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LEAP Research Report
No. 67

Looking beyond limitations

Electric vehicle use in New Zealand holidays

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December 2021



LEAP

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Land Environment and People Research Report
No. 67
2021

ISSN 1172-0859 (Print)

ISSN 1172-0891 (PDF)

ISBN 978-0-86476-470-6 (Print)

ISBN 978-0-86476-471-3 (PDF)

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About this document

This report contains some of the key findings from a research project exploring the use of electric vehicles (EVs) on holiday trips. This is the concise, free-from-academic-jargon, very-lightly-referenced version. If you want theories, references, methods discussions, or even just more detail on the things we've mentioned here—get in touch, we're always happy to talk about the research we're passionate about—but if you just want the basic gist of what we found out, this is the report for you!

Quick overview

- EVs are often described as inadequate for long distance holiday trips, and yet increasing numbers of EV owners are travelling on holiday in their EVs. There is very little research exploring the use of EVs in holiday travel.
- We talked to 34 regular EV drivers about their use of EVs in holiday travel.
- Participants talked about some of the widely reported difficulties or limitations of EV travel including range, charging, and challenges associated with specialist holidays like those involving access to the backcountry or requiring towing.
- We also talked with participants about some experiences that have not been reported so widely to date.
- Participants talked about feeling adventurous or pioneering when taking their EV on holiday. These adventures (which included facing risks related to range, doing something a little unusual, being an early adopter of technology, and experiencing a sense of camaraderie with other EV drivers) were described as mostly positive experiences.
- Driving a car is often associated with freedom, and we explored whether driving an EV is associated with different kinds of freedom to driving a petrol or diesel car. Driving an EV can require more planning, but it can also result in freedom from environmental guilt, freedom from having to visit petrol stations, freedom to drive a smooth, quiet, fast car, and freedom to spend more on accommodation (because travel is cheap).
- Participants often reported that the pace of holiday travel was slower when driving an EV. Retired participants described enjoying having the time to slow down, and younger participants reported enjoying taking time to explore.
- Driving an EV *feels* different to driving a petrol car and this can influence driving styles. Participants described usually driving more slowly and conservatively when driving an EV, but occasionally taking advantage of the (usually high) performance of their vehicle.
- All of these experiences might have implications for the future of New Zealand holidaymaking, including through impacts on the accommodation sector, on the dispersal of holidaymakers around the country, and on the holiday road toll.

Thank you, thank you, and THANK YOU again to all the EV drivers who generously gave their time to participate in this research. We appreciate your diligence, candour, and insights. We could not have done this research without you...and we hope you find this summary of results interesting.

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Introduction

Why we care about EV holidays

We quite commonly hear claims that EVs aren't really suitable for long distance holiday travel because of concerns related to range and charging. For example, a 2019 literature review summarised several studies that described EVs as most suitable for households that also have a petrol or diesel car as "a 'backup' for weekend trips and holidays".¹ It is clear, however, that growing numbers of EV owners are using their EVs in holiday travel, and that that will increasingly be the case as EVs become more common. If we don't explore EV holidays now, there is a risk that we will miss important insights into the development of both EV driving and holidaymaking. If we want to manage faster and more effective transitions to sustainable travel, then it's a good idea to keep an eye on how EV holidays are developing.

What we did

We invited EV owners in New Zealand to take part in online discussions in June and July 2020. We set up private Facebook groups for small groups of participants and we posted two questions a day for 8 days. Participants typed out their answers to our questions, and sometimes discussed their answers with one another. A total of twenty-eight people joined the online discussions; a further six people answered our questions by e-mail, preferring not to use Facebook. Figure 1 shows where in New Zealand our participants lived. Table 1 shows the kinds of EVs in participants' households, alongside national EV registration data. We had a lot more Nissan Leaf drivers than anything else, but that's a pretty accurate representation of NZ's light EV fleet as a whole.

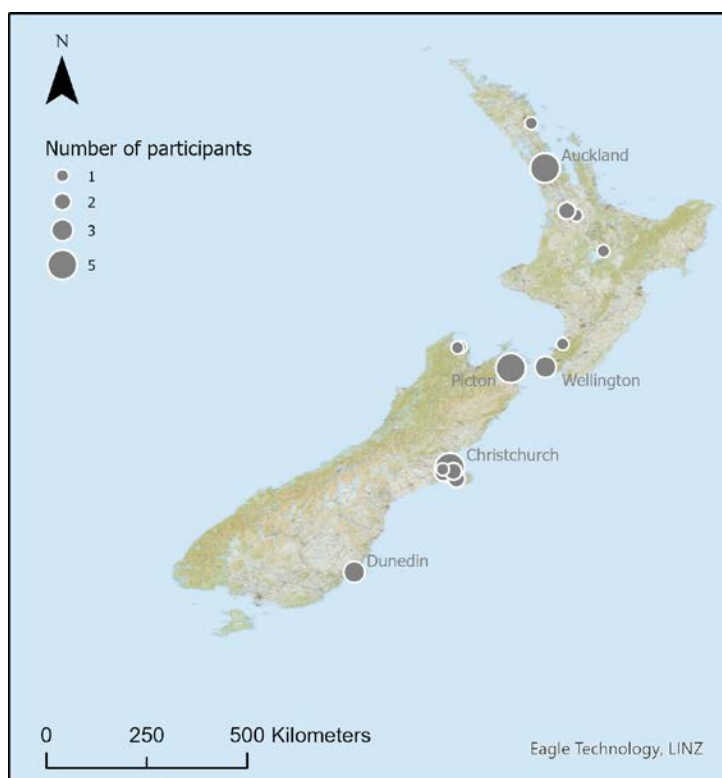


Figure 1: Map of participants' residential locations

¹ Daramy-Williams, E., Anable, J., & Grant-Muller, S. (2019). A systematic review of the evidence on plug-in electric vehicle user experience. *Transportation Research Part D: Transport and Environment*, 71: 29. doi:10.1016/j.trd.2019.01.008

Table 1: Types of EVs owned by research participants and their household members compared to New Zealand EV registration data

EV make (model)	Participants (%)	New Zealand (%)^a
Nissan (Leaf)	64.9	66.7
Tesla (Model 3, X, or S)	13.5	11.1
Hyundai (Ioniq or Kona)	13.5	7.7
Volkswagen (e-Golf)	2.7	2.0
BMW (i3)	2.7	1.8
Other	2.7	10.7

Note:

^a New Zealand EV ownership data are sourced from New Zealand Ministry of Transport vehicle registration data for light electric vehicles. (Ministry of Transport, 2020, Monthly EV Statistics: EV Models Registered to 2020 Q3. Available at: <https://www.transport.govt.nz/statistics-and-insights/fleet-statistics/sheet/monthly-ev-statistics>).

Limitations of our research

This was one small study, in one small country. There is more to know, and we don't claim that this report is the last word on EV holidays. Even amongst our small group of participants, there were different opinions and different experiences. We've tried to summarise some of the most common of these, but we don't claim to speak for everyone on every topic. We hope there will be more research in this area so that we can better understand a wide range of opinions and experiences.

What this report is about

This report very briefly explains some of the key findings of our research with EV owners.

We've divided this report into two main sections; in the first section we look very briefly at some of the things that limit or hinder EV holidaymaking. These issues are worth acknowledging, but we don't go into them in much detail, because they are commonly discussed issues and we don't see any need to repeat what is already well documented elsewhere.

The second, longer, section explores a much less commonly reported set of features of EV holidaymaking—looking past the limitations at what EV holidays are actually like. We talk about these features in a little bit more detail than we do about limitations, and we provide some clues about why we think these particular issues are important to the future development of travel.

This report is only the tip of the iceberg of what we could say about our findings. We are also writing some longer academic papers, so if you want to know more, please do get in touch.

Results I: Limitations to EV holiday travel

Some of the participants in the study reported that their EV is not suitable for all the trips that they would like to make. For some, this resulted in limitations to the travel they undertook; others used a different vehicle for trips they considered their EV unable to make (the substitute vehicle was usually an ICE—or Internal Combustion Engine (petrol or diesel)—vehicle, but was occasionally a rented EV with different capabilities). The most common limitations discussed were range, charging, and the ability of EVs to cope with the demands of specialist holidays.

Range

Some participants (primarily of vehicles capable of a higher than average range on a single charge) told us that the range of their vehicle was sufficient. More commonly, participants told us that the range of their vehicle limited trips:

For the range on my Leaf (Gen 1) it's really not possible to go any further than 90km, meaning we never take it out of Christchurch city. Even for our recent trip to Akaroa [about 80km away], it was out of the question. [James]

A number of participants with lower range EVs also told us they had 'range envy' of those with longer range EVs, or would like more range:

I would love a Tesla, the long range is something that I drool over, and often think of the trips that I would make if I owned one. The distance I get in my Leaf is very limiting, especially during the winter months. [Nina]

Many did talk about range anxiety, but often noted that this was a rare occurrence once they were used to their vehicle.

I know my car's capabilities, and usually stick to them, so it's very rare that I would feel range anxiety (the most notable example I can think of was crawling along the Desert Road when I'd first bought my car, and almost ran out trying to get to Waiouru). [Lachlan]

Range (and associated limitations) was a common topic of conversation for participants, but most did use their EVs on at least some holiday trips. Range is a barrier to EV travel for lots of EV users, and is very commonly discussed in the papers we've read, but range is only a very small part of the story of EV use.

Charging

Gaps in charging networks, or long distances between chargers, are often described as discouraging people from making longer trips in EVs. Although our participants did tell us about some specific gaps in the charging network, they more often told us about current or likely imminent issues with charger capacity. A number of participants, for example, expressed concerns about increasing queues for chargers, as David explained:

In general I would like to see a progression towards more than one charging station at each charging site being the norm, otherwise range anxiety will be replaced by charger anxiety (worrying whether it will be available when you get there). [David]

Other participants noted that managing the temperature of their vehicle's battery through cycles of driving and charging was as much a challenge as finding a place to recharge, and some noted that there were many opportunities to plug in away from a dedicated EV charger if necessary (and assuming the driver carried the right charging cables).

It would certainly be premature of us to conclude that the charging network is complete. There is still work to be done to shorten the distance between chargers and reduce gaps in the charging network. Nonetheless, participants can foresee a time when concerns about gaps in the charging network are obsolete.

We are still waiting for a decent number and amount of recharge points to get installed - I think we need them every 50 km at a maximum along all mainish routes, to make going out and about in a Leaf an easy practical option rather than a millitery [sic] planning exercise around range and recharging. Having said that, as, chargers increase, and, new EV car ranges continue to increase, I think it's going to be a short term issue that everyone will have forgotten about in 5 years. [Dylan]

This is perhaps a signal that some EV owners think the immediate development needs for NZ charging infrastructure are starting to change. We may be reaching a point where more attention needs to be paid to increasing the capacity of charging stations, rather than just their dispersal. (Our informal conversations with providers of charging infrastructure suggest that they are aware of this dynamic). Increasing capacity, as well as reducing the distance between chargers, could help with the kind of 'charger anxiety' and system 'fragility' that Adam described:

Often there is only a single charger at a location which you only just have the range to reach. If it's out of order then you're stuffed. Similarly if there's a long queue, you're in for a long wait. So the infrastructure, while much better, is still very fragile. [Adam]

Participants told us that they sometimes like to use other facilities while charging (particularly toilets, coffee and food outlets, supermarkets, and pleasant walking tracks), so ensuring colocation of chargers with other amenities may facilitate business opportunities and positive user experiences.

Charging gives a chance to stop, to have a coffee or a walk, with a longer break for lunch. [Anna]

As Finn pointed out (although not everyone agreed), there might be some value in designing some charging facilities specifically for tourists:

It is possible to think of charging locations with activities and events which are specific for tourists - i-sites, picnic spots and holiday parks can be seen as potential locations. The regular charging spots are frankly boring - driven by commercial considerations only - located in super markets or obscure spots. [Finn]

Ensuring that chargers have good lighting and signage, feel safe at night, and are easy to find are all helpful developments.

Although some participants described the need to charge as discouraging (or preventing) them from making long trips, it was more common for participants to tell us about what would make charging easier, more pleasant, or less likely to become problematic in future.

Specialist holidays

Although less commonly discussed in international literature than range and charging, participants in this study sometimes described their EV as unsuitable for some of the particular holidays they wanted to undertake. Some people talked about wanting to access the backcountry for hiking, skiing, or camping; others wanted to launch boats, tow caravans or horse trailers, or fit lots of people and lots of luggage into their car for holiday trips. Some participants told us that their EVs couldn't cope with these demands.

We go Mountain biking, kayaking, and orienteering. These often involve long shuttles in remote areas in distances too long, or terrain too inhospitable, for the LEAF. [Sophie]

At 100km/hour I can get about 100km in winter and a bit further in summer. So we can't get to Kaikoura which is somewhere we go a few times a year. And I don't think it would tow a horse float very far. [Sadie]

As with concerns solely about vehicle range, some of these participants reported not making some trips they would like to make and others told us they took a different vehicle on trips that were beyond the capabilities of their EV. Still other participants told us that their vehicles were perfect for the kinds of trips they wanted to do, and Hazel even shared a picture of the sleeping platform she'd built over the back seats in her Nissan Leaf so that she could sleep in it overnight.

Despite any limitations, most participants were very positive about their vehicles and about their experiences of using them. It is worth noting the limitations that people experience because they clearly play a role in contemporary EV use (especially given cultural expectations of vehicle travel established over many years). It is perhaps more important, though, to note that most participants did not consider their EVs inferior to petrol cars, just different. Participants described their EVs as having both disadvantages AND advantages that their ICE vehicles don't have. For example, when asked whether long drives are more or less enjoyable in an EV than in an ICE vehicle, Michael replied 'Both!'. The members of Michael's discussion group went on to describe advantages in terms of feeling good about the environmental performance of their vehicles, as well as enjoying driving smooth, clean, quiet, fast cars, alongside disadvantages of EV travel including some of the limitations discussed above.



Figure 2: The sleeping platform Hazel built in her Nissan Leaf

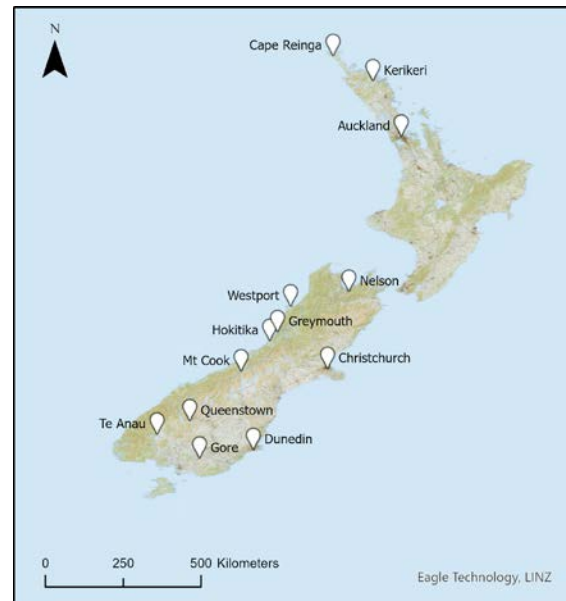
Having briefly covered limitations to EV holiday travel, we turn now to the less often discussed topic of what travelling on holiday in an EV is actually like.

Results II: Experiences of EV holiday travel

Although some participants described the trips they could make in their EVs as being limited, many of the participants had used their EVs on longer trips, some of them quite extensive. Samuel, for example, had travelled widely in his Nissan Leaf.

I picked it up in Auckland, drove to Cape Reinga and then zig zagged through the North Island and eventually to Christchurch. Since then I have been to Nelson several times, to Te Anau twice. Queenstown, Mt Cook, Dunedin, Gore, Hokitika, Greymouth, Westport and most places in between. I also had another extensive NI [North Island] trip going as far north as Kerikeri. [Samuel]

Figure 3: Some of the places Samuel has visited in his EV



Experiences of holidaying in an EV were varied, but some key themes we have identified include pioneering and adventure, freedom, slow travel, and driving style.

Pioneering and adventure

Travel by motorcar is associated with a rich history of pioneering and adventure. (Check out the story of Horatio Nelson Jackson and his assistant who travelled across the U.S.A by motorcar in 1903. It's a story of being towed out of swamps by horses, getting horribly lost, and waiting days at a time for spare parts to be delivered by stagecoach!). None of our participants experienced anything that extreme, but some did clearly experience a sense of adventure when taking their EV on holiday.

Some people talked about adventure in the sense of risks or apprehension about things going wrong and a degree of pride or achievement in facing those risks.

We feel we are doing our bit to help climate change. It is an adventure each time. Will there be detours? This is why we keep a good margin of battery charge in the planning. Will the next charge point have a queue? We do feel we are pushing back the frontiers. [Patrick]

[I] definitely feel adventurous, and that we have achieved something getting [to our destination]. However, I do let my partner drive when the distance to GOM ['Guessometer' or dashboard range display] is similar so I don't have to worry about the range. [Hazel]

Hazel and Patrick demonstrate that there's a fine line between enjoyable adventure and unappealing anxiety.



Photo from:
<https://www.history.com/news/the-first-great-american-road-trip>

Most participants reported successfully achieving the trips they attempted most of the time (and they certainly considered their vehicles to be much more mechanically reliable than petrol cars), but trips didn't *always* go according to plan and that seems to feed into a sense of adventure. Fillbie wrote:

Hi everyone, I had a "Pioneering" experience today.... I ran our battery flat! [Fillbie]

Other elements of a sense of pioneering adventure included doing something a bit unusual or being an early adopter and at the forefront of change.

Sometimes I have felt pioneering or adventurous as someone might say "we've never seen an electric vehicle here before - you are the first". [Ellie]

I only know a handful of people through work and a few friends who actually own and drive EV's at this point so I feel like for the first time in my life I'm an early adopter to some pretty exciting technology. [Emma]

There was also a clear recognition, seemingly with a bit of nostalgia, that as more and more people own EVs and as charging infrastructure improves, the idea of EV travel being adventurous is being eroded, and with it goes a sense of camaraderie that early EV users experienced. Several different Nissan Leaf owners independently noted that Leaf owners all used to wave at each other on the road, but now there are so many of them the novelty is lost and the connection with other drivers is gone.

When I first bought my 3.5 years ago I felt quite pioneering. There were only a few other Leafs around and we all used to wave at each other. Now I see a couple of Leafs on every trip so it doesn't feel nearly as novel as it did. [Harriet]

Why does adventure matter?

Many participants broadly agreed that using an EV feels a bit pioneering and adventurous, but why does that matter? From the early days of private motoring, access to petrol cars has been instrumental in the development of cultures of leisure travel. As Ivory and Genus explain:

“...the car, from its establishment at the end of the nineteenth century, has been associated with the notion of travel for pleasure. ... Travel for pleasure was a critical aspect of how the car was understood and consumed and a key element in emerging car culture.”²

Ivory and Genus go on to provide quotes from early commentators about cars increasing the desires of city dwellers to travel, to escape the confines of the city, to ‘spread their wings’, to explore the countryside, and to go camping. These are desires that arguably persist today, and that are tied up with the idea of car travel as adventure.

Understanding what people like and dislike about travelling in different ways—and how that changes over time—can help us to start to think about how our ideas of travel for pleasure might evolve from here (we’ll talk about this about more below). In a more immediate sense, charting how adventure is associated with new kinds of cars helps us to understand some of the appeal (and potential anxieties) of using EVs in holiday travel.

Freedom

We were intrigued by a couple of quotes in papers we’ve read about EVs needing to live up to the standards of freedom set by ICE vehicles. For example, Kershaw at al. remark:

...electric cars are not necessarily seen as inferior...providing they maintain the freedom and flexibility to which motorists are accustomed.³

We’ve already noted that participants didn’t generally describe their EVs as inferior, even when they limited travel in some respects. We wondered then if EVs really *do* need to offer the same freedoms as ICE vehicles to have a successful future in tourism. To answer this question, we think we need to have a clear understanding of what ‘freedom’ is. Although that might sound pretty straightforward, it really isn’t.

Holidays are often described in terms of two different broad kinds of freedom, freedom to do things you normally cannot do, and freedom from things you normally have to do.⁴ This leaves pretty broad scope for different interpretations of holiday freedom. For some people, holiday freedoms might involve long nights of drug and alcohol fuelled partying, for others, they might involve remote hiking away from any other people, and for others they might involve guided tours where the holidaymaker can sit back and let others do the planning and organisation. These are all kinds of freedom...but they’re not at all the same.

² Ivory, C., & Genus, A. (2010). Symbolic consumption, signification and the ‘lockout’ of electric cars, 1885–1914. *Business History*, 52(7): 1114. doi:10.1080/00076791.2010.523463

³ Kershaw, J., Berkeley, N., Jarvis, D., & Begley, J. (2018). A feeling for change: Exploring the lived and un-lived experiences of drivers to inform a transition to an electric automobility. *Transportation Research Part D: Transport and Environment*, 65: 683. doi:10.1016/j.trd.2018.10.011

⁴ Caruana, R., & Crane, A. (2011). Getting away from it all: Exploring Freedom in Tourism. *Annals of Tourism Research*, 38(4), 1495-1515. doi:10.1016/j.annals.2011.02.001

So what kinds of freedom do EVs offer, and do EV owners feel they're missing out on the freedoms provided by ICE cars?

First, it's worth noting that EV owners often acknowledge that taking an EV on a long trip involves more planning than doing the same trip in an ICE vehicle. As Noah explained:

Every single trip that I can't do on a single charge needs a bit of planning. I admit that I didn't have to do that with my previous car. [Noah]

Participants rarely described this planning as a major chore, or inconvenience, and some participants described enjoying the planning, or seeing it as an opportunity to maximise the enjoyment of the trip.

[My husband] enjoys researching where all the charging stations are and the distances. [Ivy]

I'm more journey focused than my partner. If we are going somewhere he wants to get there on the 'right' road, where I enjoy taking a road less travelled and stopping and exploring on route. I do some planing before hand [sic] to make the most of the adventure. [Hazel]

In this context, driving an EV certainly could be seen as compromising the freedom of spontaneity, but as people value spontaneity and planning in different combinations, it doesn't seem reasonable to assume this as a blanket negative. For some people, the freedom to plan an adventure may be more compelling than the freedom to be spontaneous.

Participants described a range of freedoms that they experience when driving an EV that they do not experience when driving a petrol vehicle. Annabelle, for example, described the freedom to take holidays that she would not have taken in an ICE vehicle because of concerns about the environmental costs of her holiday choices.

[Reductions in pollution during lockdown] made me glad to own an EV, and gives me hope others will be more aware of environmental impact ICE vehicles have...[we] wouldn't consider the road trips we are doing without owning an EV for sure. [Annabelle]

Similarly, Lachlan talked about not feeling guilty about the environmental implications of driving.

I enjoy the guilt free feeling of being able to floor it and not worry about burning through expensive fuel and spewing out emissions. The same goes for sitting in traffic, I don't feel guilty idling my car for long periods. [Lachlan]

Some participants described a sense of freedom in not having to visit petrol stations:

It feels delightful driving past petrol stations that I don't need to use in the EV. [Janet]

It really wasn't any different to taking an ICE vehicle with the main difference being that I was able to have my car "fuel up" in the hotel's car park overnight! [Eli]

Others described the freedoms of having a car with high acceleration that overtakes easily and reduces time spent behind slower vehicles.

Why does freedom matter?

The way we understand freedom influences what we do. Guilt free driving could mean that EV drivers who are concerned about the environment feel a freedom to go on holiday more, and to drive more than they would in an ICE vehicle. Some also commented that the lower cost of travelling by EV meant they felt free to spend more money on accommodation. George, Nell, and Michael talked about using caravans or campervans less because lower fuel costs meant it made more sense to travel by EV and pay for a place to stay. These observations are interesting from the point of view of what we understand 'freedom' to be...but they also might signal a change in popular holiday patterns. We don't have a crystal ball, and as EVs become more widespread, we don't know how appealing these freedoms might be to New Zealanders, but if New Zealanders take more holidays, drive more, and change their accommodation preferences, we could see influences on things like:

- the holiday accommodation sector
 - the dispersal of holidaymakers around the country (think of some of the controversies around freedom camping and the wide use of campervans!)
 - the opportunities and challenges faced by communities that see increasing or decreasing visitation (and traffic)
-

Returning to our earlier quote:

...electric cars are not necessarily seen as inferior...providing they maintain the freedom and flexibility to which motorists are accustomed.³

It is clear that EVs are associated with different freedoms to ICE vehicles. It is possible that EVs might have to live up to the freedoms associated with ICEs to gain wide acceptance, but it is also possible that the freedoms we associate with holidaymaking might start to evolve (or indeed that both of these things could happen in some combination). It is early days in EV holidaymaking to start drawing firm conclusions, but this is something that tourism stakeholders may want to keep in mind as they plan for the future.

Slow travel

When we talk about changing holiday patterns, it's worth putting in a quick word about slow travel. A 'slow' movement has developed over the last few decades, incorporating calls for 'slow food', 'slow fashion', and even 'slow work'. The slow movement advocates for a slower pace of life for the benefit of improved mindfulness, deeper experiences, and reduced greenhouse gas emissions.

Some of the participants in this research told us that their holiday patterns really hadn't changed very much as a result of driving an EV. A more common response was that driving an EV slows the pace of holiday travel. People often told us they drive a little slower than the speed limit because it makes their charge go further, and if they're travelling long distances, recharging takes longer than refilling with petrol, so rhythms of holiday travel become slowed.

Several of the retired participants in the research noted that slower travel is fine for them. Samuel said:

On long trips I tend to drive slower. ... I tend to drive about 90kph to avoid running out of power. This is feasible because I am retired and seldom have any time constraints. [Samuel]

And Michael wrote:

Traveling Picton to ChCh in the ICE I tend to stop once for up to 10 mins at the cheapest fuel station on way to top up. With the EV I'm stopping about 3 times for around 20 mins each time. As I'm retired time is not as critical as it was when I was working. [Michael]

The older participants seemed to enjoy the freedom retirement gave them to take their time when they travel...but what is perhaps more interesting is that younger participants seemed to appreciate being *forced* to travel slower than they would if they weren't driving an EV. Lachlan and Hazel are both in their 20s:

I enjoy taking my time and charging stops mean getting to see parts of the country I'd otherwise just drive straight through. [Lachlan]

I enjoy charging on route as this engineers a reason to stop [to] explore a town/cafe/go for a brief walk. Rather than just getting home as quick as possible as you do in a petrol car. [Hazel]

Of course both Hazel and Lachlan *could* choose to stop rather than 'driving straight through' in a petrol car, but both say they don't. In their cases, driving an EV has perhaps encouraged them to reassess what they value in travel.

Why does slow travel matter?

We don't know if slow travel will become increasingly popular over time. It's possible that future generations may choose to slow down, be more mindful, and focus more on experiences. It's also possible, however, that going on holiday more, and driving more (especially as higher range EVs become more accessible) will be the dominant dynamic, it's also possible that the two dynamics may continue to coexist, much as different holiday preferences do now. The important point here is perhaps that social dynamics can and do change. Holidays haven't always looked the way they do now, and they are likely to continue to evolve, with changes leading to wide (but often gradual) implications for how we use our leisure time and for associated sectors, including the tourism industry. EVs might be one of a range of factors that influence how future holidays will look and feel.

Driving style

It is clear from participants that driving an EV *feels* different to driving a petrol car. Lots of participants talked about how much faster the acceleration of an EV is, how EVs are more stable and corner better, how quiet, smooth, and smell-free they are, and how much more enjoyable they are to drive than ICE vehicles. These features themselves might contribute to a sense of freedom and to enjoying holiday travel, and they are certainly amongst the reasons EV drivers give for not seeing their vehicles as inferior to combustion cars. Exchanges like the following were common:

Olive: [The car is a] very smooth ride, really enjoy how quiet it is too. It is very comfortable, corners well and can take off really quickly. ...

Researcher: Do EVs feel better or worse to drive than petrol or diesel vehicles?

Olive: Better, way better. [Olive]

Researcher: Do you enjoy the rare opportunities to drive a petrol or diesel vehicle?

John: Is this a serious question? NOOOOOOOOOOOOOOOOOOOOOOOOOO 😊 [John]

[Driving an ICE car is] much the same as driving the EV but I do notice the petrol/exhaust smell for a while. And of course the noise. Overall, no, I prefer the EV. [Elizabeth]

What a vehicle feels like to drive might have an influence on things like how much people enjoy holiday driving, how much of it they want to do, and how they feel when they arrive at their destination. What a vehicle feels like to drive might also have an influence on *how* someone drives it. Does the experience lend itself to pedal-to-the-metal thrills, to a zen-like state of oneness with the vehicle, to pottering through the countryside, or to something else?

Why does driving style matter (pt1)?

We were keen to explore whether people drive EVs differently to the way they drive ICE vehicles. Our interest was triggered by an emerging suggestion that EV drivers might be involved in more and different kinds of traffic accidents to drivers of petrol cars. It's possible that if EVs feel different to drive, and that consequently people drive them differently, that might result in a different accident profile for EV drivers. Whether EV drivers have more accidents, or fewer, or different kinds of accidents is worthy of strategic exploration.

The screenshot shows a webpage from CleanTechnica. At the top, there is a green navigation bar with the CleanTechnica logo and menu items: Clean Energy, EVs, Tesla News, Exclusives, and About. Below the navigation bar, the article title "High-Performance Electric Cars Have Higher Accident Rates, Finds AXA" is displayed in large, bold black text. Underneath the title is a sub-headline: "Electric cars may offer stunning performance, but all that extra power can get you in trouble in a hurry if you don't know how to handle it." The author information shows "By Steve Hanley Published August 26, 2019" with social media icons for Facebook, Twitter, LinkedIn, and Email, and a "63 Comments" link. The main text of the article begins with "AXA, a European insurance company, tells Reuters its claims data suggests high-performance electric cars are involved in 40% more accidents than their conventional cousins. Okay, let's hear it. 'Figures lie and liars figure.' 'There are three kinds of lies — lies, damned lies, and statistics.' There. Now that we have lambasted the statisticians, let's move on to the story, shall we?" On the right side of the article, there is a small box with the text "#1 most loved electric vehicle, solar energy, and battery news & analysis site in the world." and a "Support our work today!" link.

Source: Hanley, S. (2019, 26 August). High performance electric cars have higher accident rates, finds AXA. CleanTechnica. Available at: <https://cleantechnica.com/2019/08/26/high-performance-electric-cars-have-higher-accident-rates-finds-axa/>

Participants most commonly said that they drive more slowly and with more awareness when driving an EV than when driving a petrol car. They sometimes explained that going faster uses more battery power and so for cars with limited range, driving a little slower and a little more conservatively, especially on longer trips, is a more sensible option. Toby told us:

I tend to drive more smoothly and slowly when in the EV, I'm just generally more aware of how I am driving [Toby]

This seems inconsistent with the recent suggestion that EV drivers might be involved in more accidents, but it's not the whole story. While talking about generally driving slower, many of the participants noted that there are occasions when they absolutely take advantage of the capabilities of their EV. Hugo said:

I don't drive faster than before - I'm a safety nut. I do enjoy the acceleration though, especially when passing and sometimes to drive it like I stole it just because I can. [Hugo]

Although there are plenty of other examples, Cleatus gave us perhaps one of the more memorable:

So in general, I drive a bunch slower than I used to ride [Cleatus rode superbikes in his younger days], and generally am relatively staid, but on occasion the urge to bogan overrides better judgement. [Cleatus]

Many participants reported that they generally drive more slowly and carefully, BUT that there are exceptions, in which they take great joy. Beating other cars out of the lights is a source of particular joy to our EV drivers, and a number of them told us with great glee about being able to leave powerful cars behind or, to borrow Aiden's words, being able to:

...stamp the pedal and see how quick it gets to 100kph! [Aidan]

It is worth noting that all EVs were not created equal, and it clearly matters what kind of EV a person has (especially its range) to how they describe driving it, but participants' responses suggested some clear and systematic differences between driving an EV and a ICE car. The driving profile is more complicated than a simple characterisation of thrill, zen, or pottering...but participants did describe their driving style changing in an EV.

Why does driving style matter (pt2)?

A relevant question given our findings then, is what does usually driving more slowly and conservatively, but occasionally being unable to resist the urge of 'going full bogan', mean for accident rates and the holiday road toll? It's hard to know for sure, but it's probably fair to say that we are seeing driving patterns change amongst EV drivers. It's reasonable to suggest that, as EVs make up a larger part of our vehicle fleet, we could start to see long term changes in driver behaviour and in the norms associated with driving speeds and styles. As EVs with greater power and range become more widely available, we're likely to see those behaviours evolve further. It would be prudent for agencies tasked with reducing road casualty rates to be aware of these potential dynamics.

Conclusions

As we noted at the start of this report, we quite often hear claims that EVs aren't suitable for long distance holiday trips, but it's clear that growing numbers of EV owners are using their EVs in holiday travel. We wanted to explore some of the experiences that EV holiday drivers were having in an attempt to make sure that we don't miss important insights into the development of both EV driving and holidaymaking.

We've talked here about some of the limitations to EV holidaymaking, including vehicle range, charging, and the challenges of undertaking specialist holidays. We've spent more time, though, focusing on experiences of holidaying with an EV. We've talked about feelings of adventure and pioneering, and noted that these can include pride in facing risks, doing something unusual, being an early adopter of exciting technology, and experiencing a sense of camaraderie with others in a relatively small social group. We've talked about freedom, and particularly what freedom actually is, whether it might be different for different people, and whether EVs really need to live up to expectations of freedom that have developed around ICE vehicle travel over the last century. We've talked about slow travel and the merits in being able to (or being forced to) slow down and enjoy exploring en-route to a destination. And finally, we've talked about driving style, and whether driving an EV prompts people to drive differently, and what that means for accident rates and profiles and for the holiday road toll.

Perhaps most importantly, throughout this report, we've been touching repeatedly on the idea that the way we do holidays isn't fixed and uniform. Different people want different things from their holidays, different kinds of holidays go in and out of fashion, and societies and technologies change in ways that mean that the holidays of today sometimes look quite different to those of our ancestors, and no doubt those of our descendants. Through looking at new dynamics as they emerge, we can sometimes anticipate larger changes and prepare for them. Ultimately, if we want to manage faster and more effective transitions to sustainable travel, then it's a good idea to keep an eye on how EV holidays are developing.

Some of the other findings from this research relate to...

- The gendering of EV uptake. (Internationally, EV uptake is heavily male dominated; participants said that isn't the case in New Zealand and often mocked the possible reasons for gender differences described in overseas research. They did also, however, talk about a number of gendered dynamics in New Zealand including in car sales yards and in household driving practices).
- What it's actually like to be close to the limit of your car's range. (Some people report driving with the heating and radio turned off, wearing extra pairs of thick socks to keep their feet warm, driving at the speed that gives maximum efficiency, eyes flicking between the range display and the rear-view mirror, desperate to eke out the charge, but to also not hold other motorists up).
- The joys of driving in a smooth, quiet, fast EV. (These can include being able to hear the birds, or chat with older relatives who usually can't hear conversations over car engine noise).

If you want to talk to us about any of these topics, please just give us a call or drop us an email.

There is much more from this research that we could talk about. Here though, we've tried to summarise just a few of the things that we think make EV holidaying worth researching. We hope you've found our report interesting (we enjoyed writing it!) and we'll finish by reiterating that if you want more, just get in touch! We're always very happy to talk about the research we love.

For more information

For more information on this research please contact Helen Fitt at helen.fitt@lincoln.ac.nz or on (+64) 03 423 0482.

Further reading

If you want to read one of our more academic outputs on this topic, you could start with Helen's published review of international literature about EVs in tourism.

Fitt, H. (2021). Boring and inadequate? A literature review considering the use of electric vehicles in drive tourism. *Current Issues in Tourism*, 1-27.
doi:10.1080/13683500.2021.1937074

(If you can't access it without paying a fee, just email us for access to a free publisher's e-print link).
