

# Charging Electric Vehicles Tasmanian Fast Charger Network

Clive Attwater – Electric Highway Tasmania P/L

# Electric Highway Tasmania P/L



Who we are:

- A group of private investors committed to ensuring a statewide EV fast charging network in Tasmania
- Established in March 2017
- Capital raised and committed over \$900,000
- Six east and west coast sites currently under development



# CONTEXT

The EV charging ecosystem

# Charging ecosystem

- **Lowest cost:** at home (if private off street parking) 90%+
  - Particularly cheap with solar and TOU tariff
- At work
- Convenience/destination charging at:
  - shops, attractions, events, etc
  - some offered for free to attract business
- At overnight accommodation
- **Most expensive:** DC fast chargers (similar cost to petrol) <5%?
  - charge enough to get to where you are going + bit to spare
- DC fast chargers essential for taxis, fleets, etc.

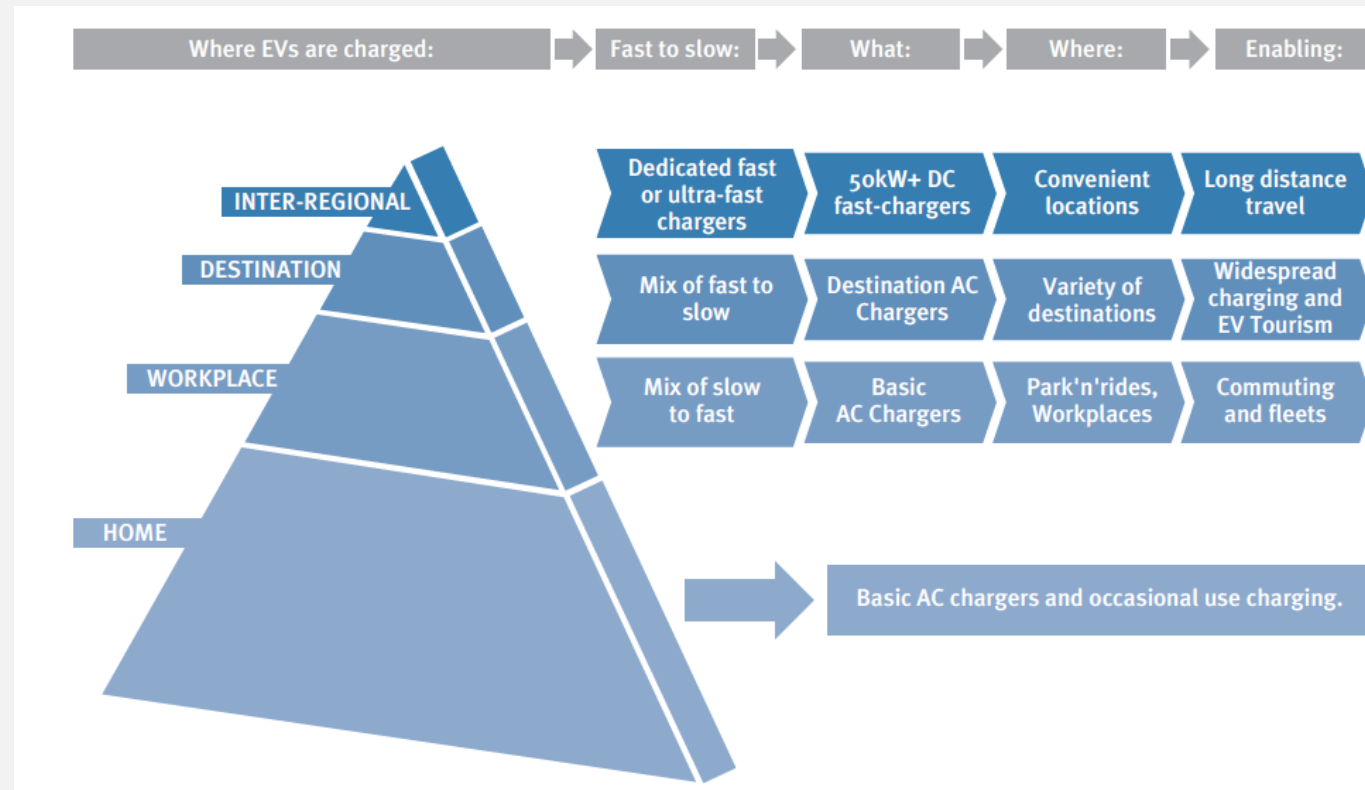
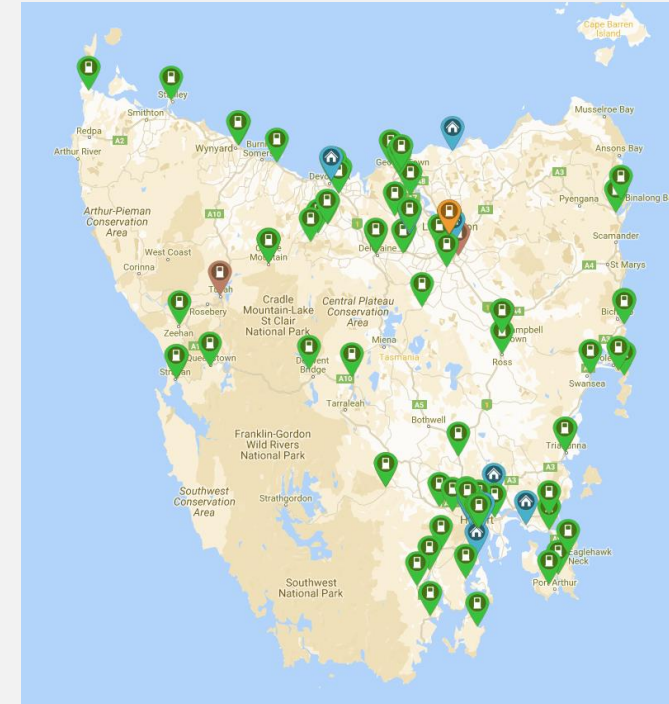


Image: Electric Vehicle (EV) Charging Infrastructure Practice Note, Qld Gov. [www.dsdmip.qld.gov.au](http://www.dsdmip.qld.gov.au)

# Public chargers in Tasmania

EV charge sites are listed on PlugShare (global app)

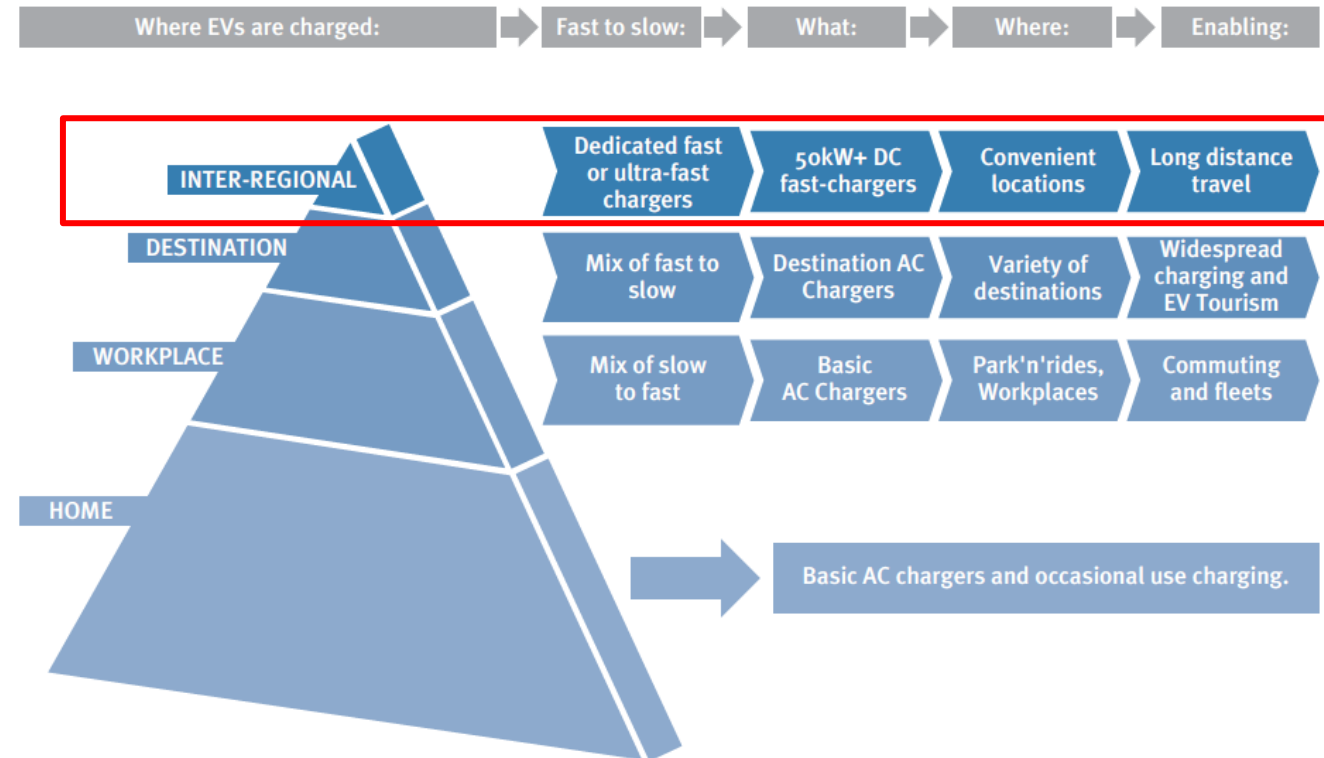
- Reasonably complete listing maintained by ‘members’
- In 2014: one site in Tasmania
- End 2019: over 100 sites in Tasmania, mostly slow AC
- Includes hotels, caravan parks, restaurants, attractions, council and private car parks
- Includes power points and various charger types
- Not all accessible to all drivers (e.g. guests only at hotels)



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# DC chargers

High power DC equipment is high cost so faster charging is more expensive

Power:

- 25 to 350 kW now; even higher power under development
- Rate depends on car battery size + charger capacity + power supply

Characteristics:

- Recharge fast to continue a journey promptly: **no discretion** about timing
- Charges near maximum up to about 80% then slows down – a lot
- Places a high demand on the power supply for relatively short periods
- Adds 25 to 300 km per 15 minutes



# Formats for DC chargers





# EHT chargers



Miners Siding, Driffield Street  
**Queenstown** 12345  
Powered by **UPC Renewables**  
Funding assistance from **Tasmanian Government**

**ELECTRIC HIGHWAY TASMANIA**

**50 kW max**  
All cables per charger, 2.5 km per cable  
Cable length maximum 2.5 km per cable

**TRITIUM**

**Electric Vehicle Fast Charger**

See where Queenstown's mining all began...  
**IRON BLOW LOOKOUT GORMANSTON**

*The earliest major mining venture at Mount Lyell was at the Iron Blow.*

**They were looking for gold, but found copper - lots of it**

In 1830 Sir James Macpherson, a Scottish geologist, was the first to discover copper in the area. He was looking for gold, but found copper. It was a discovery that led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout.

**Once was a hill, now a hole**

The Iron Blow Lookout, a 100m high cliff, was a major source of copper. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout.



**Why is it here?**

The discovery of copper led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout.

**Mining - the foundation of western Tasmania**

All western Tasmania's copper was mined at the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout.

**Why go now?**

The Iron Blow Lookout is a major source of copper. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout. The area was rich in copper, and the discovery led to the development of the Iron Blow Lookout.

**See for yourself**

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**ELECTRIC HIGHWAY TASMANIA**

# Four DC connector types

- Combined Charging System 1 (CCS1) US, combines J1772 with two DC pins
- CCS2, Europe, combines Type 2 AC with two DC pins likely to dominate in Oz
- CHAdeMO (Japanese: Mitsubishi and Nissan; Tesla using an adaptor)
- Tesla Supercharger – Europe/Oz, modified Type 2 AC plug to accept DC



CCS1



CCS2



CHAdeMO

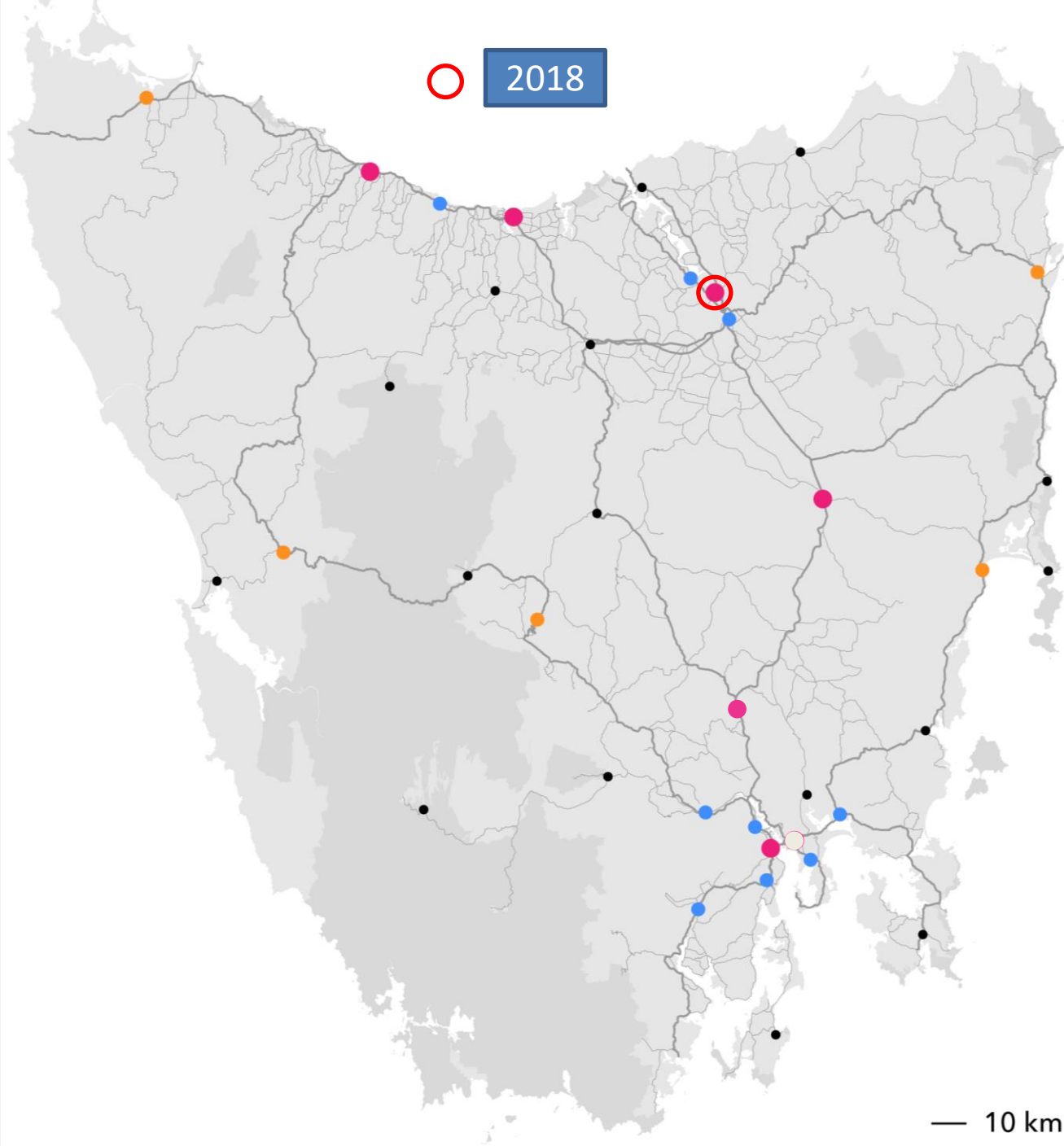


Tesla

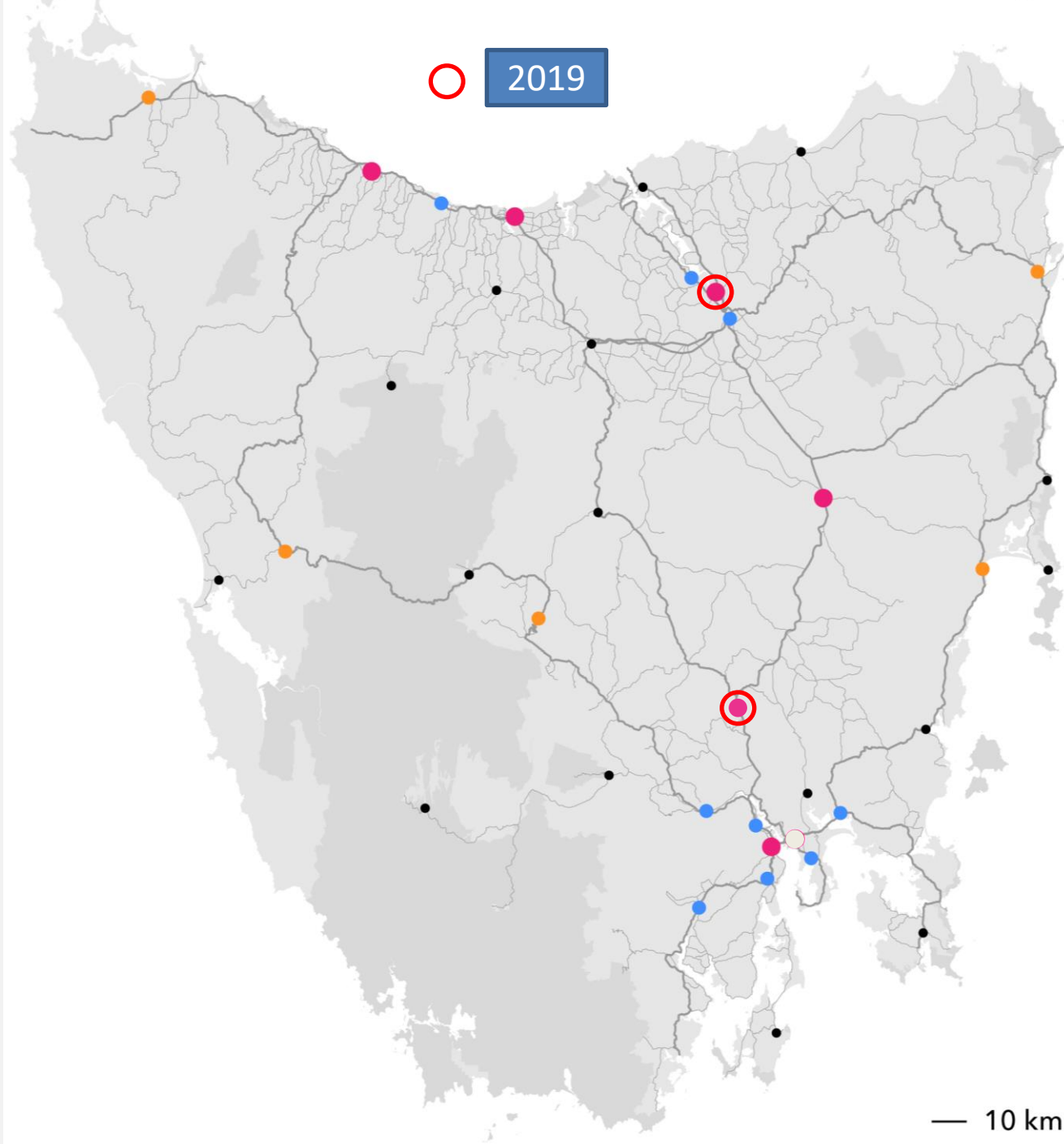
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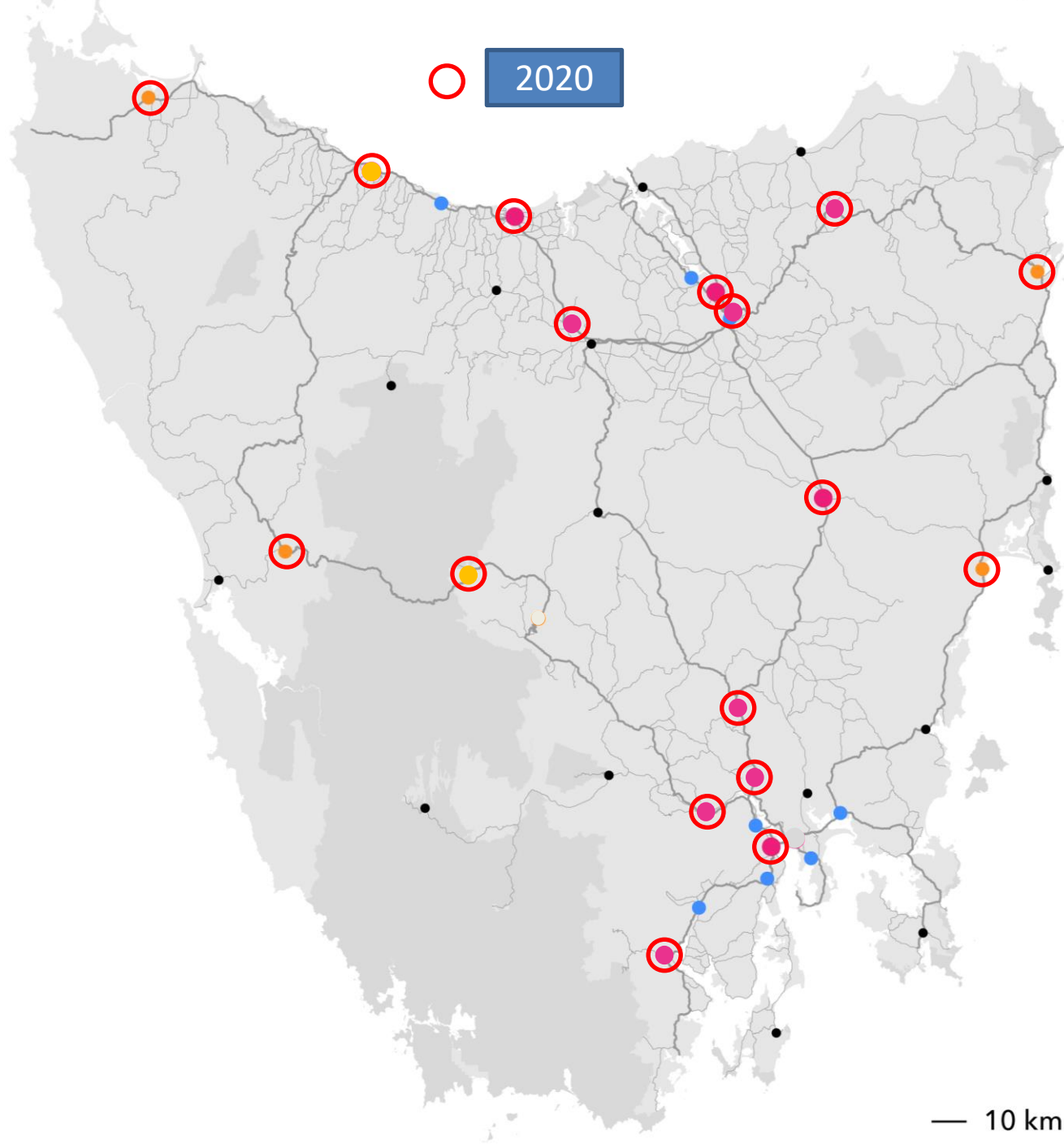


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2020

(early) Scottsdale, Kings Meadows

(from June) six EHT sites

by end 2020, early 2021: total of

15-17 sites expected

# THE ELECTRIC HIGHWAY TASMANIA NETWORK



# Purpose of the EHT sites

- EHT was specifically formed to fill gaps in the state network
- Aim: to have adequate capacity of easy to use, reliable chargers to serve all vehicle types
- These are the least commercially viable sites, but essential if Tasmania is to have a truly statewide network
- After the initial six sites, EHT expects to fill in some additional gaps with minimum 25 kW DC chargers to enable shorter range EVs to move around more freely.

# Site design and offerings

- 1 x 50 kW DC fast charger (Tritium Veefil)
- 1 x 22 kW, 3 phase AC charger (e.g. Renault Zoe)
- ‘Emergency’ 15 A power point
- Connect and pay by Chargefox app, fleet card or credit card
- CCTV for security, managing ICEing
- Site lighting
- Designed for rapid expansion, up to seven bays, higher power chargers

Nearby amenities provided by others:

- Toilets (generally 24 hours)
- Food and beverage
- Shelter from rain

# Development cost

- EHT site development costs are just under \$100,000 per site
- Range from \$75,000 to \$130,000
- DC charger and associated costs accounts for 85%
- Annual fixed operating costs about \$6,500 per site (insurance, maintenance, connection fees, standby power use, site rent)
- Same price to charge at all sites

# Fee structure

- Combination of time (pays for equipment) and energy:
- 50 kW DC: 25 cents / minute + 25 cents / kWh
- 22 kW AC: 3 cents / minute + 25 cents / kWh
- Burnie and Queenstown sites are in paid parking areas
  - When charging, EHT pays Council for your parking
  - EHT adds 3 cents/min (Burnie), 2 cents/minute (Queenstown)
- Time fee encourages you to move on promptly when charged

# How to find EHT sites

EHT sites will appear on:

- Plugshare
- the Chargefox app
- Google Maps
- most EV in-car satnav systems

EHT will develop EV touring routes and cross promote with EV friendly destinations and accommodation

End