# Submission to the *Preparing the Northern Territory for Electric Vehicles* Discussion Paper 2019

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Thank you for the opportunity to make a submission to the *Preparing the Northern Territory for Electric Vehicles Discussion Paper 2019*. Our considerations and their justifications are outlined below. To date, given the present range limits of electric vehicles (EVs), much attention has focussed on the benefits to urban and peri-urban communities from the current transition. However, many First Nations communities will also be, increasingly, uniquely well placed to realize benefit from the transition to EVs.

## Future mobility on Country: An opportunity for First Nations benefit

In a region of high insolation, high energy costs, vast distances and high rates of Indigenous land tenure, the current transition toward both renewable energy sources (Baldwin 2018, Blakers 2019) and electric vehicles[1] represents a significant opportunity for the benefit of First Nations communities in the NT.

The provision of fuel to communities for energy and transport services can be unreliable, is incredibly expensive, and can introduce health risks. Electric vehicles have 100 times fewer parts than internal combustion engine vehicles making them more robust and potentially easier to repair. Of particular relevance, the battery capacities of modern electric vehicles are large enough to power a house for many days, potentially providing much needed backup power in settings where access to reliable, affordable energy may be challenging. Thus, EVs may provide more value to First Nations' communities than cheaper transport alone.

There are significant barriers facing communities in the uptake of EVs. These may include trip ranges, the effect of heat on batteries, further range limits introduced by the drain on batteries by situation-dependent auxiliary services such as air conditioning, the quality of local electrical supply, and upfront costs. However, driving ranges of EVs have improved rapidly over time, with standard

[1] See https://electricvehiclecouncil.com.au/wp-content/uploads/2019/09/State-of-EVs-in-Australia-2019.pdf

new vehicles on the market typically able to cover 240 km, and high-end vehicles able to cover up to 600 km.

While the *Preparing the NT for Electric Vehicles Discussion Paper* does not address remote Indigenous communities specifically, we argue that the barriers to community uptake are not insurmountable, and that the potential opportunity for benefit warrants further investigation.

We suggest there is value in quantifying the existing barriers to uptake of electric vehicles in remote communities as part of the current discussion, including;

- Identifying which communities are located within the EV trip range of major towns and highways
- Examining the extent to which recharging infrastructure at the above-mentioned major towns could feasibly enable recharges for EVs upon arrival and prior to departure
- Identifying the technical challenges of integrating EVs with the above-mentioned communities' electricity supply
- Examining the social and behavioural aspects of demand management required for integration of EVs into remote power systems - building on the behavioural lessons of renewable energy implementation
- Assessing the state of temperature limits on vehicle battery warranties in these operating environments
- Examining international policies for EVs in remote communities

In the context of government and Indigenous leaders seeking innovative ways to overcome Indigenous disadvantage in socio-economic outcomes, the current energy transition represents a potentially transformative development. Cheaper energy and transport can contribute significantly to reducing multidimensional poverty in these communities and provide opportunities for economic development. More broadly, in northern Australia significant renewable energy and mineral resources underpin the opportunity for large-scale generation and export of renewable energy from Australia in the form of electricity, energy-rich metals and materials, and hydrogen-rich fuels - through which Australia can have a significant impact on reducing global carbon emissions. The leveraging of renewably generated forms of electricity for powering the transport sector represents an important means of reducing emissions domestically. These topics are the focus of the Australian National University's Grand Challenge: *Zero-Carbon Energy for the Asia-Pacific.*[2]

As the *Preparing the NT for EVs Discussion Paper* notes, the running costs of EVs are between 60-90% cheaper than internal combustion engine vehicles, with fewer moving parts, and reduced running and maintenance costs. Whilst ranges of electric vehicles today should be easily meet the needs of most urban dwellers with only overnight charging, more research is needed into those barriers that will affect the uptake of EVs in remote and very remote communities. People who have access to outlets at their homes are more likely to consider adopting an electric vehicle (White and Sintov 2017). To increase electric vehicle adoption rates, one low-cost measure to pursue would be developing regulation to ensure that electric vehicle charging stations are included, or can be easily added, to community infrastructure, social housing, and to rental properties, providing options for public and private charging on community.

Similarly, strategies that lower the cost of electric vehicles, such as taxation waivers or subsidy provision, increase electric vehicle adoption – not only due to the lower costs, but also due to those lower costs contributing to electric vehicles being seen as a 'mainstream' vehicle choice rather than

[2] https://www.anu.edu.au/research/research-initiatives/zero-carbon-energy-for-the-asia-pacific

an unusual one. In the same way, Government procurement of EVs for its own fleet can also increase demand and contribute to lower cost provision.

Demand management is a useful tool in maintaining the balance of electricity supply and electricity demand, without extensive infrastructure investments. Time-varying pricing can be effective in encouraging electricity users to shift their use to times when generation from solar and wind is plentiful (Faruqui and Sergici 2010). However, consumers are not well able to predict if these types of rates increase their electricity bills (White and Sintov 2018), so demand management pricing should be coupled with measures to ensure bill transparency. The Northern Territory has a strong history of demand management innovation in remote communities[3], with many best practice examples of demand management innovation[4] with First Nations people central in the design and delivery. These examples could inform appropriate and innovative approaches to deploying charging infrastructure supportive of EVs in communities.

There would seem to be many natural complements with existing renewables investment in the NT such as the Roadmap to Renewables and the Solar SETuP[5] program, building on the successes of the Centre for Appropriate Technology's Bushlight program in deploying renewable energy infrastructure supportive of First Nations communities. Much of the success of the Bushlight program can be traced to dedicated ongoing funding for the four year pilot program of iterative design based around community energy planning processes. Similarly, funding for community led trials of EV implementation would likely be of benefit in the current transition. There may be a need for developing benefit sharing models that accord with community identified priorities in deploying charging infrastructure and EVs may represent an alternative to stationary storage options for communities with existing renewable energy services.

In the international context Indigenous participation in renewable energy projects in Canada has benefited greatly by 'supporting regulatory and fiscal policy that were negotiated and adapted to Indigenous sustainability visions'(Karanasios & Parker 2018). In Australia research has shown (O'Neill, Thorburn and Hunt 2019) that broader economic and social benefits for Indigenous landholders are more likely if Indigenous communities and organizations are:

- **well informed**
- **engaged meaningfully** in development processes
- developments are progressed **in accordance with community priorities**
- developments include provisions for **community equity** and/or **ownership**

A much broader conceptualisation of the potential role for First Nations people in the move to a decarbonised future could provide both an opportunity to advance reconciliation with First Nations, as well as enabling socio-economic development. There is a significant opportunity for increased Indigenous participation and benefit from the electrification of the transport sector based on abundant renewable energy resources.

[3] The Centre for Appropriate Technology's Bushlight project is one noteworthy example.
[4] See for example the
https://www.powerwater.com.au/about/projects/past-projects/manymak-energy-efficiency-project
[5] PowerWater NT's Solar SETuP Program stands out as example renewable energy improving energy security in remote Indigenous communities

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