CANTERBURY BANKSTOWN

BUSINESS CASE

Charging Ahead

Provision of Public Place Electric Vehicle Charging Points in the City of Canterbury Bankstown

Version: 1

Date: 2018-02-08

Document Acceptance and Release Contents

This document is Version No 2 Date 28.02.2018 of the Electric Vehicle Charging Project Business Case.

The Business Case is a managed document. For identification of amendments each page contains a release number and a page number. Changes will only be issued as a complete replacement document. Recipients should remove superseded versions from circulation. This document is authorised for release once all signatures have been obtained

PREPARED:		Date:	- -
(for acceptance)	<Name, Title>		
ACCEPTED:		Date:	- -
(for release)	<Name, Title> Business Case Sponsor		

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1. Introduction/Background

Electric vehicles are a proven technology with strong environmental, economic and social benefits for the individuals, the community and the planet. When powered by renewable energy they can reduce carbon emissions, improve air quality and have beneficial economic outcomes. Whilst there are 2 million EV's on the road globally, only 0.1% of all cars sold in Australia are Electric vehicles.

There are a number of compelling benefits to electric cars over conventional petrol/diesel vehicles. These include a vast improvement in air quality in our cities, a reduction in health costs caused by air pollution, less noise pollution, less carbon into the atmosphere, as well as less poisonous and cancer causing emissions in our cities. Electric cars are also much cheaper to run and require minimal servicing.

A lack of recharging infrastructure has been identified as a major barrier in the uptake of electric vehicles in Australia. By welcoming the inevitability and desirability of electric vehicle adoption and by providing public place EV charging, Council has the opportunity to demonstrate innovative leadership in this area.

Additionally with the increasing number of multi-unit developments in Canterbury Bankstown, it is timely to mandate EV charging be made available to residents in all new complexes. Also Council is poised to introduce EV's into the corporate fleet and strategic placement of EV chargers will support this.

2. Overview

2.1. Our Vision

A leading organisation that collaborates and innovates.

2.2. Our Mission

To provide quality services to our community every day.

2.3. Organisational Objective

Council is committed to sustainability, innovation and delivering excellent service to the community. Council has recognised the global and Australian growth in the numbers of Electric Vehicles (EV) and hybrid electric vehicles (PHEV), and the associated environmental, health and economic benefits. In 2017 Council joined the Cities Power Partnership and committed to facilitating the use of electric vehicles and meet the need for EV charging points across the city. Specifically Council pledged to :

> *"Develop an Electric Vehicle (EV) charging strategic plan, including public spaces and new strata developments"*

3. The Business Case for facilitating Electric Vehicles and EV Charging stations

3.1. Purpose of the Business Case

This Business Case being produced to identify opportunities, costs, benefits and risks for facilitating the use of EV's in Canterbury Bankstown through

- Provision of public place charging stations
- Identifying infrastructure requirements

Additionally, information researched during development of this business case will be used to inform other Council related initiatives regarding electric vehicles including:

- Potential for EV charging infrastructure in all new multi unit developments
- Introduction of EV charging infrastructure for Council Fleet

4. Situational Assessment and Problem Statement

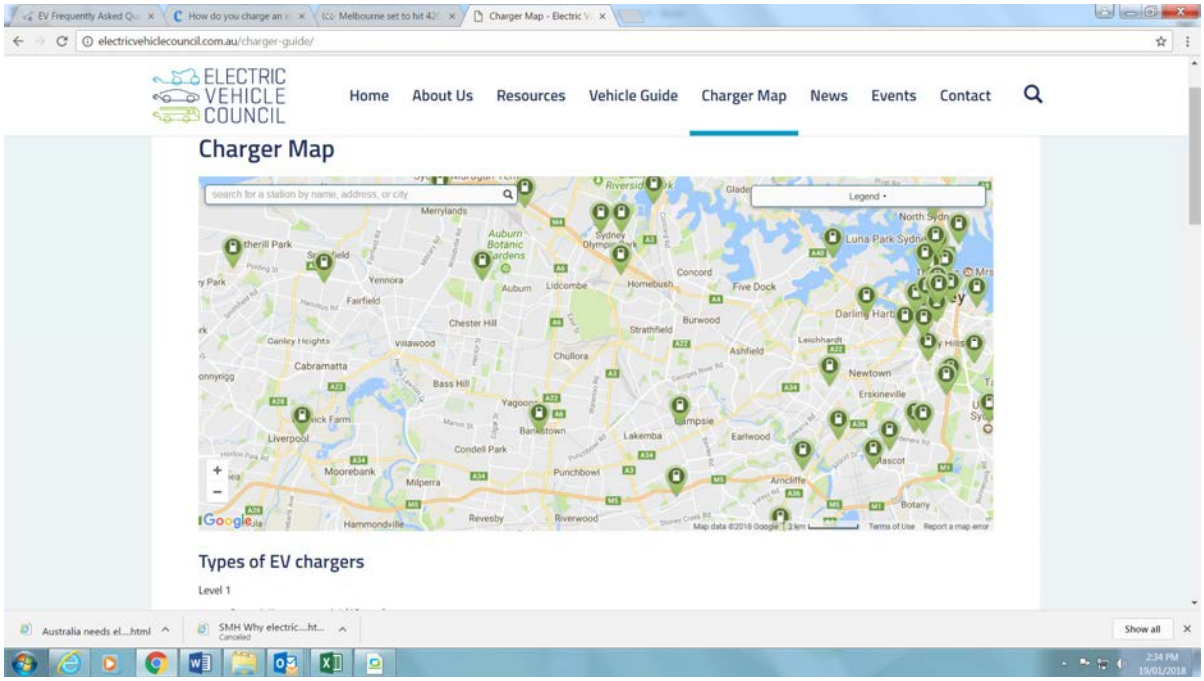
A global transition to more efficient and less polluting private and business electric vehicle transport is underway. In comparison to many other developed countries, Australia has been very slow to adopt EV's with the main barriers perceived as:

- General community lack of information and experience with EV technology
- Upfront purchase cost and limited range of EV models available.
- Lack of public place charging infrastructure which directly relates to range anxiety (the fear of being left stranded in a vehicle with a dead battery).

In Canterbury Bankstown barriers to adoption of EV include:

- Community members and businesses in Canterbury Bankstown have very limited opportunity to access public place charging points (current website listings show 2 Tesla chargers at Sports Club, and 1 3 Phase power outlet at Belmore Oval).
- Residents in Multi-unit developments have little or no opportunity to consider EV's as there may be no opportunity for access to separately metered power.
- Council's Fleet Manager is supportive of introducing EV's into Council's fleet, however current lack of charging infrastructure in the LGA is a limiting factor.

The following maps shows the current availability of EV charging points in the local area.


electricvehiclecouncil.com.au/charger-guide/
ELECTRIC VEHICLE COUNCIL
Home
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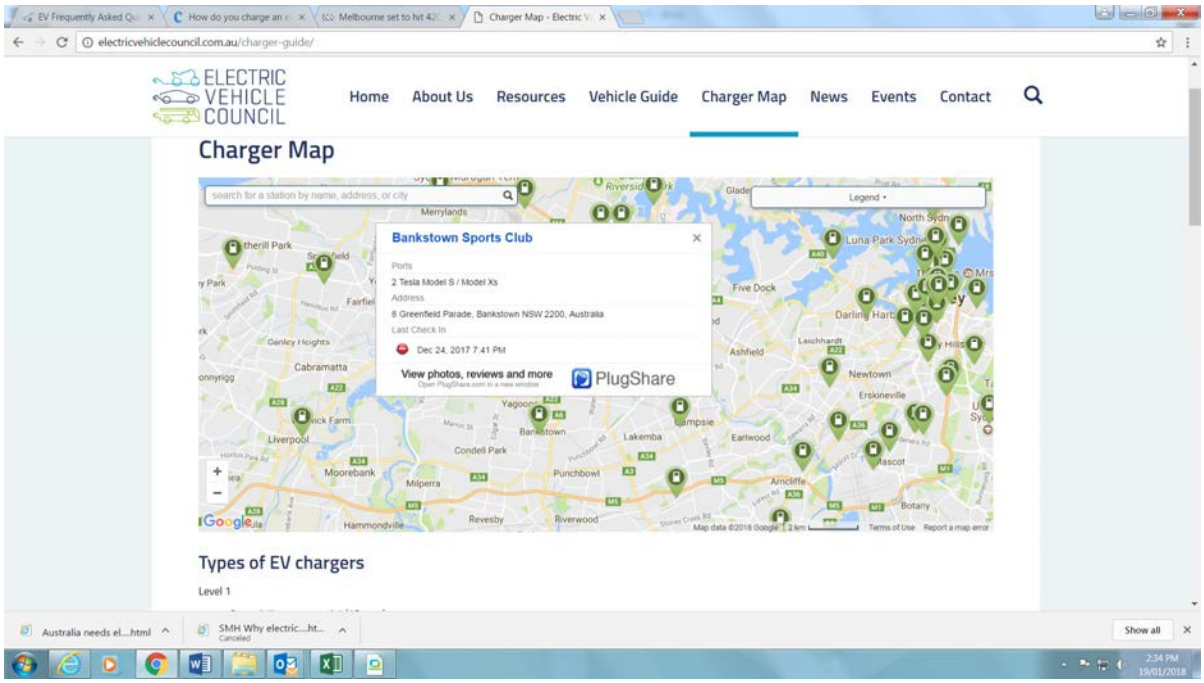
Charger Map
search for a station by name, address, or city
Legend
Types of EV chargers
Level 1


electricvehiclecouncil.com.au/charger-guide/
ELECTRIC VEHICLE COUNCIL
Home
About Us
Resources
Vehicle Guide
Charger Map
News
Events
Contact
Charger Map
search for a station by name, address, or city
Legend
Bankstown Sports Club
Ports
2 Tesla Model S / Model Xs
Address
8 Greenfield Parade, Bankstown NSW 2200, Australia
Last Check In
Dec 24, 2017 7:41 PM
View photos, reviews and more
PlugShare
Types of EV chargers
Level 1

There are a number of benefits associated with Council engaging in this EV space including:

- Demonstrating leadership and support for innovative low emission EV's.
- As an early adopter for EV, using branding of chargers and EV's in fleet to draw attention and provide education about low emission transport.
- Potential to "offset" supplied electricity with locally generated solar energy – thus making locally charged EV's "zero emission transport".
- Raise awareness of EV's to the community through environmental education, traditional and social media.
- Engaging community and developers in a discussion regarding mandating EV charging in new multi unit developments.

The key benefits to members of the local community will be to assist EV driver's to reduce the "range anxiety" associated with local driving.

5. Assumptions and Constraints

The following assumptions and constraints have been identified in the preparation of this business case.

Assumptions:

- *Expected gradual uptake of EV's in the Sydney Metropolitan area as more models become available and vehicle prices reduce*
- *EV local range anxiety can be decreased by provision of public place charging points*
- *Expected that there will be slow but increasing use of public place charging points throughout Sydney over time*
- *Opportunity for Council to raise awareness of EV's*
- *Council is well positioned to foster and facilitate the uptake of EV's through the provision of charging stations and also potentially with the inclusion of EV's in Councils fleet*
- *Mandating provision of EV charging infrastructure in new multi occupancy developments will increase the potential for EV uptake in high density areas.*

Constraints

- *Achieving consensus (Councillors, asset managers, staff and community) on best locations for EV charging points in CBCity and Town Centres and the associated loss of parking spaces for non- EV's.*
- *Determining which types of charging infrastructure is most appropriate - Level 2 or 3 Chargers*
- *Cost of infrastructure vs contractual arrangement with supplier.*
- *Cost of energy for EV charging – options include;*
    - *paid by council, no charge to users*
    - *paid by council for a limited introductory time (Blacktown model 3 yrs free then "Charge Point" will take over and charge users*
    - *Contractor such as "Charge Point" provide infrastructure and charge users*
- *Current limited opportunity to provide renewable energy offsets for EV charging.*
- *Designing new development control plans for multi occupancy buildings to include charging point opportunities for residents, and tenants.*

5.1 Charging Infrastructure in Australia and Sydney

With the growth of Electric vehicles in Australia set to accelerate over the coming years, there will be an increased demand in EV charging stations at home, work and in public locations. An EV charging station is technically known as Electric Vehicle Supply Equipment (EVSE) and is a safe way of drawing AC power from the grid with a safety earth ground to the vehicle for charging.

Whilst most EV charging will ultimately be done at home or at the workplace, the heavy investment in public EV charging stations will help to further support uptake and provide confidence to mitigate range anxiety. There is currently 476 electric vehicle public charging stations in Australia, with recent announcements by the South Australian and Queensland Governments to roll out charging infrastructure across their respective states.

In addition to this, private enterprise is also contributing with the NRMA and RAC investing in their own respective rollouts of charging infrastructure, in addition to the existing Tesla charging network.

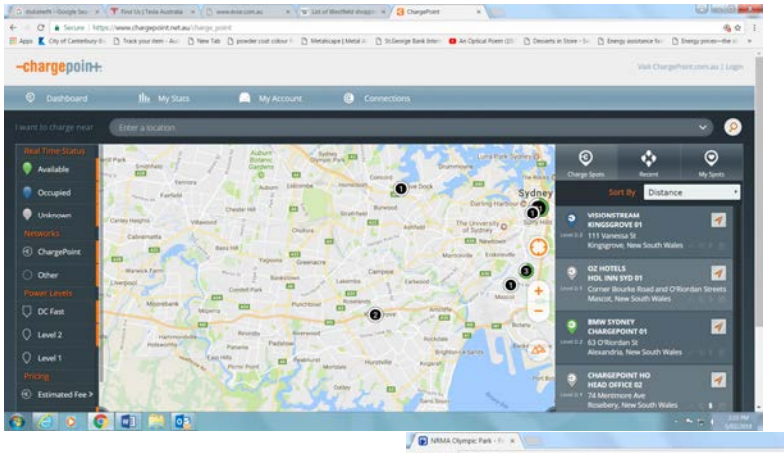
WA EV highway Perth to Augusta

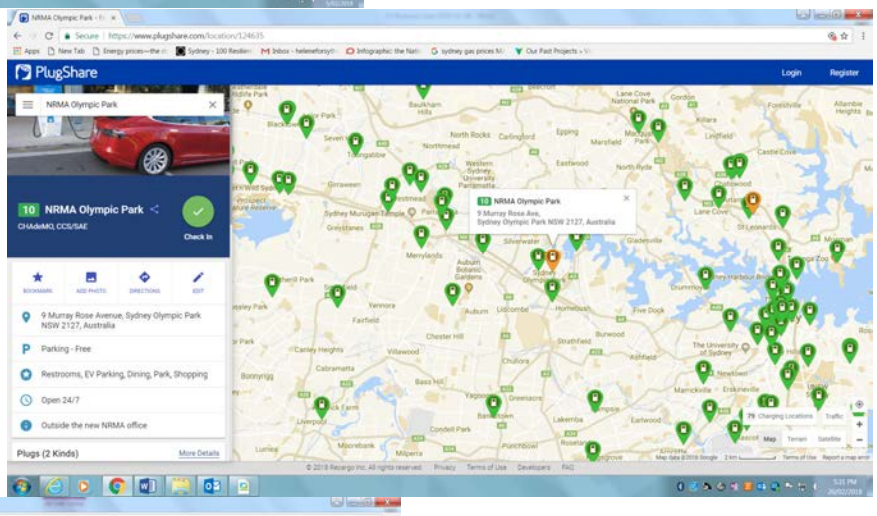
Queensland EVSE Highway from Coolangatta to Cairns

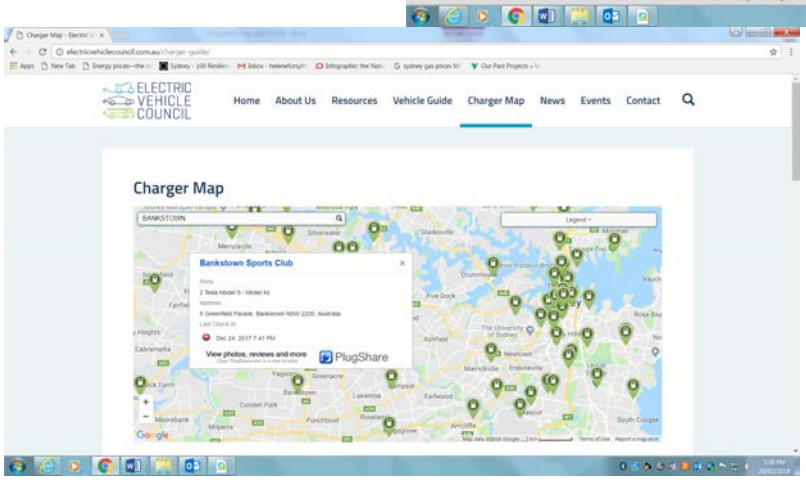
WA Drivers use a prepaid card

NRMA will be installing 40 NSW and ACT Fast Chargers in 2018

Various web interfaces are available providing information on location of EV chargers and also availability, fee estimates and methods of payment. The Chargepoint and Plugshare websites are shown below.







Bankstown Sports have installed two Tesla charges and a number of Westfield Shopping centres have installed complimentary EV charging at Sydney, Bondi Junction, Broadway, Parramatta, Chatswood and Miranda.

5.2 Available infrastructure for EV charging

There are a number of organisations that provide Electric Vehicle Service Equipment – EVSE and support infrastructure and software.

The following are listed on the Electric Vehicle Council website. Some provide EV charging equipment and some provide EV charging software support (charging station bookings, accounting pre-pay, tracking use etc) and some provide both. http://electricvehiclecouncil.com.au/charger-guide/

JET Charge http://www.jetcharge.com.au/	JET Charge has developed sophisticated and affordable EV charging solutions for residential premises, apartment complexes, workplaces and public charging stations.
Chargepoint https://www.chargepoint.com.au/	ChargePoint is a network operator of public and private charging stations providing the full scope of charging requirements.
E-station http://e-station.com.au/	E-stations aim is to serve the emerging Electric Vehicle market in Australia by providing low cost plug in charge points to cities, local councils and private operators.
Tritium http://tritium.com.au/	Tritium has developed a product portfolio of world-leading technologies that have been used in numerous solar car, electric vehicle and renewable energy projects globally.
Keba http://www.kecontact.com/en/	Keba provide holistic infrastructure solution for electromobility. Charging stations that are easy to install and operate.
Egodock http://www.egodock.com.au/	eGo Dock exclusively supply and install high quality and easy-to-use JuiceBox chargers direct from the USA.

5.2.1 EV Charging equipment

There are 4 charging options for EV's, generally referred to as Levels 1, 2 and 3 plus inductive or wireless charging. Charging times of EV depend on the speed of the Charging Station and the on-board charger aboard an Electric Vehicle.

Charging options

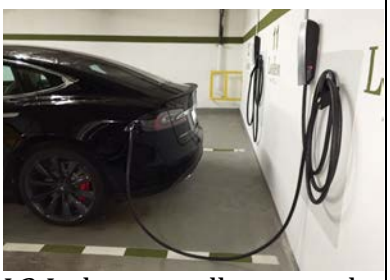
	**POWER**	**RANGE**	**COST**
LEVEL 1 "SLOW" AC CHARGING	240V 10 or 15 Amp	• 3 to 8 km of range per hour of charging • Full Charge 16 – 20 hours	• $300-$1,500 • standard electrician installation
LEVEL 2 "MEDIUM" AC CHARGING	240V 30 Amp	• 16 to 50 km of range per hour of charging • Full Charge 2 – 4 hours	• $2K - $ 3K • suitably certified electrician installation
LEVEL 3 "FAST" DC FAST CHARGING	50kW 3 phase power	• 80 % battery capacity in 30 minutes • 7 – 10 years expected lifetime	• approximately $40K • $30K + installation cost (depending on site specs) • Large load on the local network, may require upgrading low voltage mains and switchboards.
INDUCTIVE OR WIRELESS CHARGING	• Up to 7.2kW (30A)	• Full charge 8 – 12 hour • Charge plate fixed to ground and car charged wirelessly	Not yet available in Australia (recently released in USA)

EV charging stations and Smart Poles

EV Level 2 charging stations or charging points can be installed indoors or outdoors, wall mounted or pedestal mounted. L2 chargers can also be incorporated into some "Smart Poles". Blacktown Council announced last year that it will be installing charging points on ene.hub smart poles on local streets as well as EV chargers in car parks and shopping centres.

The planned Canterbury Town Centre upgrade has potential to install L2 EV charging together with LED lighting, banner arms and data cabling in the street Multipole 'smart poles'.

Electric Vehicle chargers come in a variety of shapes and sizes

Level 1 - Slow	Level 2 – medium	Level 3 – fast	Smart Poles L2
 Blacktown Council car park L1 15A 240V	 Moreland L2	 Mooreland L3	 Multipole with L2 charger
	 Blacktown Library L2		
	 L2 Indoor – wall mounted	 Byron Council L3	 Ene.hub smartpole with L2 charger
	 Single and Dual L2	 NRMA L3	 Web image

Charging Connectors

Presently there is no Australian Standard for connector types which can makes things difficult for EV drivers and early adopters of EV technology. The Federal Chamber of Automotive Industries (FCAI) has issued a proposal for national electric vehicle (EV) charging standards.

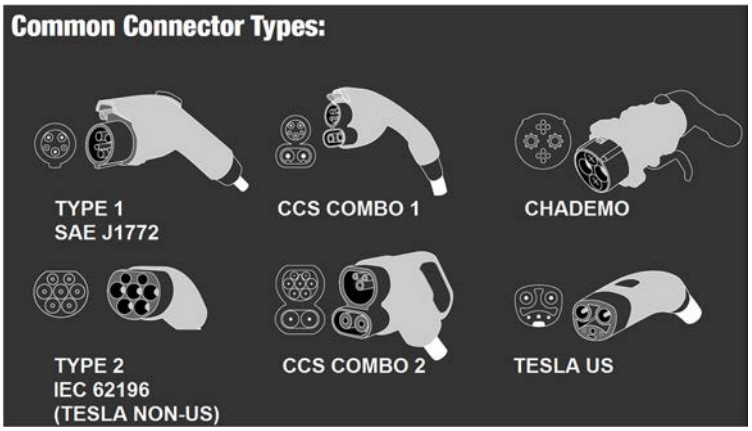
AC Type 1
This is the plug standard used by most vehicles in Australia. It is also the standard in the US and Japan.

AC Type 2
Already used in Australia by Tesla and Renault. Many car manufacturers have signalled that they will move to this standard in future models.

CCS (Combined charging System)
Available in AC (type 2 or AC Type 2 depending on the plug a particular vehicle uses. CCS Plugs support AC and DC charging power levels.

CHAdeMO
Developed in Japan, the CHAdeMO plug supports DC charging.

DC (Direct Current)
The public fast charging option, DC chargers often come with two plugs to cater for vehicles that use either CCS or CHAdeMO plugs.



Tesla Superchargers have their own cable for Tesla Vehicles only. However Tesla vehicles can charge at most public stations with a suitable adaptor which is available as a vehicle accessory.

Tesla CHAdeMO adaptor

5.3 Current cost to users for public EV charging

https://www.choice.com.au/transport/cars/eco-friendly/articles/charging-electric-cars

At this point in time, most publicly accessible chargers provide the power for free. Exceptions include a handful of paid stations in South Australia and one in NSW on the ChargePoint network, and the RAC's 'Electric Highway' in Western Australia. The latter is a network of charging stations located between Perth and the Margaret River region in the south west, paid for by the RAC motoring group. These include both DC and AC stations that can service all plug-in EVs on the road in Australia.

Currently EV charger "user pay services" include pre-paid cards, or smart phone billing apps. The cost of recharging on the WA Electric Highway is set at 45 cents per kWh of electricity, plus $1 per charging session to cover transaction costs. Unlike a conventional petrol service station, payment for using the RAC's charge station is through a prepaid account with a ChargeStar Genie card, which is registered on their website. For comparison purposes, Council currently pays approximately 15 cents per kWh and a full vehicle charge would cost approximately $4.

Most Council installed chargers in Sydney and NSW are presently free to use, or free to use when paying standard car parking fees. See section 5.4 for more details.

The following insights into the potential future for EV charging in Australia was provided by Choice in March 2017:

> Anthony Middleton from ChargePoint - *"We will begin to see a roll-out of DC stations in strategic locations over the next two to three years, initially connecting corridors from Melbourne to Brisbane and urban fringes … pricing at DC stations (Level 3) to be above retail rates but he believes it would still equate to approximately 30% of what it costs to fill a petrol-fuelled car.*
>
> Patrick Finnegan from E-station *"free charging will be phased out as the costs of providing power increases … paid public chargers will be installed at service stations and city centre destinations, but particularly where electric cars travel long distances, such as intercity journeys".*

Tesla superchargers limited free kW for some models however may charge users in the future.

5.3.1 EV Charging in Multi Residential Developments

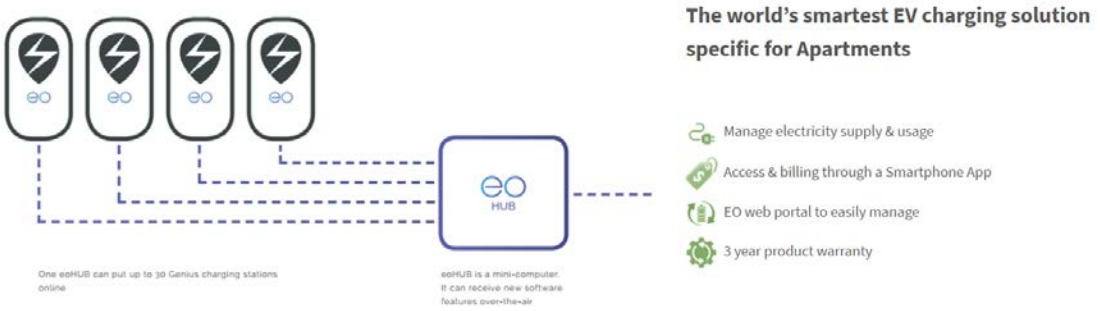
Installation of EV chargers in Multi Unit developments may present particular challenges. Power needs to be available in the resident parking area for slow charging overnight. Individually allocated car parking spaces may not have access to power and even where power is available the cost for usage is not billed to the user. Gaining strata support for retrofitting suitable electrical connections could be most challenging.

Having EV charging infrastructure available in new multi-unit developments, would act as a positive incentive for occupants to consider EV's as a viable cost effective private transport option. Council could support the uptake of EV by mandating the installation power to the parking levels. Options for provision of power coculd include:

- Individually metered 240v powerpoints for each parking space.
- Provision of a number of car parking bays with 240v 30 Amp powerpoints
- Provision of a number of car parking bays with access to 3 phase power.

Specifically designed EV charging systems for multi unit developments are available. Whilst Council may not be able to mandate their use at this stage, ensuring that suitable power is available for future use will allow future residents and Strata to accommodate EV charging on site.

The diagram below shows how the eoHub system can manage accounting for EV charging at Multi Unit apartments.



5.4 Examples of EV charging installed by Councils (complete or underway)

City of Sydney – various Council owned / managed car parks, 7 Level 2 chargers - Free up to 3 hours on payment of standard parking rates.

Blacktown Council - ENE-HUB Smart Poles with WiFi and LED lighting are to be installed. Council paid a once-off capital contribution of $30K. ENE-HUB to maintain for 15yrs, with electricity free to users for 3 years. ENE-HUB will receive commission from Telecompanies. Poles revert to Council after 15 yrs for $1. Additionally council has installed free to use level 2 chargers in Blacktown Council car park.

Moreland Council VIC - 6 public charging stations including Victoria's first fast charger and 5 private stations for Council EV's. Fast Charger (first 40 min free), other Level 2 free use up to 3 hours (for a limited period as an incentive to support EV's).

Willoughby Council – Car Parks, 15Amp chargers, Free on payment of standard parking rates.

Byron Bay Council –Level 3 fast charging, Free with power from a renewable source.

6. Identification and Analysis of Options

Typical urban Australians have a daily driving distance of only 35km, with almost half of trips taken being less than 5km, and more than 99 per cent of trips being less than 120km, which is within the range of a relatively modest electric vehicle. It is expected that most drivers will take advantage of the convenience and low cost of charging their vehicle at home overnight.

For longer journeys, EV drivers are able to access the expanding number of Level 3 chargers available on main highways. Details of EV charging station locations, fees and terms are available on a number of websites and smartphone Apps – some examples listed below.

https://www.chargepoint.net.au/charge_point
https://www.plugshare.com/
https://myelectriccar.com.au/charge-stations-in-australia/
http://e-station.com.au/
https://www.tesla.com/en_AU/supercharger

For EV drivers who don't have access to home charging (eg residents in apartment blocks), the only charging options may be extensive use of public charging infrastructure (paid and free). Retrofitting charging into multi unit developments may be costly and difficulties with Strata permission would most likely act as a disincentive. Mandating EV charging infrastructure into new multi-unit developments, would act as a positive incentive for occupants to consider EV's as a viable cost effective private transport option.

6.1. Identification of Options

There are a number of options available to Council for the provision of public EV charging ranging from provision of a free service to all users, free for a time or allowing a contractor to install and provide a user pays service.

Option 1- Do nothing and wait for others to provide charging points in the LGA (for example Clubs, shopping centres, petrol stations. Last year the the Bankstown Sports club has installed two Tesla charging points in their car park).

Option 2 – Provide Free to use Level 2 charging at a number of points strategic points around the City. For example BLaKC, Civic Tower, one in Town Centres in each ward (libraries or recreational facilities).

Option 3 - Provide Free Level 2 and Level 3 EV charging at a number of points around the City (as above).

Option 4 - Contract a service provider to provide Level 2 and Level 3 pay for use EV charging at negotiated points around the City.

6.1.1. Option 1 - Do nothing

- *Benefits – no cost to Council, no loss of public parking spaces*
- *Dis-benefits include:*
  - *lost opportunity to support for EV's as a viable alternative to petrol private vehicles*
  - *lost opportunity to support for community members who drive EV's*
  - *lost opportunity to position Council as forward thinking, innovative and smart*
- *Costs - Nil*
- *Risks include*
  - *Provision of EV charging points on private property by clubs or businesses may not eventuate in the short or medium term*
  - *Provision of non-Tesla charging points may not be provided by clubs or businesses due to installation cost*
  - *Council may in time be pressured by EVSE companies (Chargepoint) to provide public car parking spaces for EV charging*
- *Stakeholder impact*
  - *Local EV owners / drivers may experience "local" range anxiety and not feel supported*
  - *Local Community not encouraged to consider EV as a viable option for energy efficient local transport due to lack of public place charging*
  - *Non-local EV drivers not encouraged to visit Canterbury Bankstown due to lack of EV charging availability*

6.1.2. Option 2 – Provide Free Level 2 EV Charging

Public EV charging is not necessarily a service Local Councils need to provide in such a highly urbanised area.

- *Benefits*
  - *provision of Free Level 2 charging (wall mounted – internal carpark), with associated provision of restricted parking, at strategic locations would enable local EV drivers to have enhanced confidence in use of their EV and help reduce "local range anxiety".*
  - *Potential to be attractive to multi-unit residents where no private charging is available.*
  - *Early provision of free Level 2 charging points would assist in establishing CBC as forward thinking, smart innovative council.*
  - *may assist in attracting EV driving visitors to the LGA*

- *Dis-benefits*
  - *Loss of public parking spaces for EV charging*
  - *More than one type of charger may be necessary*

- *Costs*
  - *Wall mounted L2 chargers $2K - $3K plus installation, Tesla Chargers may be higher*
  - *Total cost would depend of number of Level 2 Chargers purchased and installed*
  - *Regular monitoring and Maintenance*
  - *Painting of car spaces and signage – estimate $2K each*
  - *Cost of electricity used – potential to offset with solar power*

- *Risks*
  - *Vandalism, damage or loss of installed chargers*
  - *no observed users of installed EV chargers, may invite criticism from sceptics*
  - *Review 'free to user' after 2 – 3 years depending on usage.*

- *Stakeholder impact;*
  - *Local EV owners / drivers feel supported and experience reduced "local" range anxiety*
  - *Local Community encouraged to consider EV as a viable option for energy efficient local transport*
  - *EV drivers from outside LGA encouraged encouraged to visit*

- Issue
  - *Lack of standards for electric vehicles and for vehicle-recharging*
  - *Level 2 chargers would be best suited to internal car park locations*

6.1.3. Option 3 – Provide Free Level 2 and Level 3 EV Charging

Public EV charging is not necessarily a service the Local Councils need to provide in such a highly urbanised area. Canterbury Bankstown is not on a major highway where we could expect travellers undertaking long journeys to be looking for fast Level 3 charging points.

- *Benefits*
  - *provision of Free Level 2 (internal carpark wall mounted) & Level 3 (outdoor) charging, with associated provision of restricted parking, at strategic locations would enable local EV drivers to have enhanced confidence in use of their EV and help reduce both local and long distance range anxiety.*
  - *Potential to be attractive to multi unit residents where no private charging is available.*
  - *Early provision of free Level 2 & Level 3 charging points would assist in establishing CBC as forward thinking, smart innovative council.*
  - *may assist in attracting EV driving visitors to the LGA*

- *Dis-benefits*
  - *Loss of public parking spaces for EV charging*
  - *More than one type of charger may be necessary*

- *Costs*
  - *Level 2 (wall mounted) Chargers $2K - $3K plus installation, Tesla Chargers may be higher*
  - *Level 3 Chargers (price TBD) may cost up to $30K plus installation*
  - *Total cost would depend of number of chargers purchased and installed*
  - *Additional electrical works may be required for upgrades at specific sites for Level 3*
  - *Regular monitoring and Maintenance*
  - *Painting of car spaces and signage – estimate $2K each*
  - *Cost of electricity used – potential to offset with solar power*

- *Alternative would be as per Blacktown Council who negotiated the installation of 10 ENE-HUB Smart Poles with WiFi and LED lighting for once-off capital contribution of $30K. ENE-HUB to install and maintain for 15yrs, with electricity free to users for 3 years. ENE-HUB receive commission from Telecompanies. Poles transferred to Council after 15 yrs for $1.*

- *Risks*
  - *Vandalism, damage or loss of installed chargers*
  - *No observed users of installed EV chargers, may invite criticism from sceptics*
  - *Review 'free to user' after 2 – 3 years depending on usage.*

- *Stakeholder impact*
  - *Local EV owners / drivers feel supported and experience reduced "local" range anxiety*
  - *Local Community encouraged to consider EV as a viable option for efficient local transport due to availability of free public place charging*
  - *EV drivers from outside LGA encouraged to visit*

- Issue
  - *Lack of standards for electric vehicles and for vehicle-recharging*
  - *Level 2 would be suited to internal car parking and Level 3 could be suited to outdoor installation.*

6.1.4. Option 4 – Contract EV charging service – user pays

Benefits

- *provision of pay for use Level 2 and Level 3 charging, with associated provision of restricted parking, at strategic locations would enable local EV drivers to have enhanced confidence in use of their EV and help reduce local and long distance range anxiety.*
- *Potential to be attractive to multi unit residents where no private charging is available.*
- *May assist in attracting EV driving visitors to the LGA*

- *Dis-benefits*
  - *Loss of public parking spaces for EV charging*
  - *More than one type of charger may be necessary*
  - *Council distanced from the pay for use service provided by a contractor – minimal opportunity to promote as a Council service*
  - *Pay for use may discourage users where other sites are free*
  - *Contractor may dictate number and location of charging points*

- *Costs*
  - *Level 2 Chargers $1K - $3K plus installation, Tesla Chargers may be higher*
  - *Level 3 Chargers (price TBD) may cost up to $30K plus installation*
  - *Total cost would depend of number of chargers purchased and installed*
  - *Additional electrical works may be required for upgrades at specific sites for Level 3*
  - *Regular monitoring and Maintenance would be responsibility of contractor*
  - *Painting of car spaces and signage – estimate $2K each*

- *Risks*
  - *Vandalism, damage or loss of installed chargers*
  - *no observed users of installed EV chargers, may invite criticism from sceptics*
  - *Contract duration, charge costs to users unknown*
  - *Potential backlash for user pays when many other areas are providing free charging at present*

- *Stakeholder impact*
  - *Local EV owners / drivers feel supported and experience reduced "local" range anxiety*
  - *Local Community encouraged to consider EV as a viable option for efficient local transport because of public place charging*
  - *EV drivers from outside LGA encouraged to visit*
  - *Local community may resent Council for not providing FREE charging*

- Issue
  - *Lack of standards for electric vehicles and for vehicle-recharging*
  - *Level 2 would be suited to internal car parking and Level 3 could be suited to outdoor installation.*

6.2. Comparison of Options

Comparison of options summarising the benefits, disbenefits, costs, risks and issues are show below.

Criteria	**Option 1**	**Option 2**	**Option 3**	**Option 4**
	Do nothing	**L2 "Medium" Chargers** **Free Use**	**L2 Medium & L3 Fast Chargers** **Free Use**	**L2 Medium & L3 Fast Chargers** **User pays**
Benefits: • Council • Community	No loss of parking spaces nil	Demonstrated leadership Support for EV	Demonstrated leadership Support for EV	Demonstrated leadership Support for EV
Disbenefits: • Council • Community	Lost opportunity for demonstrating leadership No support for EV	loss of parking spaces No support for EV	loss of parking spaces No support for EV	loss of parking spaces No support for EV
Costs: • direct • indirect • recurrent	nil	$2-3K per L2 charger 6 (L2) = $18K Painting & signage $12K TOTAL Est $30K + electricity + fee for Charge Point + maintenance	$2-3K per L2 charger $30K per L3 charger 6 (L2) + 1(L3) =$48K Painting & signage $14K TOTAL Est $62K + electricity + fee for Charge Point + maintenance	$2-3K per L2 charger $30K per L3 charger 6 (L2) + 1(L3)= $48K Painting & signage $14K TOTAL Est $62K + fee for Charge Point + maintenance
Risks: • initial • minimisation/ mitigation costs • resulting risk	nil	Vandalism /damage None or very low usage Select appropriate location to maximise use and security (eg indoor car parks)	Vandalism /damage None or very low usage Select appropriate location to maximise use and security (eg indoor car parks)	Vandalism /damage None or very low usage Select appropriate location to maximise use and security (eg indoor car parks – central prominent outdoor for L3)
Stakeholder Impact:	No support for EV	Support for EV and reduced local range anxiety	Support for EV and reduced local range anxiety	Support for EV and reduced local range anxiety
Issues: May need Additional L2 chargers for Council fleet vehicles		Review converting to user pays after 3 years – dependent on usage	Alternative would be similar contract with ENE-HUB smartpoles as per Blacktown Council User pays after 3 years.	Management and maintenance of smart poles remains with contractor.

6.3. Recommended Option

After consideration and comparison of the options examined and presented, the following (option 3) is recommended as the best value investment for Council at this time.

- Up to 6 Level 2 double chargers (1 each ward + CBD – Black or Civic Tower)
- Free to users
- Designated parking spaces allocated, painted in identified locations (eg BLaKC, Revesby, Campsie, Bass Hill, Roselands, Canterbury)
- Branding, signage and promotion

Additional recommendations include

- Further investigation be given to Level 3 chargers - following outcome of the EOI with NRMA.
- Collaboration between Sustainable Future and Works and Projects to explore the potential for a trial of EV charging on a smart pole in Canterbury Town Centre.

7. Implementation Strategy

- Identify appropriate budget for this project
- Liaise with relevant stakeholders , department officers/managers to identify optimal locations for L2 chargers
- Work with NRMA to identify optimal locations
- Conduct site inspections of optimal locations, with Council electrician to identify if current electrical supply is adequate to handle the additional demand.
- Obtain quotations for L2 chargers from up to 3 companies including installation
- Review quotation and T&C (maintenance, data availability, online information for potential users)
- Obtain estimates for car space painting and signage (internal)
- Firm total budget requirements
- Determine project timeframe
- Gain final approval to proceed
- Work with Communications and media to prepare launch project
- Undertake project
- Launch project

7.1. Project Title

Charging Ahead

Provision of Public Place Electric Vehicle Charging Points in the City of Canterbury Bankstown

7.2. Target Outcomes

The following project targets have been recommended in this business case.

1. Establish Project Control Group (PCG)
2. Site Selection for installation (NRMA / PCG, electrician)
3. Procurement process – RFQ, determine purchase or contract evaluation (PCG)
4. Site car/space preparation - painting and signage (CBC painters & sign shop)
5. Installation of 6 double Level 2 charging stations within the 5 Wards of the City Canterbury Bankstown (Contractor)
6. Appropriate certification for EV chargers (Contractor)
7. Charging stations information and location available on EV websites (eg chargepoint, my electric car, other) Contractor?
8. Media, promotion and Project launch (Communications)

Timeframe TBD 2018

7.3. Outputs

Project deliverables will be:

- 6 Level 2 Public Place charging stations installed with signage / painting
- Site information available on line via EV information apps
- Potential Level 3 charging points
- Successful launch and media campaign

7.4 Bibliography

Power Up – Northern Rivers Electric Vehicle Strategy
Moreland City Council – Electric Vehicle Strategy
Moreland City Council – Electric Vehicle Fact Sheet
Blacktown Council – Electric Vehicle Council Report
The Future is Electric – Queensland's Electric Vehicle Strategy
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The State of Electric Vehicles in Australia – Climate Works

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