

Special Report to claim 100% available funding from Milestone 6

Milestone description	Trial and evaluation of the imported 2018 model electric campervan: <ul style="list-style-type: none"> • Van user trials • User and technical evaluations • Insights into mix of users • Revision of itineraries and promotional material • Learnings for parallel new van design • Business systems processes for campervan operation initiated
Deliverable	A report that contains, as a minimum, the following contents: <ul style="list-style-type: none"> • Descriptions of user campervan trials undertaken • Summary of results of user and technical evaluations • Learnings to be applied to the parallel conversion of the electric van chassis • Any changes to promotional material and itineraries implemented, and • Any other information that you believe EECA should be aware of.
Funding Claim	Progress of Funding: \$0 out of \$20,000. Claiming \$20k this period. As per discussion 5Oct, funding to be release upon receipt of this report.

Tasks delivered

Description of user campervan trials undertaken	<ul style="list-style-type: none"> • On-going user trials are in place with <i>thl</i> crew booking the Nissan eNV200 van to gather an understanding of the electric experience in charging and travel by trialing our electric itineraries around the North Island Coastal Loop. • Robust testing was undertaken in September to fully iterate improvements to the website, itineraries and gather learnings for next motorhome build
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Summary of results of user and technical evaluations	<ul style="list-style-type: none"> • Many lines of testing have either been completed and/or are underway: <ul style="list-style-type: none"> ○ crew testing of the Nissan eNV200 to gather insights to the electric experience ○ high-level user testing of the eLDV for usability and customer experience in driving the electric motorhome prototype to iterate learnings for the final build ○ thorough testing of the electric itineraries represented on www.BritzEV.com ○ booking process testing ahead of rental bookings opening up at the end of the month, and ○ preparation for robust vehicle performance testing ahead of final build.
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• See evidence as follows: insights to the electric experience – with ongoing crew testing of the electric experience with outputs, themes, learning captured as per example following

Booking	Crew Member	Range	Charging	Vehicle	Itinerary	Planning
15-18Aug	Tom Norman	Range was fine around coromandel but then when we charged at thames and had to return to auckland we knew we couldn't make it and just made it to a charge point in pukekohe with 4% and the km gauge flashing!	Our biggest issue was getting from auckland to Thames (the first quick charge) we arrived with 6% battery after leaving with 100%. It was such a nervous drive that it made us nervous for the rest of our trip! We had a great time once we got to coromandel (in tiny!) The charging points around coromandel work great and everyone at the holiday parks were super helpful and excited about tiny's journey!	Some of the best things about tiny was the super easy set up and comfort of the sleeping area, the ease of being able to park in pretty much any place instead of being restricted to van spaces. It was a great drive overall and space saving areas were great. However a couple of things we struggled with: -not being able to use the heaters/aircon due to the massive reduction of range and power (even when we needed to de-mist the windscreen so we could see, we opted for manual wiping rather than heaters) -no fan/air vent to help reduce condensation overnight -the features like heated seats and steering wheels seem completely unnecessary. I would imagine they are super heavy as well which doesn't help the range! We love the idea and ease of tiny but think it would do so much better with some less weight and it would definitely need a better range! If left the same at the moment I think it might mean very stressed customers/negative feedback due to people being too worried or getting stuck and having to call out recovery	-Departing Auckland with full charge (130km of range) -stopped in Takanini with about 70km of range left so fast charged to 80% (100km range) -After a nervous drive to Theams with 5% charge left another fast charge back up to 80% and set off to the campsite at Shelly Beach -Arriving at shelly beach campsite with with about 30% of charge (25km range) left -plugged in to the campsite for a full charge overnight -The following day we set off full of charge to Whangapoua and then made it to Whitianga with a much welcomed 50% left -A quick fast charge back up to 80% then on to Hot water beach, later arriving at the campsite with plenty of charge but plugged in for a full charge overnight -Next day left for Whangamata arriving with 45% charge and fast charge back up to 80% -then setting off to Waihi arriving with 60% and with another fast charge went to Karengahake Gorge and then back to Waihi campsite and a full charge overnight -Final day we left Waihi for Theams -Arriving with about 30 -40km of range left and then fast charged and then leaving with 103km of range -Leaving Theams for Pukekohe which was nervous as hell due to us being afraid to exceed 75kmh on a busy highway -after crawling into Pukekohe with 4% charge we managed to fast charge which we managed to get back to Mangers branch with 30% charge left	Thanks for the opportunity a great experience! I would see how tiny could work north island trip! Maybe some more charge points help!

• See evidence as follows: insights to usability and customer experience in driving the electric motorhome prototype achieved with the testing of the LDV. This provided excellent insights

for the customer experience, helped us to test the act of charging specific to this vehicle, and allows us to analyse what cable requirement will be best for the motorhome configuration

eLDV test drive feedback

Rebecca Agent
 Malcolm Horne, Michael Short, Matthew Harvey, Grant Brady, Jo Allison
 Wednesday, 12 September 2018 at 3:02 PM

You forwarded this message on 2/10/18, 1:17 PM.

Hi all, I took the eLDV for a test drive last week and have some feedback.

I'm hopeful this will be useful as you bring the prototype up to completion. On this, please note the timelines are now ASAP as we need to get this vehicle out on the road testing itineraries so we can uplift learnings from the actual vehicle up into our website & customer materials and arrange photos for these materials too.

Additionally Jo has asked for the vehicle spec/final interior design to be agreed at one of the next governance sessions FDIG or otherwise (Matt to comment?).

Cab / driving

- Dash is in miles, makes seeing speed KMs (is smaller) very difficult to see
- Wing mirrors are a too short
- Reversing is difficult with a big blind spot directly behind the vehicle, will there be a reversing camera to link up to the ITV?
- Average stereo
- Quite slow on take off
- Really simple functions, nothing luxury inside the cab
- There are holes in the floor of the cab (photo attached)
- Left hand blinker is flashing faster (possible bulb out)
- House noise is slight (with no equip. in the vehicle) however things slide around easily i.e. loose cushions

House


- Handle maybe useful on the outside of the door to help step into the vehicle
- Noteworthy is that there is very limited storage options for travellers

Charging (provided feedback separately, attached for reference)

- Really difficult at Z/ChargeNet chargers!!! Had to ask someone to move so I come in on the right angle, took a few attempts

Customer behaviour to be mindful of

- Customers will DC charge to over 80% where it is possible to do so. This may have a negative impact on the battery in the longer term. This behaviour will come from an interest to try and get more kms out of the vehicle, even though charging this way may have the reverse affect.
- The learning curve when it comes to effective charging and driving for a customer is pretty steep. There will only be so much gained from reading our useful tips online, more experience will be gained on the road.



- See evidence as follows: thorough testing of the electric itineraries was completed in September with Rebecca traveling both the North and South Island routes represented on www.BritzEV.com providing extensive edits to the information represented (see "Any changes to promotional material and itineraries implemented below") and gave thl an opportunity to meet with holiday park owners face to face to walk through the project and review locations for charging installations

RE: Updated License Agreement WAITOMO

Waltomo Top 10 <waitom1@waitomopark.co.nz>
 Rebecca Agent
 Monday, 17 September 2018 at 12:55 PM

Hi Rebecca,

It was great to have you. Hope you've got to try out your surfboard since you left. I've attached one photo and also invited you into a dropbox folder which has a couple of photos also.

Cheers bruce

Bruce Tobeck Park Owner
 Waltomo TOP 10 Holiday Park
 12 Waitomo Village Road, Waitomo, District 3943, New Zealand
 P: +64 7 878 7839 M: +64 21 498 665
waitomopark.co.nz

Re: Waitaki/Glenavy Motorcamp - Anne

Anne Lomas <motorcamp@lomas.co.nz>
 Rebecca Agent
 Thursday, 4 October 2018 at 2:38 PM

You forwarded this message on 5/10/18, 3:41 PM.

Hi Rebecca,

Yes it was lovely meeting you to and thanks for all your info. Well done you for kicking those men's butts into action. Looks like we are finally making progress. We have the council in next week to extend a water line in the camp so they are going to dig our power trench and we can at least get the cable laid off to a good start. We have let Fergus no what option that we can go with, so now just waiting for them to supply really. Looks forward to seeing you when you are down here next.

Thanks Rebecca.
 Kind regards
 Anne

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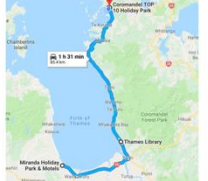

From: Rebecca Agent <Rebecca.Agent@THLONLINE.com>
Sent: Friday, 14 September 2018 9:37 a.m.
To: Waltomo Top 10 <waitom1@waitomopark.co.nz>
Cc: Emma Church <church_emma@hotmail.com>
Subject: Re: Updated License Agreement WAITOMO

Hi Bruce, it was great to meet you last week! Thanks for taking great care of me in Waitomo. I really enjoyed my stay and you've created a really beautiful holiday park!

I hope our chat through the charging was helpful! Please do let me know if you have any further questions? I'm happy to help in anyway I can.

This is also a reminder to send through some updated images of your holiday park so I can send them over to our web designer Emma (cc'd). High res images, ideally 2MB or over would be best. Also note, I've just updated the 'campground' menu link to be 'holiday parks' on our website www.thl.co.nz

Hi Anne,

Coastal Loop	COROMANDEL - RAGLAN NORTH ISLAND	Where	North Island Holiday Parks	Distance travelled	Website notes
NEW	766 km - 12 hrs - 9 Days A 7-9 day road trip	Miranda	Miranda Holiday Park		add to website, could be first stop for extra night away
DAY 1	104km - 1 hr 25 mins	Coromandel Town	Coromandel TOP 10 Holiday Park		
AUCKLAND - COROMANDEL TOWN VIA THAMES					

- See evidence as follows: Further testing is scheduled to test booking process testing ahead of rental bookings opening up at the end of the month, with preparation underway for robust vehicle performance testing ahead of final build, example list of test requirements generated from final reporting outputs expected

EV reporting



Ashley Perry

Rebecca Agent; Matthew Harvey; Jason Kendall; Saskia Verrees; Nicky Bree

Monday, 8 October 2018 at 2:07 PM

Show Details

You replied to this message on 9/10/18, 1:19 PM.

Show Reply

Hi all,

As discussed, the initial EV reporting will include the following.

- Distance per trip
- Distance per rental
- Battery level when recharging
- Driver behaviour impact on battery level
- Range of vehicle including, min, median and max
- Engine load impact on battery level and depletion rate
- Routes driven
 - Overlay charge stations for geospatial reports
 - Backend analytics against charge stations
- Charge type (AC or DC)
- Time to recharge
- Day charge vs night charge
- Temperature impact on battery level and depletion rate
- Incline of vehicle and impact on battery depletion rate

This requires the following 'customisations' to the telematics data, above the basic data a telematics device would normally retrieve:

- Dash odometer
- DTC's
- Temperature
- Charge status (charging or not)
- Charge type
- Battery level
- Incline- if not available from the device, it can be calculated on the backend with basic accelerometer data

Learnings to be applied to the parallel conversion of the electric van chassis

- A recent full itinerary and electric vehicle test of the North and South Island provided many essential insights to customer experience particularly around the act of charging. Learning such as a.) are the itineraries practical and representing fair and true information, b.) are the itinerary distances between destinations do-able, c.) are the charging facilities going to be practical for use with the eLDV, d.)
- See evidence as follows: see below itinerary edits specifically for **distance traveled**. The learning from test was that the kms traveled on this particular day may not be practical between Waihi – Matamata – Cambridge with the outlined stop off at Hobbiton. On enquiry of an assumed trickle charging point at Hobbiton, it was uncovered: “Thank you for your message. Unfortunately, we do not have charging stations on site. I’d recommend having a full charge when starting your day”. Subsequently this stop has been removed & investigations continue if this routing can be achieved upon next phase testing the eLDV prototype in the next month

Day Charging (this is not consistent with day 4 i.e. does not have town name for fast charge? Choose one way..

80% + include address in your trip for fast charger

I would also include Waihi town as another fast charger as another day charge top up option especially if people have been exploring on route

Overnight Charging

Medium Charge Holiday Park!

I am investigating this with ED, validating comment from Hobbiton to find out how/who is would have spoken with to agree to medium charging? (currently an EV would not make it from Waihi - Matamata - Cambridge. Alternatively they could charge in Cambridge then head to Hobbiton as a return trip "Thank you for your message. Unfortunately we do not have charging stations on site. I'd recommend having a full charge when starting your day."

Add an optional overnight add on section : Cambridge Holiday Park (+ figure out how to represent this on the map?)

Add this image (emailed to you) for Marokopa Falls & credit Bennett Slater



TRIP HIGHLIGHTS

Please add the Marokopa Falls and bring up Ruakuri Bushwalk from the more to explore. You could push down Huhu café & Waikare falls to 'more to explore' to give space

DEPART WAIHI FOR CAMBRIDGE

Head to Waikato via Matamata and Cambridge via SH2. Matamata is a town in the shadow of the Kaimai Range Mountains, on New Zealand's North Island. Southwest of town, the Hobbiton Movie Set was created for Peter Jackson's 'Lord of the Rings' and 'Hobbit' films. To the northeast, a trail leads to Warrens Falls, with views over the Waikato Plains. The Farm Tower Museum has heritage buildings, including a school and a jail, that chronicle the region's settler history.

CAMBRIDGE TO WAITOMO

Waikato is a village on the North Island of New Zealand. It's known for its extensive underground cave systems. Thousands of glow worms light up the Waitomo Glowworm Caves.

The vast Ruakuri Cave features waterfalls and limestone formations. West, Mangapohue Natural Bridge is a high limestone arch over Mangapohue Stream. Northeast of the village, Okorohanga Kiwi House shelters several species of the rare native kiwi bird.

OVERNIGHT IN CAMBRIDGE

Itinerary: Waihi Beach - Cambridge, 107km 1hr 32min
 Charge: Charge to 100% overnight at campground
 Holiday Park: Cambridge Top 10 Holiday Park.
 Visit:
 Eat at:

HOLIDAY PARK

• Waikato Top 10 Holiday Park

DAY CHARGING

WAIHI TOWN: Fast charge at ChargeNet charger.
 Recommended Charge: Charge to 80%.
 35 Kenny St

CAMBRIDGE: Fast charge at ChargeNet charger.
 Recommended Charge: Charge to 80%.
 73 Queen Street

OVERNIGHT CHARGING

HOLIDAY PARK: Medium charge at site overnight & between day trips.
 Recommended Charge: Charge to 100% overnight



- See evidence as follows: Example testing of the act of charging at with DC fast chargers and anticipated AC charging at holiday parks. Learnings & feedback has been provided to manufacturing regarding charging port placement on the vehicle and cable requirements for the vehicle. Successful outcomes are a move of the location of the DC charging port, along with the refinement of the cabling types that the manufacturer will supply with the vehicle.

RE: AC Kit for Ev80 - Arriving in Taupo tomorrow.



Grant Brady

Rebecca Agent; Malcolm Horne; Michael Short; Jo Allison

Tuesday, 11 September 2018 at 9:54 AM

Show Details

You replied to this message on 12/09/18, 2:52 PM.

Hi Rebecca, Its on our list, and we have a few ideas about the moving of the plug, so fingers crossed we can get it sorted.

Cheers

From: Rebecca Agent

Sent: Monday, 10 September 2018 7:11 PM

To: Grant Brady <grant.brady@actionmanufacturing.co.nz>; Malcolm Horne <Malcolm.Horne@actionmanufacturing.co.nz>; Michael Short <michael.short@actionmanufacturing.co.nz>

Cc: Jo Allison <jo.allison@THLONLINE.com>

Subject: Re: AC Kit for Ev80 - Arriving in Taupo tomorrow.

Hi gentlemen & Jo cc'd (for this reply I've removed Warren and his colleague),

Having the AC charger arrive in country is a great milestone for us in working towards having the prototype roadworthy! However, I'm sure as you'd expect I am concerned about where the charging port is located on the side of the vehicle...

To give some weight to this, I took Tiny's Big Brother out for a test drive from Mangere last week and decided to test this charging port location issue...

I've attached photos of the test. The final spot, taking over three parallel spaces, took me 4 attempts to get on the angle need to charge + politely asking an annoyed Uber driver to move so I could reach the charger. My main concern, other than a horrible customer experience, is that Britz will plastered all over the vehicle so this may have a negative impact on the Britz reputation with the vehicle and these customers 'hogging' all the spots/jumping the curb to get a charge.

I sent this through to Warren and got a reply " *laughing emoji* the joys of early adaptation! Ac inventor will help, you'll be able to have chargers at the depot".

Unfortunately it isn't that simple, and having chargers in the campgrounds** will not solve this 'day charge' issue. This is highlighted even more being on the road testing our electric itineraries where I have needed to use every single faster charger on the route so far - finding all of these to be problematic (photos attached of Thames & Tirua as examples).

**Please note, having the DC charger located in the front of the vehicle solves the day charging, but if the AC is also located in the front then this raises another issue in the campground due to the standard placement of the power source at the back of a site. For example I've found my charging cable in Tiny to not be long enough to provide the ability to park privately (AC/DC plugs are in the front) i.e. usually I want to reverse in but my charging cable won't run the length of the car. I think this could be solved with a long cable so we can pick this up with Warren at LDV & Nigel at ChargeMaster. I've attached Coromandel Town & Hot Water beach as examples.

Note, I have provided feedback to ChargeNet about cable length but it was said that the cable length of a DC fast charger is a H&S issue i.e. longer cables lengths would lie on the ground

I hope this helps your thinking with placement of the charger port? I'm keen to hear your thinking on how we can work around or solve this ...?

Warmest, Rebecca



ChargeNet DC charging learnings



Coromandel Town Holiday Park Learnings



9(2)(a)

Hot water Beach Top 10 learnings

9(2)(a)



Any changes to promotional material and itineraries implemented

- Extensive updates to the www.BritzEV.com website (itineraries, vehicle info, bookings processes) have occurred as a result of vehicle trials and itinerary testing. Everything from overall look and feel, branding, voice, usability, mapping and content has been uplifted and updated
- See evidence as follows: see below example edits of Day 1 of the North Island Itinerary, along with updates to the general 'The EV; page that follow



Book your EV. Check out our EV itineraries and plan your chosen loop in the North of South Island for pick up/drop off in either Auckland or Queenstown. Enquire/book here [\(hyperlink to enquiry page\)](#) or free call us any time 0800 082 004.

Book the Holiday Parks: We have partnered with some of New Zealand's best holiday parks who now offer EV friendly sites. This means you will be able to charge your vehicle and power the house simultaneously during your stay. Download your on the road tools: (insert the 'copy' about [ChargeMaster App](#).) + include a sentence about downloading [ChargeMaster](#) and [ChargeMaster](#) (I'll supply copy as a second step) We are here to help: email [\(hyperlink\)](#) or call our EV specialist crew anytime on 0800 082 004 to work through your trip planning and booking decisions. We are here to help you create an amazing experience in our new 100% electric campers!

HOW IT WORKS

Insert (placeholder) for interior vehicle imagery i.e. it's going to look something like the below once our marketing team have finished some Qs with manufacturing...



PLANNING AHEAD
 Book the ChargeMaster App on your phone. This is the most up-to-date ChargeMaster app available for download from the App Store or Google Play. You can also download the ChargeMaster app from the ChargeMaster website. **ChargeMaster** is the only app that can be used to book a charging station in advance. **ChargeMaster** is available on the App Store and Google Play. **ChargeMaster** is available on the App Store and Google Play. **ChargeMaster** is available on the App Store and Google Play.

ON THE ROAD
 You currently have three charging stations in your itinerary, you will continue to add more as you travel.

PLANNING YOUR CHARGING
 We need to talk about: 1) VTI, 2) Saveroute, Google maps, 3) ChargeMaster (please add a placeholder paragraph and I will fill in) **These are the 50KW DC charging stations you may have seen around town. They plug into the DC charging socket in the front grill of the vehicle, which uses the CCS Type 2 plug.**



THE ACT OF DRIVING

Range - 120km
 This is the maximum range you can expect from a fully charged battery. Range is affected by driving style, terrain, temperature, and vehicle load. **ChargeMaster** will provide you with real-time range information.

Heading your Battery Health
 These are the things you can do to keep your battery healthy. To keep your battery healthy, you should avoid driving at high speeds, avoid driving on rough terrain, and avoid driving in extreme temperatures. **ChargeMaster** will provide you with real-time battery health information.

HEADING YOUR BATTERY HEALTH
 - AC will have about a 10% effect on your battery health.
 - Don't speed around when in urban areas. **ChargeMaster** will provide you with real-time battery health information.

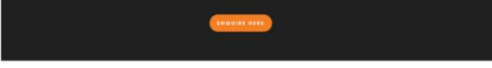
HEADING YOUR BATTERY HEALTH
 - AC will have about a 10% effect on your battery health.
 - Don't speed around when in urban areas. **ChargeMaster** will provide you with real-time battery health information.

Along with other factors within your control are things such as use of the radio, fan for heating & defrosting, and external factors out of your control such as hill climbing and headwinds that need to be accounted for

Although we highly recommend it, electric

If you do find yourself in a situation of low charge the vehicle will enter Turtle Mode! Turtle mode forces the vehicle into a slower speed. The EV will not go over 50km per hour for approx. xx (need to find out distance) for an EV and is the maximum speed of a motorhome in NZ.

Feel free to take the parts you like, and/or create your own journey. Either way we are considering you a part of our EV curious crew and would love feedback on how you went!



THE VEHICLE
 INTRODUCING THE FIRST BRITZ ELECTRIC VEHICLE!
 Designed to be fully sustainable, the Britz EV provides a low emission driver experience that enables you to experience New Zealand in an eco-friendly way.



EV CAMPERVAN SLEEPS
 2 Adults

THE VEHICLE
 The smooth and super-quiet e-LV chassis is a dream to drive and sleeps two people comfortably. Combined with the shower, toilet and cooking facilities, this custom-built vehicle allows you to enjoy all the benefits of a complete holiday without leaving a carbon footprint. Now, that's a WIN-WIN!

ENQUIRE NOW

VEHICLE SPECIFICATIONS

- Cooking & Entertainment**
- Fridge/Freezer 85L (12V)
 - Microwave operates when connected to mains (240V)
 - Hot & Cold pressurized water, hot water operates when connected to mains (240V) with cold (12V)
 - Electric Stove operates when connected to mains (240V)
 - Cookery cutlery & cooking utensils, pots & pans
- Sleeping & Bathroom Facilities**
- Sleeps 2 adults, double bed 2.10m x 1.45m
 - Pillow & Pillowcases, duvet & sheets, towels, bathmat, blanket
 - Toilet, shower
- The Vehicle, safety Features & Inclusions**
- 12V EV 80 Electric, 2018 model Automatic transmission
 - Length 5.80m, Width 2.20m, Height 2.80m, Interior Height 2.10m
 - 2 seatbelts in the driver's cab, 2 seatbelts in the main cab
 - External storage locker
 - Steak rack for 2 bikes
- The Britz Electric Vehicle is fitted with an in-vehicle tablet packed with features to make sure you don't miss anything along the way.**
- In-built GPS (including offline navigation)
 - Bluetooth for your phone and music
 - WiFi (speed connection)
 - Radio
 - Large LCD display
 - Comprehensive with functional and helpful vehicle information such as tyre pressure, open doors, fuel warnings
 - Campermate which suggests activities and experiences near you, bookable directly from the device and locates useful things like campgrounds, petrol stations, EV charge points.

All vehicles feature automatic transmission and have air conditioning and heating in the driver's cabin. The footprints and specifications are indicative of the vehicle that will be supplied. Actual vehicles may vary according to year of manufacture and availability but your vehicle will be suitable for the required number of people and have similar specifications to those listed. Specifications may change without notice and cannot be guaranteed. Solar power panels are used as backup and assist the 12v battery power supply only. Items requiring 240v mains power will not operate from solar power. Child and booster seats cannot be fitted in this vehicle.

We hope this satisfies requirements against EECA 03-149 agreement.