests Council collaborate with other Western Sydney councils on charging, grants and group purchasing. There are definitely benefits from the first two of these. However, the jury is still out on whether pooling purchase intent makes much difference. Outside of sharing intelligence on pricing, there is little evidence that aggregated demand provides any commercial benefit in the current supply constrained EV market, or that it encourages OEMs to secure more models/volume. Discussing Council's requirements with the usual sales channels will likely yield the same result with less effort and more flexibility.

Community support

The level of support provided to the community is the decision of Council and should be aligned to its strategy. However the roadmap considers the role of councils to provide charging for the public and be an EV advocate.

Charging

The roadmap suggests provision of public charging for local residents and businesses is part of Council's role. This certainly could be an area that council supports, but it is not necessarily Council's role as there are other actors building charging networks who could lead this.

While important, the role of public charging is also commonly overstated as a barrier to EV uptake. Community demand and likely utilisation are also important considerations. In the case of Hawkesbury, low EV ownership, low population density, high employment capture, and mostly detached houses, mean that most people can and will charge at home in off-street parking. Assuming a limited funds are available, support for workplace charging could be a much more cost-effective use of Council funds. It would also differentiate Hawkesbury from many other councils who appear to be blindly building for "the public" without much evidence of impact.

The LGA is also a gateway to other destinations. Tourists may be attracted by access to public charging, but this also should be well planned and aligned with other priorities and neighbouring LGA activity. The infographic on page 7 suggests that 2 DC chargers should be placed at 5 km radius by 2025. Without a good understanding of who will use these, this could be considered excessive. Grant funding from both state and federal programs will likely pay for this (and more). But Council need not drive the initiatives – it could support other bidders to place charging in suitable locations.

In summary, public charging is important. Council can take an active role in coordinating and approving charging sites, but it should assess whether leading and/or funding it is the most effective use of budget compared with actions in other areas it can have more influence and impact (e.g. own fleet).

Roadmap opportunities

Section 5 of the roadmap identifies activities for WSEP councils to consider in collaborating on EV support. One suggested area is that councils get "grant ready". A preliminary step here would be to better understand and consider which grants are suitable and would have the most impact.

Other recommendations include a swathe of advocacy actions for Council to make to various groups and governments. This may be of benefit at some point but Council is currently at the beginning of its EV journey and requires more knowledge and some foundation policies from which to develop or launch its advocacy.

Roadmap next steps

The WSEV Roadmap provides a high level outline of the some collaborative activity Council could engage in but comes at a time before HCC is ready to engage in much of it. Recommendation at the end of this paper provide a foundation for Council to get to a level where collaboration and advocacy may yield more benefits.

ACTIONS & RECOMMENDATIONS

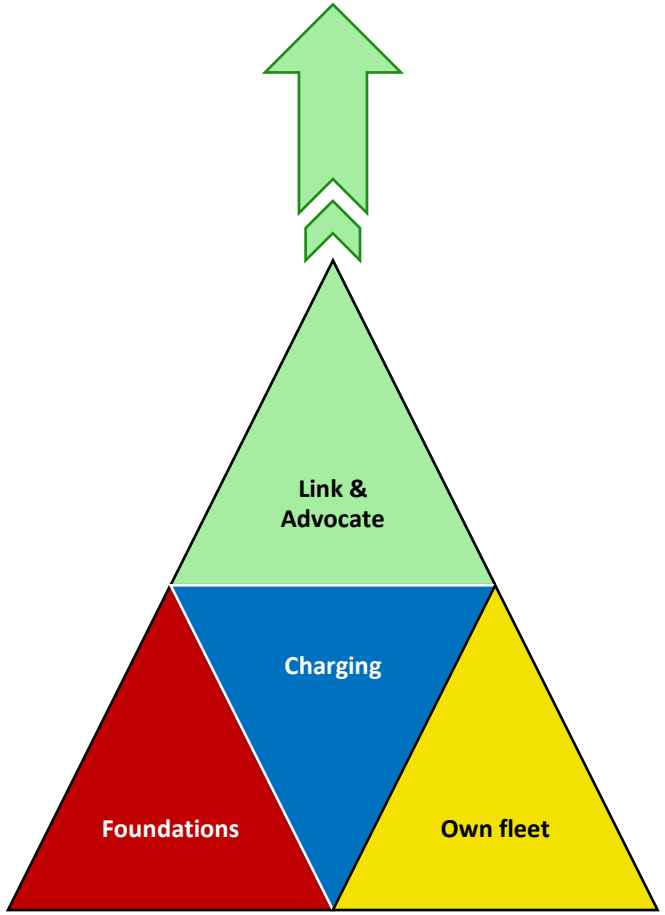
Four themes to guide action

Actions and recommendations that follow are broadly grouped into four key themes:

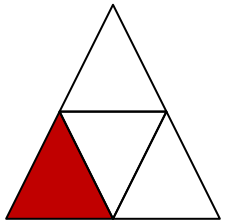
- **Foundations** – build knowledge and commitment
- **Own fleet transition** – the most direct route and greatest area of influence
- **External EV charging** – eyes open, evidence based
- **Linking & advocacy** – leveraging yours and others' good work

The foundations are the most important building blocks. Action could be taken without them, but it would be ad-hoc or uncoordinated, and may not be matched to the level of commitment required, or lack the impact/influence Council is seeking.

In terms of phasing, foundations should be prioritised but other phases could be conducted in parallel provided that the enabling activities are prioritised (e.g. understand charging demand before building charging).

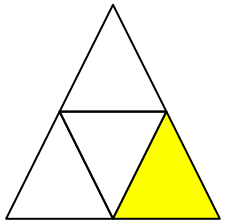


Foundations



Topic	Action	Enablers/information	Resourcing
1. Define the level of ambition or commitment on the leadership spectrum	Develop an internal (Council) position on its leadership appetite / ambition. Consider the lengths Council is prepared to go to change current decision factors (costs, resources, behaviour change), as well as its current position, role and community expectations. • Does Council really want to lead? (and can it) • What cost/premium will it accept to be the leader? • Is it ready to make significant changes to status quo? (e.g. procurement and HR policies) See p.16 examples of different actions/commitments on the spectrum.	Political and business goals for sustainability and innovation leadership. Find examples of other issues/areas that Council has transformed; and examples of areas or issues that show reluctance to change.	Mostly internal, could be facilitated. Getting the right stakeholders together could result in a useful, representative outcome in a matter of hours. Turning it into a project and a transformational tool for decision making could take months.
2. Better defined targets	To assist in developing plans, translate broader emissions targets into vehicles and fleet. Modelling can help show how much of the 2028 community target (25% emissions reduction) needs to be met by transport; and what the technical potential is for both light and heavy vehicles. The current vague “all-electric Council fleet” needs a timeline as noted on p.24 because it could mean no action for 6 years.	Based on leadership appetite and any constraints	Mostly internal, could be facilitated or modelled by MOV3MENT to support decision making.
3. Review policy/strategy suite and revise to support EV adoption	Assess current policies and strategy for issues that enable or restrict EVs, including sustainability, purchasing and fleet policies. Amend these to match leadership appetite. For example: is “fit for purpose” formally defined or subjective; is it realistic or over-specified; can vehicles be substituted across segments (e.g. medium car with small SUV); is there an arbitrary price limit when TCO is more important; is council including an internal carbon price or externality costs (pollution); are restrictions on “luxury” or prestige vehicles poorly or subjectively defined; can fleet retention period be changed; can disposal process be changed (auctions not great for EVs).	Based on current policy, leadership appetite, stakeholder insights	Best reviewed and facilitated externally (e.g. consultant) to bring “fresh eyes’ and compare current approach with other councils and company fleets. Likely requires ~1-2 weeks for review and recommendations.

Council fleet transition – part 1

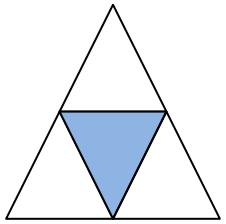


Topic	Action	Enablers/information	Resourcing
3. Review policy/strategy suite and revise to support EV adoption	See previous page		See previous page
4. Review Leaseback OMS	Consider the Leaseback options in the OMS with more focus on CO2 emissions. Replace high emitting choices with cleaner, cheaper choices. Consider the financial impact of extending lease terms beyond 2yr/60,000km.	Review timing and a willingness to change to lower emissions choices.	Will require support from leaseback partner, likely require management support.
5. Consider EV pool cars	Unlike many other councils there are no pool cars in the HCC fleet. This in itself is not a bad thing but pool cars is often where fleet EV transition starts. The measurement of utilisation of Leaseback cars as pool cars is required for this action.	Data on leaseback use for pool car duties and cost to add vehicles be assessed.	Mostly internal, may have some external support. Can be labour intensive depending on data.
6. Improve current fleet data	Robust data is essential to understand current situation, EV suitability, and to compare EV costs with today's fleet. Audit and update fleet data to ensure correct age, mileage, fuel use/cost and maintenance costs. Consider telematics to support reliable data capture.	Require good systems for fuel and maintenance records. May require change from users.	Data analysis is labour intensive. Could be done internally if resources available. Consultant or analyst can identify gaps & errors & support Council effort.
7. Fleet fit for purpose policy	Council needs to have purchasing guidelines for the vehicle specification required to support operational roles. These requirements can be used to compare to EV capabilities.	Typically fleet and purchasing teams collaborate and challenge status quo	Mostly internal, may have some external support. Can be labour intensive depending on the gap.
8. Develop robust total cost of ownership (TCO) for current and future fleet	Using the improved fleet data, develop a robust measure of real world fleet costs. Ensure real world fuel and maintenance costs are included. Historic purchase and disposal cost data is also vital. Several free or public tools are available, but some use questionable assumptions.	Requires good data from fleet records.	External TCO tools/calculator can support this. MOV3MENT has provided to other Sustainability Advantage fleets. Fleet and finance team to collaborate. Effort aligned to gaps that need addressing

Council fleet transition – part 2

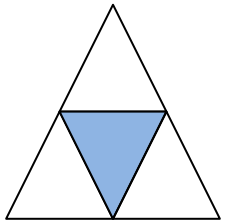
Topic	Action	Enablers/information	Resourcing
9. Leaseback vehicle FBT	Model the FBT of a current leaseback vehicle including business kms and apply to an EV total cost of ownership.	Leaseback partner, finance team and tax advisor input required	Short assessment (internal, potentially external support for EV data), probably Finance-led.
10. Fleet EV transition plan	Develop a fleet EV transition plan for entire fleet using guidance from councils leadership appetite and policies review. Focus first on vehicles due for replacement with favourable task and financial conditions. This first deployment could well be a heavy or waste vehicle. Use the enablers framework on p.24.	Guided by leadership, fleet data, TCO and purchasing policies	Likely require EV specialist working with council fleet and sustainability team to assess. MOV3MENT can assist with detailed assessment and barriers.
11. Fleet EV charging - location assessment	Assess the "home" location of all vehicles in the fleet and consider the number, location and rate of up take for fleet charging.	Robust fleet data and clarity on planned EV transition time frame.	Likely require EV specialist working with council fleet team to assess. Should be part of a detailed and coordinated transition assessment, but could be done as stand-alone action.
12. Public EV charging (fleet use)	*Council's fleet can also use public charging (#14), but this action refers specifically to Council fleet use of public charging.* Examine options for charging Council fleet with external charging network providers if/when chargers are constructed. This would be a less ambitious approach on the leadership spectrum. It provides a safety net for fleet vehicles and defers council costs. Regular use could catalyse others to build the chargers.	Stay connected with developments being proposed under the FFS or charging providers.	None, other than status monitoring and membership.
13. Engage staff	Begin steps to ensure staff are not resistant to EV in the Council fleet. Actions could include vehicle trials or drive days, driver training, in-car quick reference guides, gather feedback, staff surveys	Staff and suppliers.	Internal – fleet team and HR

Charging – part 1



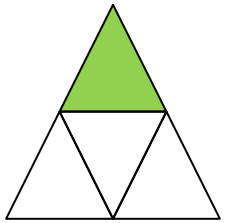
Topic	Action	Enablers/information	Resourcing
14. Public EV charging	Consider in the context of council's leadership appetite and budget. Not all actions will match all levels of the spectrum. i. Gather visitor, resident and other user data to profile potential user cases and demand. (Also see NSW Fast Charging Master Plan) ii. Review grant funding that could support public charging – NSW EV program; Future Fuels Program; ARENA. iii. Develop business case for providing public charging, with scenarios for grant funding support. iv. Consider potential partners that Council could support rather than driving the project itself (NRMA, EVIE, etc).	Resident and tourist data. Leadership appetite and any other constraints.	Could be done internally but may require some EV specialist or consultant support. If charging is pursued, ensure supply is tendered to receive the most competitive offers.
15. Collaboration with WSEP councils	Continue to collaborate with councils in the WSEP group and stay close to the plans and learnings of those more progressive councils. Gather learnings and knowledge on costs and issues. Ensure that any new charging locations are complementary to not competing with adjacent councils.	Networks with progressive WSEP councils.	Internal team, low effort.
16. Learn from others (review publications).	Review EV council Resource Pack for advice and examples on local government role in charging. Additional and detailed guidelines for EV charging in public areas and building developments are imminent from state and federal government bodies. Engage with this once published and update policy accordingly.	Guidelines being published	Some internal resource to review and act on guidelines.

Charging – part 2



Topic	Action	Enablers/information	Resourcing
17. Progress actions to make new development EV-ready	*Action from the HCC Net Zero Strategy*: Amend LEP/DCP provisions to mandate EV charging outlets and infrastructure.	Review similar work at state level and other councils (ACT). Examples in EVC Resource Pack.	Could be done by Council personnel, or some external support.
18. EV-ready developments	*Action from HCC Net Zero Roadmap*: Incorporate provision of EV charging infrastructure as part of Council's Liveability program (town centre revitalisation in Richmond, Windsor and South Windsor). Links/supports action #17 above. Work with proponents and developers to ensure EV requirements (charging, parking spaces and time allowances) are included.	Proposed redevelopment plans, building codes, planning documents, DCPs.	Mostly internal team collaborating externally.

Link and Advocate



Topic	Action	Enablers/information	Resourcing
15. Collaboration with WSEP councils	*Action from the HCC Net Zero Strategy*: Continue to collaborate with councils in the WSROC group. This could include monitoring plans and learnings of councils further along the transition journey.. - Gather learnings and knowledge on costs and issues. - Ensure that any new charging locations are complementary to not competing with adjacent councils.	Networks with progressive WSROC councils.	Internal team, low effort.
16. Learn from others (review publications).	Review EV Council Resource Pack for advice and examples on local government role in charging. Additional and detailed guidelines for EV charging in public areas and building developments are imminent from state and federal government bodies. Engage with this once published and update policy accordingly.	Guidelines being published	Some internal resource to review and act on guidelines.
19. Get connected, stay connected	Many organisations and groups are now advocating for EVs and charging, including state governments and other councils. There are potential partners in this landscape as well as government grant funding from NSW, ARENA, and other sources.	Stay abreast of grant availability and eligibility, EV advocacy assns (AEVA, EVCouncil), and other councils.	Internal.
20. Grid capacity	*Action from the HCC Net Zero Strategy:* Engage with Endeavour Energy to discuss expected growth in Electric Vehicles and provision of necessary electricity infrastructure requirements		Internal team, low effort.
21. Public information	Help educate residents about the benefits and practicality of switching to EVs. This could include supporting events like drive days, or putting basic information on Council's website.	Industry associations, state government EV programs, public information.	Internal team. External support and resources available from various sources.

Appendix

Fleet data observations and opportunities

The fleet data provided for this project was a Microsoft Excel sheet across two tabs. Tab one was mostly vehicles and self-explanatory. Tab two had +360 lines of plant, equipment and trucks (some fire trucks) with some cars and utility vehicles included.

Many units were marked not commissioned (i.e. to be purchased or old and disposed of) but many are commissioned (assumed current). MOV3MENT assumed the data was correct and the asset descriptions have been used to generate the segmentation.

The following are suggestions to improve the data quality:

- Consolidate all fleet data lists and segregate current, future and past assets
- Ensure all data is current and accurate. Some asset start dates and odometer readings are not current.
  - 28 vehicles do not have an up-to-date mileage (from the last 3 months), with many from before 2021. This will make a proper assessment of EV suitability challenging.
- Fuel consumption data was not provided for this assessment. This will be required for any subsequent modelling of emissions reductions or cost comparisons of EVs versus the current fleet.

Glossary

- **AC** Alternating Current
- **BEV** Battery Electric Vehicle
- **DC** Direct Current
- **Emissions** GHG emissions
- **EV** Electric Vehicle. EVs include Battery Electric and Plug-in Hybrid vehicles
- **FCAI** Federal Chamber of Automotive Industries (Vehicle peak body)
- **FMO** Fleet Management Organisation (lease company)
- **HEV** Hybrid Electric Vehicle
- **ICE** Internal Combustion Engine
- **PHEV** Plug-in Hybrid Electric Vehicle
- **Plug-in** EV (includes BEV and PHEV)
- **PPA** Power Purchase Agreement
- **Rego** On road charges including registration and CTP insurance
- **Segment** Vehicle segment by FCAI definition
- **TCO** Total Cost of Ownership
- **V2G** Vehicle to Grid


Director
Mark Gjerek

Email
mark@mov3ment.com.au

Phone
0400 221 770

MOV3MENT