Business Case Proposal for the Use of Public EV Infrastructure Funds in North and West Scotland

Table of Contents

Executive Summary

The EV Infrastructure Fund aims to leverage in private sector funding to enable delivery of infrastructure at the pace and scale required to meet demand.

The purpose of this business case is to understand the regional context for this fund and identify outputs and outcomes that can feasibly be delivered regionally against EVIF objectives and the policies that support it, both within the funding timeframe and beyond, to optimise funding value.

Project Area Background Summary

The project Partnership region comprises four local authority areas, three Island Authorities– the Western Isles, Orkney Islands and Shetland Islands - and Argyll and Bute, with 28 inhabited islands, extensive peninsulas and dispersed town settlements.

This table shows the relative areas, populations and visitor numbers of the project area (excluding cruise ship visitors), with the Western Isles having the most dispersed population on average, supporting the highest multiple of visitors alongside Orkney.

	Western Isles	Orkney Islands	Shetland Islands	Argyll & Bute
Total Population*	26,020	22,020	23,190	87,690
Total Area (km sq)**	3,056	990	1,467	6,907
Population Density	9	22	16	13
Visitors per year***	219,000	173,000	89,000	490,000
Visitors as a multiple of total population	8	8	4	6

*https://www.nrscotland.gov.uk/publications/mid-2024-population-estimates/
**https://en.wikipedia.org/wiki/Subdivisions_of_Scotland
***https://www.visitscotland.org/research-insights/regions (2024 data) exluding cruise liners

Most residents in the project area work in health, retail, agriculture, forestry and fishing, supporting residents, tourism and export, requiring strong transport links with other parts of Scotland.

The business case goes into detail about the local energy systems in the region to give critical context:

- Fuel poverty ranges across the region but is significantly higher than national averages

Local authority	Fuel Poverty rate	Extreme Fuel Poverty rate
Argyll and Bute	32%	19%
Na h-Eileanan Siar	40%	24%
Orkney Islands	31%	22%
Shetland Islands	31%	22%
Scotland	24%	12%

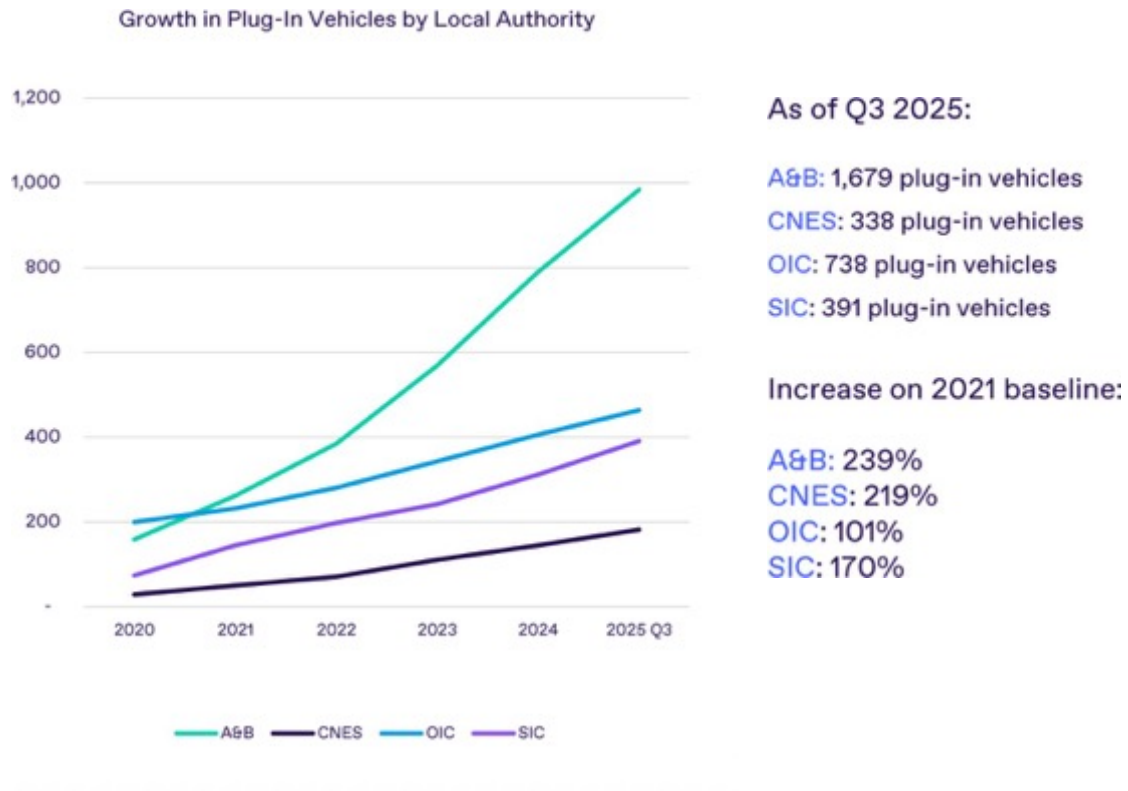
https://www.gov.scot/publications/heat-buildings-strategy-island-communities-impact-assessment/pages/4/

- Electricity tariffs are not guaranteed as 100% renewable, so there is scope to make this greener

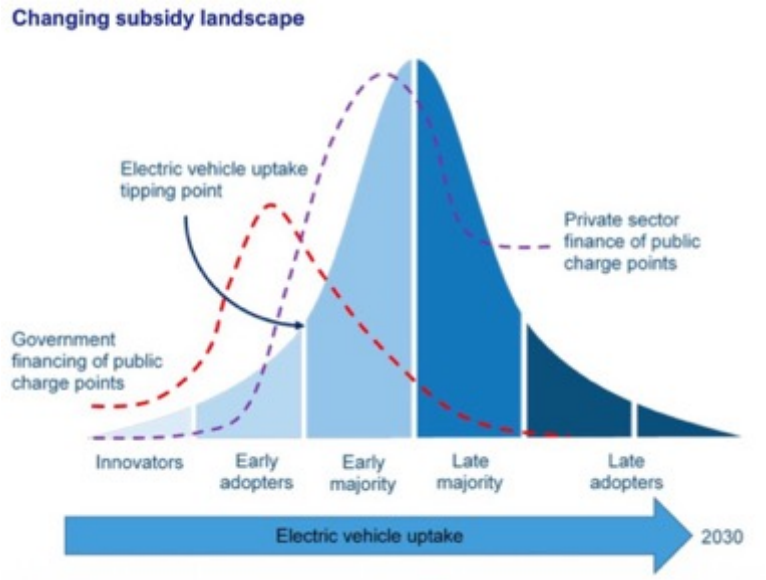
- The Partnership region is producing energy for national transition but struggles to benefit from local generation and still utilises diesel back up in places. It is a very constrained part of the system and EV infrastructure is adding demand
- From a Council perspective, heat transition is the priority over transport, but holistic energy transition is required
- Renewable energy generation is a growing regional natural asset with economic value
- Residents are eager to be able to take action and respond to price or production fluctuations to modify demand

Baseline Summary – uptake, provision, utilisation and tariffs.

This graph and table show the growth in the number of Plug-in Vehicles (PiVs) across the Partnership region over the last 5 years, with Argyll and Bute showing a steeper rise in the last 3 years. Battery Electric Vehicles (BEVs) make up 66% of the total plug-in-vehicles, with most of the remainder being plug-in hybrid (petrol) vehicles.



From these figures, EV growth forecasts do not predict majority uptake for the Partnership region during EVIF. Compared to the national uptake curves, the EV uptake tipping point – where the private sector is predicted to finance public charge points – is not forecast to start until 2029 in the Partnership area.



The number of current EV devices provided in each Council area by the Council and by the private sector are listed below and mapped in the main document

Council area	Chargers by Type (Units):	Current EVSE			Public/private split	
		Current Council owned	Private owned public charging from ZapMap 03.04.26**	Total EVSE	Council proporation of public charging	Private proportion of public charging
ABC	Fast Charging (7 -22kW)	13	34	47	28%	72%
	Rapid -charging (50kW+)	**24**	**11**	**35**	**69%**	**31%**
CNES	Fast Charging (7 -22kW)	16	17	33	48%	52%
	Rapid -charging (50kW+)	**13**	**4**	**17**	**76%**	**24%**
OIC	Fast Charging (7 -22kW)	20	8	28	71%	29%
	Rapid -charging (50kW+)	**10**	**0**	**10**	**100%**	**0%**
SIC	Fast Charging (7 -22kW)	21	6	27	78%	22%
	Rapid -charging (50kW+)	**7**	**1**	**8**	**88%**	**13%**

**these are largely accomodation and destiantion chargers, including some ferry ports, schools, health bases and supermarktets

The proportion of public infrastructure owned by the Island Authorities varies, with less investment shown in the Island Authorities compared to Argyll and Bute.

Recent utilisation averages are shown below. The figures highlighted pink are below the range expected by Scottish Futures Trust (SFT) from external analysis.

Utilisation in kWh per unit

Average of latest 12-months	AC	Within SFT AC range* 5,620 - 26,977	Difference in numbers	Percentage of lowest SFT value	DC	Within SFT DC range* 18,110 - 54,329	Difference in numbers	Percentage of lowest SFT value
ABC	4,592	FALSE	-1,028	82%	23,842	TRUE	5,732	132%
CNES	1,349	FALSE	-4271	24%	11,215	FALSE	-6895	62%
OIC	2,539	FALSE	-3081	45%	6,651	FALSE	-11458	36%
SIC	3,570	FALSE	-2050	64%	13,533	FALSE	-4577	75%

*expected from external analysis

When utilisation is split further across island and mainland chargers for Argyll and Bute though, utilisation for those islands shows a similar trend to the Island Authorities, Shetland in particular.

Average of kWh Drawn - 2025		
Row Labels	AC	DC
Island	3,869.3	14,407.4
Mainland	4,723.9	28,558.5
Grand Total	4,592.4	23,841.5

However, Argyll and Bute's DC utilisation supports the lower utilisation on their AC and island chargers, so utilisation is sustainable across the network portfolio.

Current tariffs are summarised in the table below (excluding transaction costs for the back office because the contract was not yet in place that required their inclusion in tariff reviews).

Benchmarking of existing tariffs against commercial market average

	ZapMap average commercial rate, March 2026	ABC		CNES		OIC		SIC	
AC	0.54	0.74	0.20	0.45	-0.09	0.49	-0.05	0.52	-0.02
DC	0.76	0.74	-0.02	0.59	-0.17	0.59	-0.17	0.62	-0.14

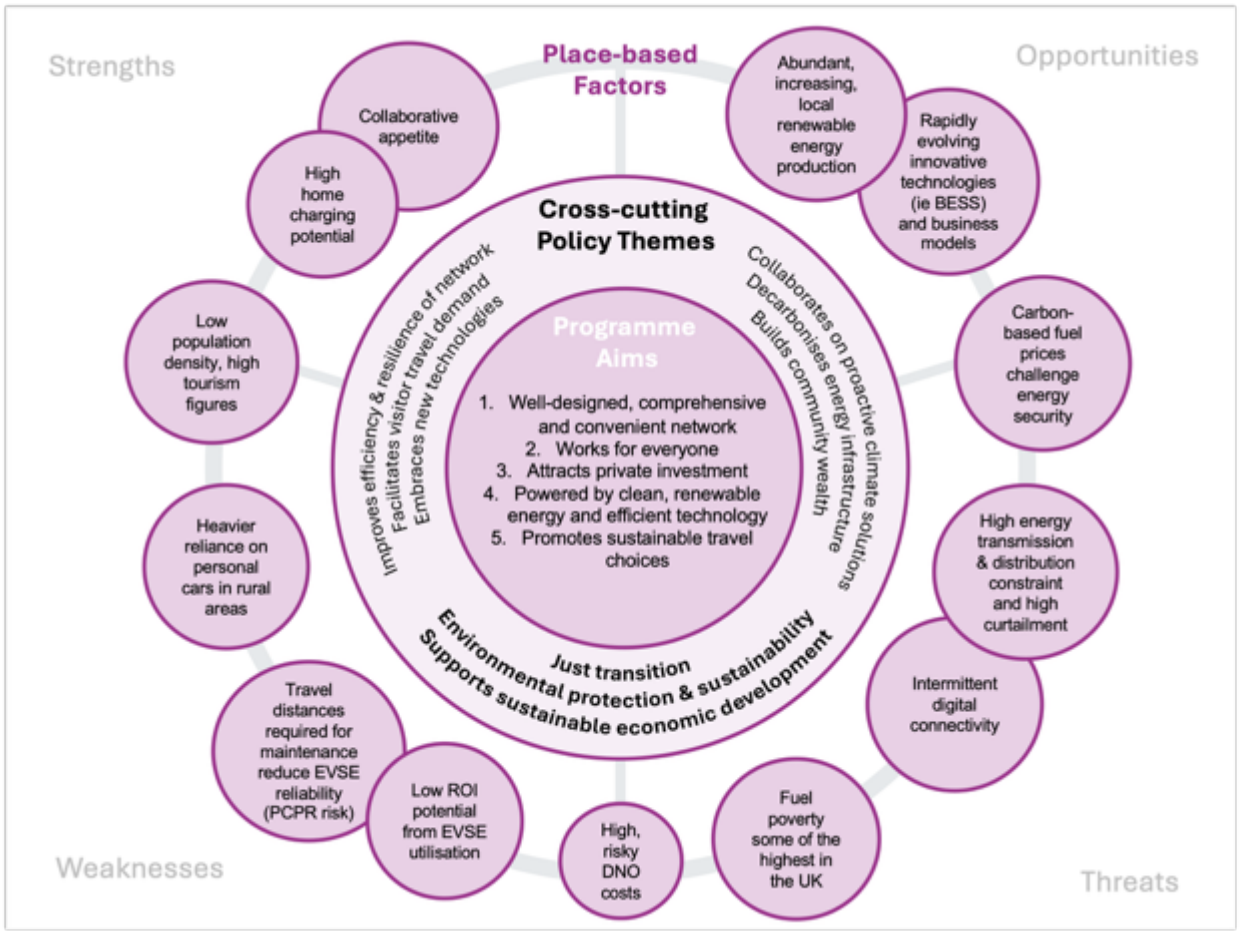
ZapMap's March 2026 Price Index states an average market rate tariff of 54p per kWh for AC charging and 76p per kWh for DC charging. Argyll and Bute are near this benchmark, whilst the Island Authorities have a little way to go in the short term.

Argyll and Bute's tariff is comparable to private market rates and is breaking even after covering all costs in 2024, with a small profit starting to build for investment.

Island Authority tariffs are subsidised as they did not cover all operational, maintenance or replacements costs in 2024. Tariff increases during EVIF so far have reduced subsidy considerably; Shetland was still offering free charging at the start of EVIF. Low or no tariffs were identified as a known barrier to private investment by the fund, because CPOs couldn't compete with free charging.

Strategic Case

This summary diagram shows the policies determining the development of the Partnership's business case, and the place-based strengths, weaknesses, opportunities and threats that equally shape its direction.



Vision

To develop a commercially investible EV charging network that secures affordable clean energy so that it is financially and environmentally sustainable.

Network growth will deliver an effective charging network that works well for locals, businesses and visitors alike and is based on lifestyle charging, where the solution fits with current behavioural patterns and facilitates sustainable travel choices where possible.

Short term objectives for 2026:

- Complete Phase One
- Submit this business case recommendation to Council committees
- Coordinate & sign-off the agreement of the inter-council legal agreement for Phase Two
- Agree network design parameters and subsequently design the networks in detail
- Prepare procurement to expand and deliver the infrastructure proposed in this business case

Medium-term objectives from 2027-2030:

- Procure and deliver infrastructure towards the demand forecast in this business case
- Monitor the performance and scope of the network for commercial viability
- Test the market for commercial interest in the region
- Promote customer knowledge and behaviour change in support of objectives

- Engage with fleet owners to understand and facilitate sharing public chargers for mutual financial sustainability
- Resource the day-to-day operation of the regional network
- Feedback to Transport Scotland on specific challenges encountered that would benefit from funded exploration, particularly for annual funding if muti-year funding is not available

Long-term objectives (beyond EVIF, long term operation):
Optimise regional opportunity by collaboratively exploring how EV charging can
1. best integrate into and compliment the regional energy systems as they decarbonise and
2. utilise and support local power to the benefit of local people

Collaborate with regional stakeholders on an integrated plan for large vehicle decarbonisation

Economic Case

This table shows the number of chargers required according to the forecast energy demand. The manual adjustments show how that requirement lowers if utilisation is increased to target ranges rather than installing additional infrastructure, making more use of available capacity. Funding will not cover this number of installations within EVIF but can be worked towards.

Chargers by Type (Units)	Average utilisation of latest 12 months, kWh	Utilisation rates in 2030 with 5% annual growth, kWh	total Council-owned public infrastructure required	5% growth utilisation rate, manually adjusted*, kWh	total Council-owned public infrastructure required, manually adjusted
A&B					
Fast Charging (7 -22kW)	4,592	5,582	115	6,831	94
Rapid -charging (50kW+)	23,842	30,196	21	30,196	21
CNES					
Fast Charging (7 -22kW)	1,349	1,640	95	6,831	23
Rapid -charging (50kW+)	11,215	13,632	23	22,013	14
OIC					
Fast Charging (7 -22kW)	2,539	3,086	141	6,831	64
Rapid -charging (50kW+)	6,651	8,085	27	22,013	10
SIC					
Fast Charging (7 -22kW)	3,570	4,339	50	6,831	32
Rapid -charging (50kW+)	13,533	16,449	13	22,013	10

* changed to lowest target value in SFT range with 5% annual growth

The energy forecast does not account for demand from gap analysis in areas with dispersed populations. This has therefore been a consideration in each of the Council approaches, outlined below.

Western Isles' Approach:
- To develop four hub clusters in Lewis (Stornoway), Harris (Tarbert), Uist (Balivanich) & Barra (Castlebay). Clusters refers to chargers within a settlement area rather than a hub where are the chargers are physically on the same site.
- Rapid chargers would be deployed at central points then fast chargers in surrounding areas in the longer term, subject to private provision

Orkney's Approach

- Theme one: install standard chargers at Healthy Living Centres and Schools to supports locals on the outer isles, where there is demand from network gaps
- Theme 2: install standard to rapid chargers at tourist attractions and transport terminals to support tourism and onward travel
- Theme 3: add chargers to existing sites to increase availability and reliability (site confidence and utilisation was shown to increase in the Western Isles as redundancy was built into networks)

Shetland's Approach:

To meet the twin aims of providing coverage for Shetland public and also tourist season, by:

- expanding existing locations where possible to small hubs (to provide backup and increase confidence) and providing additional on-route chargers at them.
- Combining fleet/public hubs where possible to make the network more economically viable.

Argyll and Bute's Approach

To create settlement-based hubs to meet forecast infrastructure demand by combining the themes of charging on the move, destination charging supporting sustainable travel choices and charging support for residents without driveways. These hubs should support the addition of island and lifeline 'spoke' sites, a portfolio approach that supports equitable access.

Commercial Case

We propose identifying design parameters and designing accessible, comprehensive expansion of the network in line with each Council's identified approach, procuring a delivery partner for the following:

Proposed outputs for delivery within the EVIF timeframe: 31 AC chargers, 24 DC chargers, or its financial equivalent if charger types change

We will test the market by inviting CPOs to bid back on standalone investment opportunities, allowing CPOs to show their commercial interest, explore gains and build relationships. This will not be a requirement of the ITT but a well-weighted part of the procurement quality evaluation that becomes contractual. Ideas include local advertising, home charging support and co-charging encouragement, standalone off-grid solutions at Council identified sites and CPO suggestions.

Financial Case

Urban Foresight developed an excel-based Tariff Review toolkit to model the costs associated with operating each local authority's current EV charging network and aid Councils' understanding of potential tariffs that may be needed to cover costs.
A key component of the Tariff Review Toolkit is the projection of utilisation across the Council-owned EVC network.

Across the Island Authorities, tariff modelling estimates a significant rise required in the tariffs in 2030, that would be uncompetitive with average market rates.

	Current tariffs, p/kWh		Tariff estiamtion to cover costs in p/kWh, includes VAT, excludes [redacted] transaction costs		Difference	
	AC	DC	AC	DC	AC	DC
ABC	0.74	0.74	0.73	0.84	0.01	-0.10
CNES	0.45	0.59	1.31	1.10	-0.86	-0.51
OIC	0.49	0.59	0.97	1.19	-0.48	-0.60
SIC	0.52	0.62	0.79	0.91	-0.27	-0.29

Utilisation below the levels expected by SFT from external analysis mean the operational costs averaged out per kWh are high, particularly on AC chargers in the Western Isles and DC chargers in Orkney. Shetland has a high ratio of AC:DC chargers, so benefits from minimal capacity charges and low DC replacement costs.

Tariff modelling represents a snapshot calculation and there are multiple factors and assumptions that could go on to change these estimations in the future - policy, tariffs, oil prices, but particularly utilisation. Tariffs are reviewed annually to monitor fluctuations and customer affordability.

In terms of project affordability, the budget for Phase One is on track, currently sitting at £970,200 with a contingency fund of £161,700

For Phase Two, after accounting for a 20% contingency fund and the shared operational service required, the budget for new infrastructure is £1,583, 584, which is forecast to be sufficient for installing **31 new AC chargers and 24 DC chargers across the region, or its financial equivalent if charger types change**

We propose that any unspent contingency would fund further chargers in Argyll and Bute and be decided by a **further outcome** in the Island Authorities:

- **To identify success criteria that determines when the network is considered commercially viable, but also strategically successful for the region in terms of comprehensive design and good service levels.**

Achieving this success criteria might go beyond the EVIF timeframe but allows us to measure our progress, monitor our collective achievements and help identify any further intervention required.

Management case

The Partnership currently has a Memorandum of Understanding in place that will be reviewed and renewed once Phase Two is authorised by both Transport Scotland and each of the Council committees.

A shared operational resource will monitor day to day operation of the chargers and performance manage the local maintenance contract.

Below is a Gantt chart that sets out the schedule of delivery within the EVIF timeframe. The remainder of 2029 offers valuable flexibility for delivery.

	2026 calendar				2027 calendar				2028 calendar				2029 calendar			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Phase 1																
CPS migration																
Chargepoint porcurement																
Installations																
Maintennace procurmenet																
Phase 2																
Business Case to committees																
Recruit operations resource																
Formalise legal agreement for phase 2																
Maintenance Contract																
Determine network design parameters and select and prepare sites																
Procurement for phase 2 delivery																
Phase 2 delivery																
Establish energy and transport taskforce																

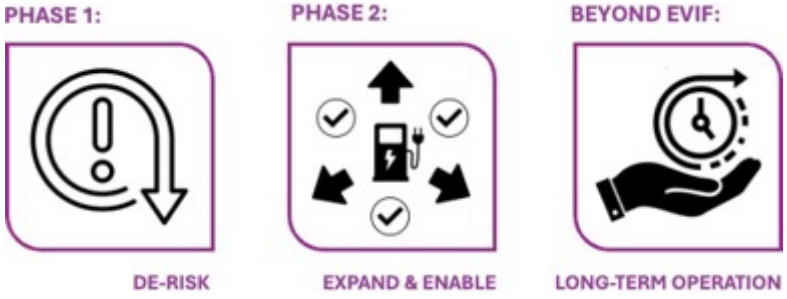
:

Funding, policy development and the final suite of new installs will be kept under review as the project is being delivered

Conclusion

This business case acknowledges the significant barriers to attracting private investment in EV charging networks across the project region, particularly on island locations.

It's clear that financial support from the government may well still be needed to make EV charging in this region sustainable, financially and environmentally, beyond EVIF, but this Partnership has created a route map towards this aim and identified a means of measuring our progress along it to monitor our collective achievements and help identify any further intervention required



Phase One is well underway, considerably de-risking network operation.

Phase Two proposes delivering network expansion towards infrastructure forecasts with strategic design, whilst simultaneously optimising and enabling a long-term sustainable approach

Work on long-term outputs and outcomes that go beyond EVIF will create a flexible and collaborative approach - vital to keep pace with industry, external impacts and local context.

The Partnership will seek best value from all combined available funding for the area by continuing to engage with new funding streams , complimenting and reprioritising delivery where possible at locations where there is most benefit or need.

In particular, as the region undergoes an energy transformation that serves the nation, there is a time-bound opportunity to identify a proactive, collaborative approach to incorporating EV charging into this region, that could both benefit it economically and be key to further forming a commercial case for public charging in the region.

To that end we suggest establishing a regional cross-sector transport and energy taskforce to optimise regional economic opportunity by collaboratively exploring how EV charging for all types of vehicles can

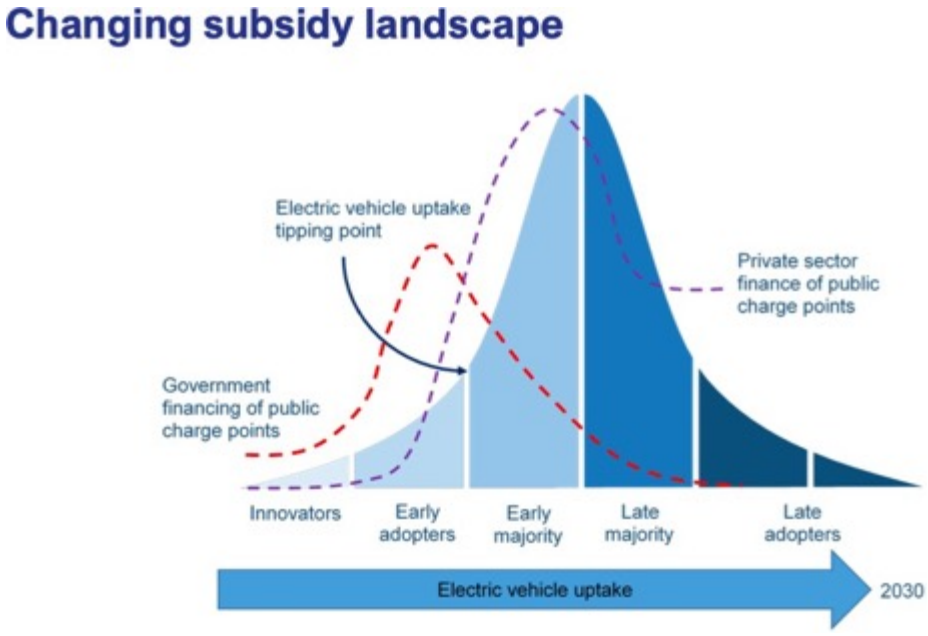
1. best integrate into and compliment the regional energy systems as they decarbonise and
2. utilise and support local power to the benefit of local people

The taskforce will set its own objectives, but it will also identify any specific project scopes and further funding opportunities that would support these aims, particularly for annual rather than muti-year funding to facilitate the delivery of an ambitious national Climate Change Plan

Background and Context

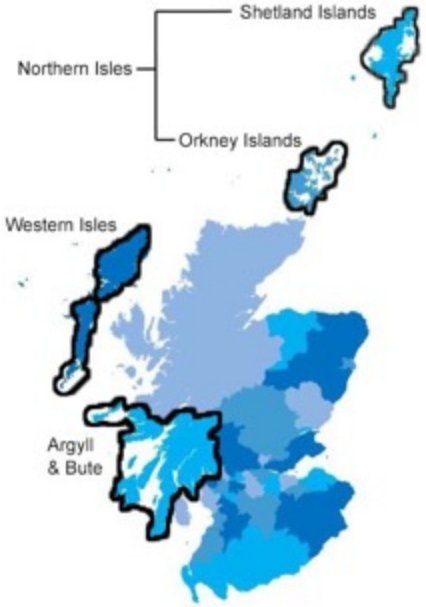
EV Infrastructure Fund (EVIF) Background

In January 2022 Transport Scotland announced a restructure of their electric vehicle infrastructure funding model, with previous funding having achieved its objective of helping the market to reach the tipping point illustrated in the table below.



Through EVIF, Local Authorities are now required to leverage in private sector funding to enable delivery of infrastructure at the pace and scale required to meet demand and encourage further car users to switch to EV's to support the wider climate change objectives, collaborating regionally where possible.

This structure allows Local Authorities to access £30 million worth of public funding and aims to leverage in a further £30 million of private sector investment, bringing the total investment for Scotland to £60 million. The public funding aims to support Local Authorities in enabling a Just Transition (equitable and fair) where commercial opportunities are challenging.



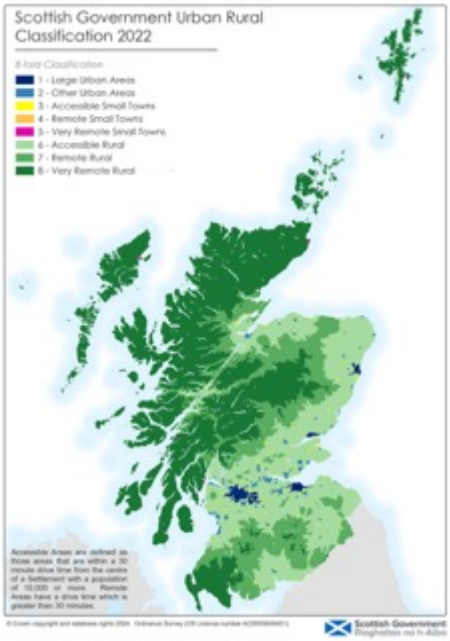
North & West Scotland Partnership Background

The Electric Vehicle industry is moving at a rapid pace and to date, strategy and delivery has developed at different rates across Local Authorities. Internal resourcing has been fragmented, and geographical, social, economic, environmental and technological factors have affected the reliability of emerging infrastructure across the region.

EVIF presented an opportunity to work regionally, identifying and addressing common infrastructure challenges and opportunities.

HITRANS put in place project management resource on behalf of four local authorities to take forward collaborative planning, procurement and delivery under the Electric Vehicle Infrastructure Fund (EVIF). The four Councils are Argyll and Bute, the Western Isles and Orkney Islands, within the HITRANS Regional Transport Partnership and the logical collaborative addition of the Shetland Islands, the Zetrans Regional Transport Partnership.

The four Councils are collectively referred to as North & West Scotland in this document. They have signed a Memorandum of Agreement to work together on this. Consultancy work with both Urban Foresight and Mott MacDonald has been undertaken to understand the challenges and opportunities across the region. Argyll and Bute developed their EV charging strategy before joining the Partnership, and it has integrated and evolved since.



Partnership Geography

The four Council areas within the North & West Scotland Partnership contain the highest percentage of Very Remote Rural areas, according to the Scottish Government Urban Rural Classification 2022, covering:

42% in Argyll and Bute
73% in the Western Isles
66% in the Orkney Islands
71% in the Shetland Islands

Very Remote Rural is defined as areas with a low population density (under 3000 people) with a drive time of over 60 minutes to a Settlement of 10,000 or more

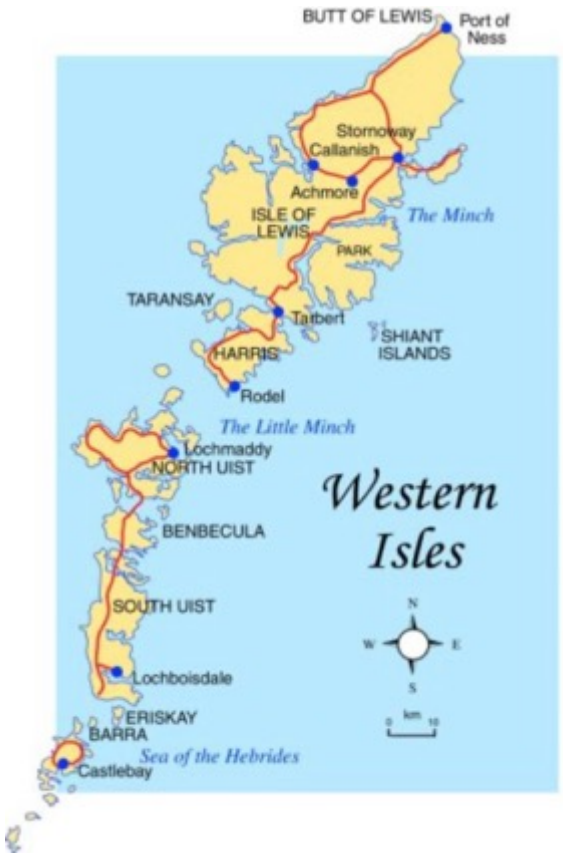
Argyll and Bute

Argyll and Bute has a very varied geography ranging from Helensburgh within commuting distance of Glasgow to the Kintyre peninsula which, to highlight it's rurality, is the farthest point on mainland Scotland from a rail station.

It is also the Council area with the largest island-based population with 28 inhabited islands, including Bute, Islay, Jura, Mull, Iona, Coll and Tiree: more than any other local authority in Scotland.

The physical geography of the area has limited development opportunity for the road network in the area, leading to high levels of reliance on ferries for travel.

The busiest ferry route in Scotland in terms of passengers and vehicles carried is the service between Gourock and Dunoon. This route carried 1.2 million passengers in 2022. There were 610,000 cars carried on this route and 27,8000 commercial vehicles and buses in 2022 (Scottish Transport Statistics 2023).



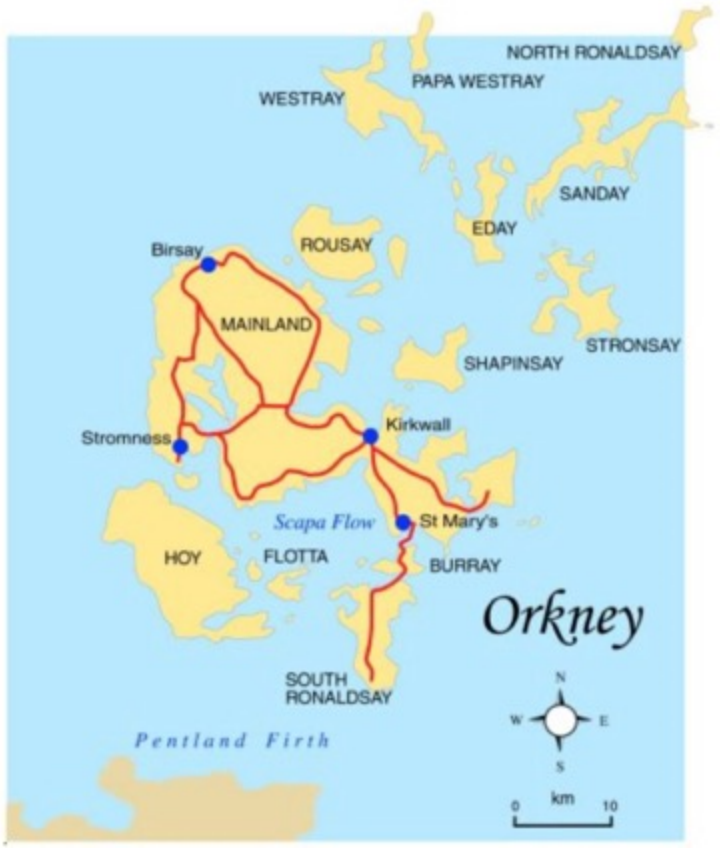
The Western Isles

The Western Isles (Outer Hebrides) chain stretches approximately 130 to 160 miles (210–260 km) from the Butt of Lewis in the north to Barra Head in the south. The archipelago is often called the "Long Island," with the designated Hebridean Way walking route covering 156 miles

It has five access points to the UK mainland, Stornoway, Tarbert, Lochmaddy, Lochboisdale and Castlebay. Stornoway is the main town and is in the North, not centrally located.

Ferries take 1.75-3 hours from the Highlands and up to 5.5 hours from Oban, depending on the destination

Intra island ferries take up to an hour



Orkney Islands

The Orkney archipelago, located 10 miles north of mainland Scotland, spans roughly 50 miles from northeast to southwest

The largest island, known as Mainland or Pomona, is approximately 26 miles (42 km) in length. The entire group includes over 70 islands, about 20 of which are inhabited.

A ferry from mainland Scotland takes 1.25-1.5 hours

Intra island ferries can take much longer to the outer northern isles and are not all served daily. As an example, the ferry from Kirkwall to Westray takes approximately 1hr25mins.

Shetland Islands

The Shetland Islands are a rugged archipelago of around 100 islands spanning roughly 80 miles (approx. 130 km) by road from Sumburgh in the South to Norwick in the North. The main island, Mainland, is about 55 miles (89 km) long. Driving the entire length of the main island chain takes two to three hours, with ferry routes between 7 and 30 minutes.

The ferry services to smaller outer islands are less frequent and take between 40 and 160 minutes.

(https://www.scottish-places.info/councils/region31.html -, n.d.)

Population and tourism figures

This table shows the resident populations and visitor numbers within the Partnership area.

	Western Isles	Orkney Islands	Shetland Islands	Argyll & Bute
Total Population*	26,020	22,020	23,190	87,690
Total Area (km sq)**	3,056	990	1,467	6,907
Population Density	9	22	16	13
Visitors per year***	219,000	173,000	89,000	490,000
Visitors as a multiple of total population	8	8	4	6

*https://www.nrscotland.gov.uk/publications/mid-2024-population-estimates/
**https://en.wikipedia.org/wiki/Subdivisions_of_Scotland
***https://www.visitscotland.org/research-insights/regions (2024 data) exluding cruise liners

Argyll and Bute has a larger area than the three Island Authorities combined, whilst Orkney is the smallest of the Council areas.

The Western Isles have the most dispersed population on average, supporting the highest multiple of visitors alongside Orkney.

These figures exclude cruise ship visitors. The cruise tourism industry has grown year-on-year in Scotland. In 2019, there were 893 cruise ship calls bringing 817,000 passengers. This was an 8% increase in calls from 2018 and a 17% increase from 2017, across all vessel sizes.

Cruise tourism to Scotland is strongly concentrated in the Highlands and Islands region. During 2019, the Highlands and Islands region had almost three in four (73%) of Scotland's total cruise calls. They also welcomed 61% of cruise passengers, largely at Kirkwall, Lerwick, and Invergordon.

(https://www.visitscotland.org/research-insights/about-our-industry/cruise-tourism-insights , n.d.)

Employment Characteristics

The majority of people in the Northern and Western Isles work in health, retail, agriculture, forestry and fishing. Public administration is also particularly high on the Western Isles and Argyll and Bute's economy is predominantly service based. The rapid expansion of the renewable energy projects and associated upgrades to the national grid is contributing to a significant growth in temporary but also longer-term employment in each of the four local authority areas.

The small scale of our local market means that many businesses require strong transport links with other parts of Scotland

Energy Systems

The following section explores the background of the regional energy systems.

Right now, the energy supplying EV infrastructure in the partnership region is not fully clean and renewable.

In planning long-term growth of charging infrastructure, we will add to the demand on regional energy systems as the backdrop to vehicle decarbonisation. Energy transition and the cost of energy is therefore important context to working towards commercialised charging

Renewable Energy Capacity

Across all three of the National Energy System Operators (NESO's) Future Energy Scenario (FES) pathways (Hydrogen Engagement, Electric Engagement and Holistic Transition (mixed technology) pathway), the generation capacity of fossil fuel in Scotland reaches zero between 2035 - 2040.

Scotland's current winter peak energy demand is just over 4 GW and remains below 5GW in 2030 across all FES pathways.

The renewable generation capacity in Scotland today is just under 18 GW, so heavily exceeds demand already (currently just over 4GW).

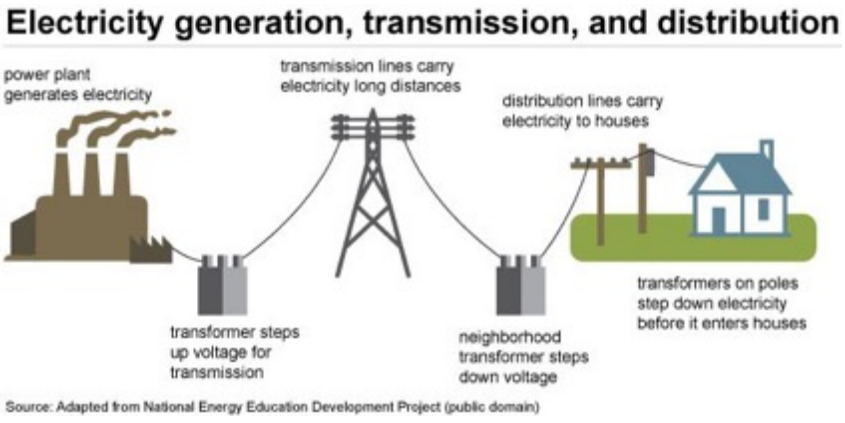
Renewable generation is set to more than double - rising to approximately 45 GW in the Holistic Transition FES pathway by 2030. Over the next 10 years, this rapid growth in renewable-generated electricity in Scotland will mainly be attributed to onshore and offshore wind. Scotland' s demand is not expected to exceed 5GW, so Scotland will be expected to export power into England most of the time (except during periods of prolonged low wind, where the reverse may occur) across the Scottish electrical boundaries

The North & West Scotland Partnership region is a key contributor to this renewable generation growth but currently struggles to benefit from local generation.

The National Energy System

The energy system was designed on peak demand, with tolerance for a fail-safe reserve and which could be cut off if it became dangerous.

The energy is moved via transmission and distribution lines, that



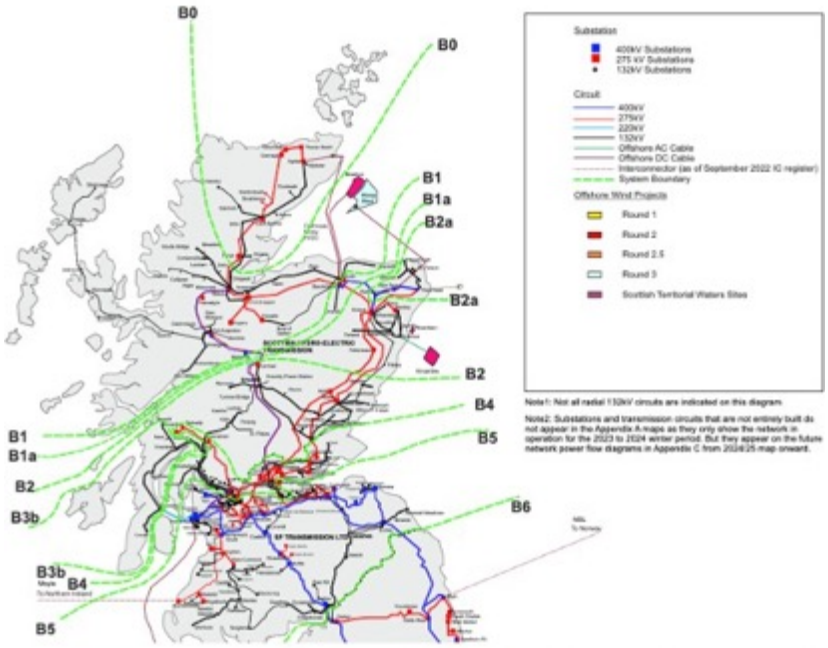
just differ by infrastructure size like our road network; transmission lines are like motorways for long distance travel and local distribution lines are like B roads.

Constraint

Electrical transmission boundaries exist to manage the flow from generation to consumers, ensuring stability and supply across different geographic and operational areas.

The map below shows the 7 Scottish electrical boundaries, all of which are constrained. Constraint is when electrical flow is limited because the infrastructure can't cope with it; it hasn't been upgraded with demand

Scotland's electrical transmission boundaries



https://www.elexon.co.uk/bsc/documents/data/operational-data/gb-transmission-system-boundary-zone-map/

Between transmission and distribution are Grid Supply Points. Grid supply points contain substations to downgrade the voltage for safe onward distribution through the regional Distribution Network

The map below shows (in red) that all the regional Grid Supply Points in the SHEPD area (SSE's northern branch of SSEN) are constrained, illustrating the limited capacity for new grid connections. The high costs or long timescales in upgrading substations have proved to be, and are continuing to be, a barrier to obtaining new grid connections.

Figure 5-2: Constrained Grid Supply Points in the SHEPD region [26]

(HIE Microgrids. A guide to their issues and value)

Curtailment

Curtailment defines energy generation being turned off or down when:

- supply exceeds demand (economic constraint), either because it's 'too' windy for example, or because demand is low
- there is sufficient demand, but constrained transmission and distribution mean it can't be moved from generation to the customer (explained in detail above). The generation is turned off and generation closer to demand is turned on (technologies that are quick to start up and dispatch energy, often gas, but could be other sources such as battery storage)

In the first half of 2025, 86% of all UK grid curtailments occurred in the North of Scotland, costing consumers £117 million

Local Energy Systems
(https://www.icnz.org/island-profiles, n.d.)

Orkney
Orkney has two subsea cables connected to the UK mainland. One used to be retained completely for redundancy but as its renewable generation grew, the need to export exposed the limits of the system.

An Active Management System was developed, allowing them to utilise the redundant capacity on the second subsea cable and increase grid connections - on the condition that connections could be cut off immediately (flexible grid connections). It works by switching off generators at peak generation to avoid exceeding grid capacity on a “Last-In, First-Out" principle. This is a grid management rule where the newest renewable energy generators (like solar or wind) are the first to have their output reduced (curtailed) ensuring older, more established generators aren't impacted.

The ANM itself is a local, zoned smart grid to monitor and control local shifts in energy supply and demand.

Unfortunately, there is no more capacity for flexible connections, so costly network upgrades are now required.

A new subsea cable with a higher import/export capacity to allow for more renewable energy generation and less curtailment has been provisionally approved with target completion of 2027/28.

Orkney currently has an export capacity of 40MW. Demand on the islands today ranges from 7 MW to 46 MW, with the shortfall provided by Kirkwall Diesel Power Station, which can run on lower grade diesel. It also provides back-up power to the islands in the event of an interruption to the main subsea cable connections from the Scottish mainland. While currently in use for resilience, these diesel generators are identified as a significant source of carbon emissions and are planned to be replaced or decarbonized by 2035.

In summary, Orkney is a net exporter of renewable energy and produces more energy that it can use, store or export, so it’s not able to harness its full renewable energy potential.

Shetland

Shetland was an islanded microgrid using carbon intense energy; a mix of supplies from the diesel-fired station at Lerwick, which can run on lower grade diesel (50%) the gas-fired station at Sullom Voe (30%) and renewables (20%). The current peak demand for electricity in Shetland is nearly 48MW, partially met from the 12.3 MW installed renewables capacity.

Like Orkney, it has an Active Network Management system in Shetland allowing flexible grid connections for renewable energy generators, along with battery storage.

The energy system is undergoing a transformation, shifting from isolated, fossil-fuel-dependent generation to a renewables system with grid connection to the UK mainland.

This transition is anchored by the recently commissioned Viking Wind Farm. A new Grid Supply Point (GSP) Substation will connect Shetland to the GB energy system for the first time, via the 260km subsea Shetland High-Voltage Direct Current (HVDC) transmission link which is currently being progressed.

When connected, the GSP will remove Shetland's dependence on diesel generation, and the Lerwick Power Station will transition to operate in standby mode to provide a backup supply in the event of an outage on the Shetland HVDC link. A 68MW battery energy storage system (BESS) will add further grid resilience as part of the Shetland Standby Project. The GSP and battery storage system is expected to be completed by the end of 2026.

The distribution grid in Shetland continues to be restricted though. The expected production of 700MW onshore wind exceeds the local electricity demand and the interconnector capacity by around 50 MW. A second HVDC link is in the early stages of development with SSEN.

There is also large interest in community renewable energy and energy efficiency projects to help reduce reliance on grid electricity and also oil as a heating source.

Western Isles

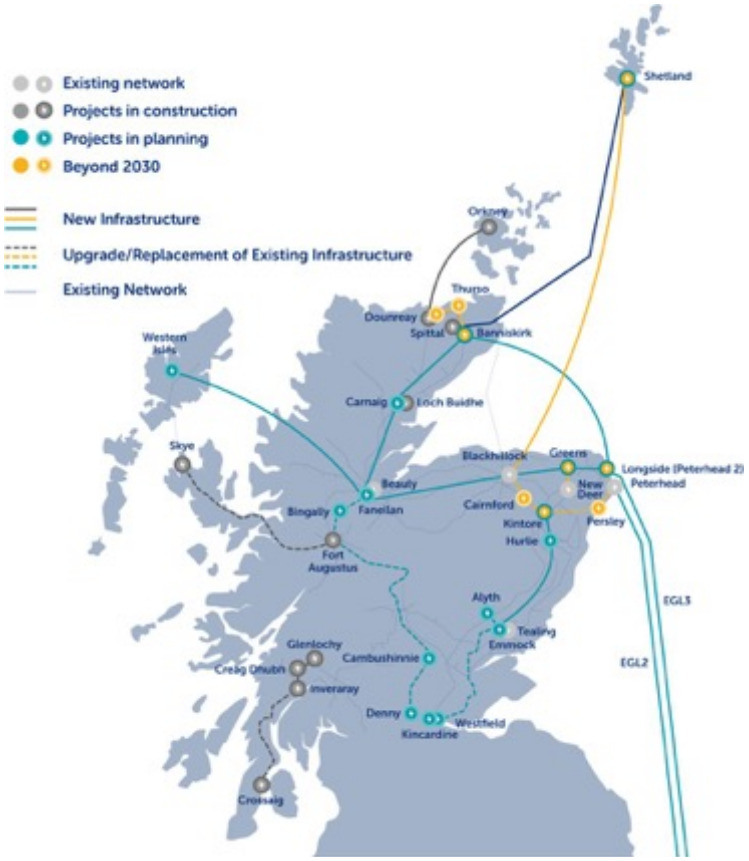
The Western Isles are connected to the National Grid by a two subsea distribution cables, one supplying Lewis and Harris and the other supplying Uist and Barra. Capacity falls short of peak island demand in wintertime, so on-island diesel generation at Battery Point / Arnish (Stornoway) and at Lochcarnan (South Uist) has to be activated to top-up supply during peak demand or when any work is done on transmission or distribution lines (operational constraint)

In Lewis, if the mainland connection fails then diesel generation can supply its consumers independently as a microgrid. The generator runs on marine diesel, a lower grade diesel with higher carbon emissions than road diesel.

The historic lack of export capacity has significantly constrained the growth of renewables on the islands and proved a major barrier to harnessing the world class renewable resources across the Western Isles. Active Network Management systems were explored as a means of allowing development of new generation ahead of, or instead of, a new transmission link but were not found to be a feasible solution.

Following sustained lobbying, a new 1.8GW Transmission Link between Arnish and Beauly is to be completed and operational by 2030. This comprises of a significant generation commitment including 420MW of onshore wind, and 1,335MW of offshore wind. Though Uist and Barra unfortunately won't benefit from this upgrade directly, is marks a major development for the Outer Hebrides energy sector and will greatly increase the islands' contribution to decarbonisation.

The map below shows the existing, in progress and planned subsea cales across the Island Authorities



Argyll and Bute

Argyll and Bute face significant electricity grid limitations, primarily insufficient capacity, which is amplified on its islands by their aging subsea cables.

Upgrades to the Kintyre-Hunterston link and the welcome development of Western Link2 by Scottish Power Networks are helping with inter-regional transmission, whilst recent upgrades to Islay/Jura and Bute/Cumbrae are facilitating intra-regional energy flow, as is the upgrade to the Coll-Tiree subsea cable

At present, targeted strategies focus decarbonisation efforts on areas with existing capacity or heat network potential, but this is not always in the strategic locations required or desired. There is no doubt that the current lack of grid capacity is a big constraint on future renewable development, of both large generator and small local scale. Local renewable projects are often forced to operate at reduced capacity or face high costs to upgrade the network. For example, the Garmony Hydro scheme operates at only 30% capacity for much of the time due to constraints.

There is a need to have a more versatile approach to these existing constrained grids and as a result, flexible connections are now more commonly offered to new, small-scale renewable projects in constrained areas. The development of local, "behind-the-meter" solutions, including energy storage and smart grid management, is also considered crucial for overcoming these limitations

Renewable Generation

The Partnership region has significant, expanding and untapped potential in renewable generation. All four Local Authorities are at the forefront of opportunities for wind power with some of the windiest climates of the UK. Orkney and the Sound of Islay also offer the best potential tidal and wave resources in the UK, with Orkney being home to the internationally renowned European Marine Energy Centre. Argyll and Bute have considerable hydro generation, and biomass generation from their extensive forests too.

In addition:

- Domestic microgeneration in Orkney is high, with approximately 10% of Orkney's population generating their own power compared to 2.8% in the UK.
- In Shetland there is a proposal for the development of a 300-hectare energy park, Neshion, with plans to link renewable energy generation to synthetic fuel production
- The Western Isles are national leader in community owned generation, contributing over 23MW. Seven community development trusts have successfully developed wind turbine projects which contribute over £2 million annually to local community projects and economies.
- All Councils can cite successful community generation, with notable community projects including
    - Rural Energy Hubs: Community Energy Scotland and local partners are developing hubs to test ways for communities to own and manage their own renewable generation. This is in addition to creating a physical hub of integrated services & facilities, including café, EV charging, ebike hire, car club, transport connection hub, event space, business space and information centre. It aims to develop a place-based model for overcoming non-technical barriers to decarbonisations like behavioural change and finance that is replicable in rural and island communities, seeking to address the following barriers which have been encountered so far in rural applications: regulation, grid capacity, resource (skills/capacity), behavioural change and lack of data.
    - Orion Clean Energy Project: A partnership aiming for Shetland to become a "net zero" island, focusing on using local renewable power to produce green hydrogen and supporting community-led energy initiatives.
    - The Isle of Gigha became the first community-owned grid-connected windfarm in Scotland when they commissioned the dancing ladies (2004); These second-hand turbines, operational since 2005, provide most of the island's electricity, with profits reinvested into community projects through the Isle of Gigha Heritage Trust.

Despite this, the energy supplying EV infrastructure in the Partnership region is not fully clean and renewable.

Collaborative Partnerships

1. The Comhairle (Western Isles Council) is working with stakeholders to explore the concept of the Local Energy Economy and develop a mechanism that would allow locally generated electricity to be delivered to local consumers at a competitive price.

2. The Argyll and Bute Renewable Energy Alliance (ABRA) bring together key public and private sector partners to promote and accelerate the development of the renewable energy sector in the region and support the Renewable Energy Action Plan (REAP) to maximize local economic opportunities and address grid infrastructure challenges. Stakeholders include:
   - Argyll and Bute Council
   - the Scottish Government
   - Highlands and Islands Enterprise
   - Marine Scotland
   - Scottish Power Renewables
   - Scottish and Southern Energy
   - The Crown Estate Scotland
   - Nature Scot
   - Skills Development Scotland

3. ReFLEX (Responsive Flexibility) was a £28.5 million project from 2019-2023

   Funded by UKRI, it was led by the European Marine Energy Centre (EMEC) with cross-sector partners including Aquaterra, SMS, Community Energy Scotland, Heriot-Watt University and Orkney Islands Council.

   At inception, energy supply and demand in Orkney was already four times the peaks and troughs of the UK then & they were looking for solutions.

   The concept was that households spent an average of 15k a year on energy at the time. If all energy was transitioned to net zero households would spend the same – this was data backed. So, customers needed incentive and financial mechanisms to transition.

   The project aimed to interlink local electricity, transport and heat networks into one controllable, overarching system, digitally connecting distributed and variable renewable generation to flexible demand, using technologies like battery storage, electric vehicles, smart chargers and smart meters.

   They aimed to offer these technologies to local households and businesses through leases and other financing, which meant that local participants avoided large upfront costs and, in turn, helped further the ReFLEX mission to decarbonise Orkney.

   Various issues arose though (covid, stakeholder pull out, change in Ofgem rules), so Reflex became more socially orientated. Free membership allowed Reflex access to GDPR data and analysis of that enabled them to successfully progress individual projects to the same aims with subsequent funding.

ReFlex is now a company and looking to replicate in Shetland. Aquaterra & Community Energy Scotland is a well-established partnership on multiple shared Island Authority projects, including the Carbon Neutral Islands Projects, a Scottish Government commitment to make six islands carbon neutral by 2040, and the Islands Centre for Net Zero, a toolkit, demonstration, data exchange, community action network, & acceleration body.

Fuel poverty

How do energy systems effect residents?

Despite huge renewable generation and potential, fuel poverty is high in the region, with all levels in four local authorities higher than the national averages for Scotland.

Local authority	Fuel Poverty rate	Extreme Fuel Poverty rate
Argyll and Bute	32%	19%
Na h-Eileanan Siar	40%	24%
Orkney Islands	31%	22%
Shetland Islands	31%	22%
Scotland	24%	12%

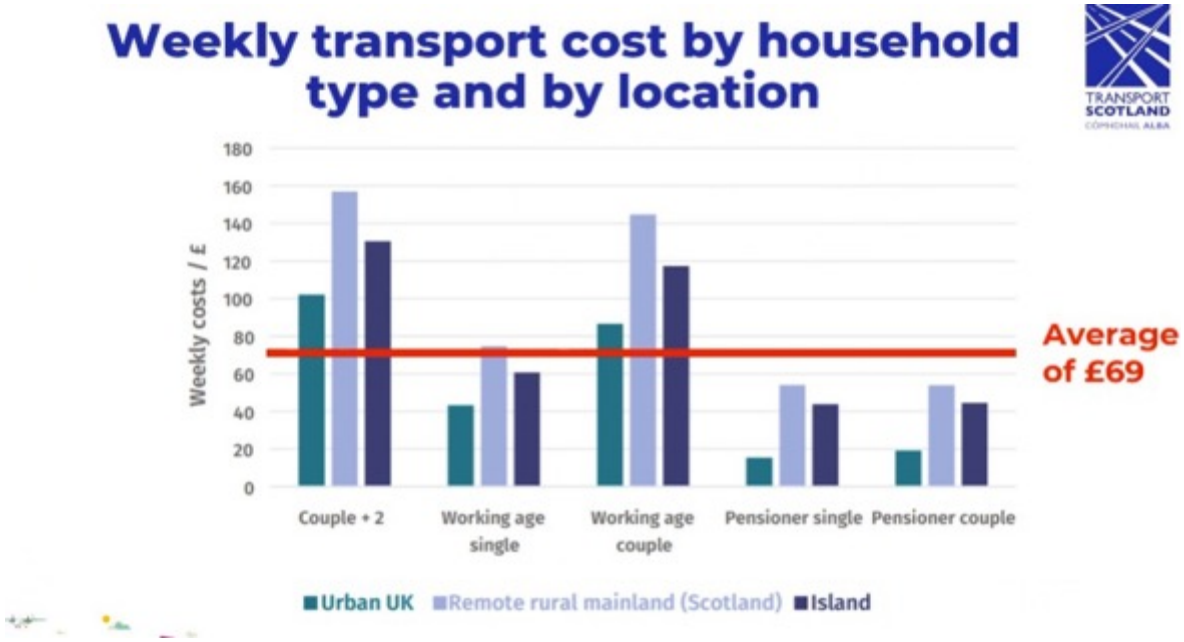
https://www.gov.scot/publications/heat-buildings-strategy-island-communities-impact-assessment/pages/4/

Many island households remain off the gas grid – this includes some islands in Argyll and Bute as well as all dwellings in Orkney and Shetland and 89% of dwellings in the Western Isles. Electricity is considerably more expensive than mains gas and whilst oil and LPG are available they are carbon-rich. Combined with higher-than-average energy consumption due to the quality of the housing stock and a cold windy climate, the Partnership region faces higher energy bills than elsewhere in Scotland, with additional transmission costs intended to reflect the cost of transporting electricity long distances. By 2026, these charges for the North of Scotland were projected to be significantly higher than in Southern England. Energy bills are over twice the national energy price guarantee in Shetland. Low incomes often exacerbate fuel poverty in the region too.

Fuel poverty primarily affects heating costs, but financial hardship can force many families to spend a disproportionate share of their income on energy, leaving less for essentials such as food, transport (electric or combustion) and clothing. This trade-off erodes financial stability, limit local spending power, and weakens island economies.

Public Transport options in rural and island locations are lower than those in more urban areas and there is a higher reliance on personal vehicles. This limits some sustainable travel choices and therefore increases the impact of private vehicle decarbonisation.

To illustrate this, HITRANS' EV strategy reports that the HITRANS region has an 18% higher vehicle ownership than the rest of Scotland and an estimated 20% higher distance travelled than the Scottish average. Electric vehicle tax per mile will disproportionally affect the Partnership region, with wider financial implications as shown:



Local Support

Local agency Tighean Innse Gall (TIG) have been providing energy advice and support to local communities for over 30 years and remain central to efforts to combat fuel poverty in the Outer Hebrides.

Argyll and Bute Council work with renewable energy companies and other stakeholders, such as Argyll, Lomond and the Islands Energy Agency (ALIenergy) which promotes the use and production of sustainable energy to benefit individuals, communities, and the local economy, and to fight against fuel poverty.

Baseline EV position

Current EV Ownership

To work out the current percentage of cars that are electric, total vehicle registrations for each local authority were taken from DfT Vehicle Licensing Statistics. Knowing there is a shortfall due to leased vehicles being registered at car dealerships, this was uplifted with current lease information and targets from Motability Operations, the largest leasing organisation in the UK.

As of Q3 2025	Cars	Vans
A&B	44,695	9,701
CNES	13,914	4,321
OIC	11,626	3,500
SIC	12,178	3,899

Using the DfT statistics again, the number of vehicles that are plug-in vehicles was then determined, as follows:

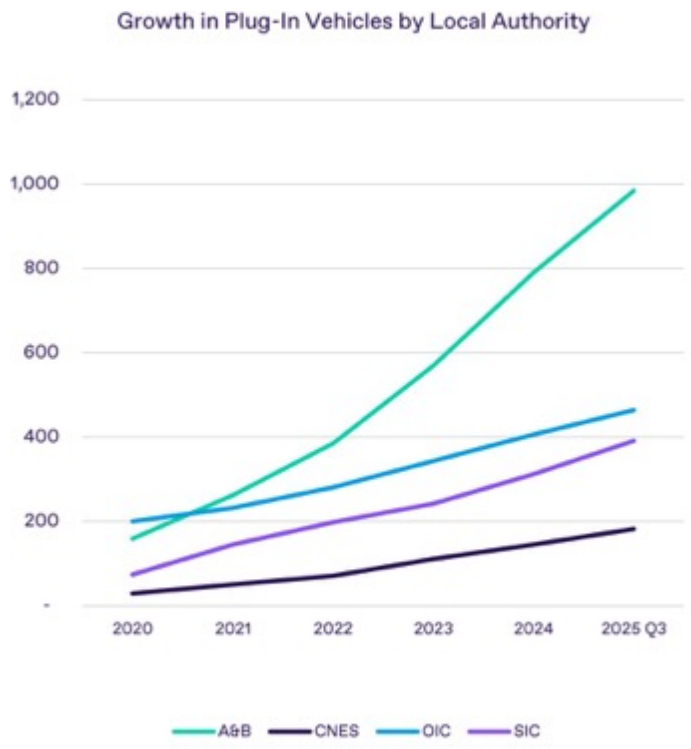
As of Q3 2025:

A&B: 1,679 plug-in vehicles
CNES: 338 plug-in vehicles
OIC: 738 plug-in vehicles
SIC: 391 plug-in vehicles

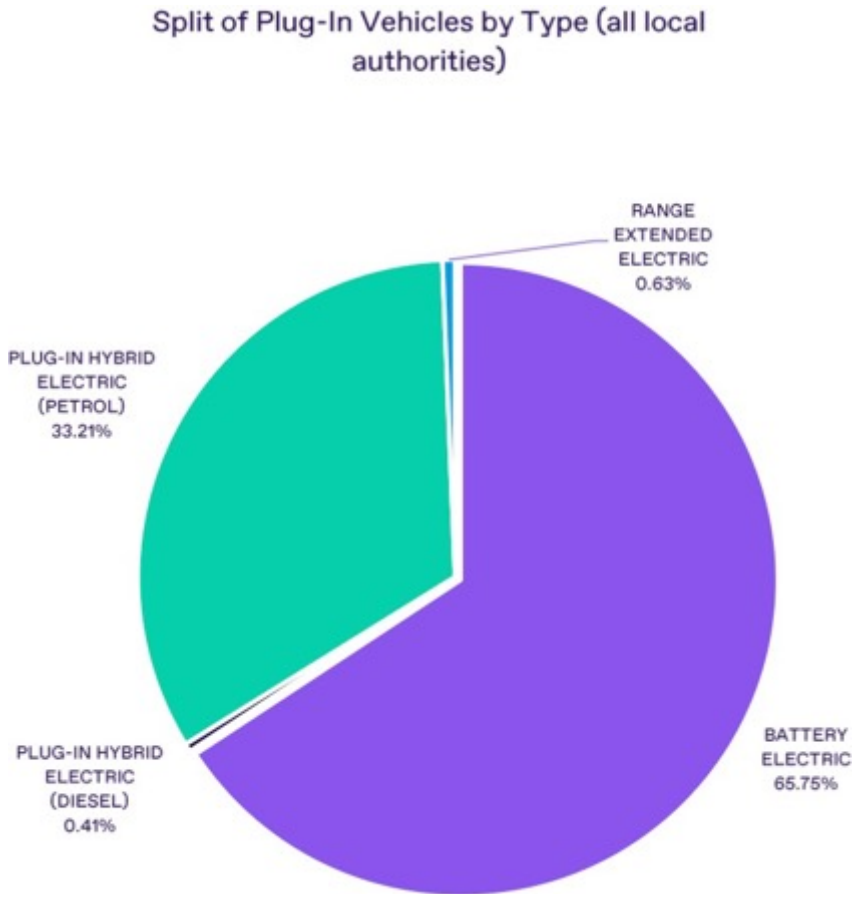
Increase on 2021 baseline:

A&B: 239%
CNES: 219%
OIC: 101%
SIC: 170%

The graph below shows the growth in the number of Plug-in Vehicles (PiVs, combined cars and van) across the Partnership region, over the last 5 years, with Argyll and Bute showing a steeper rise in the last 3 years.



In the Partnership region, Battery Electric Vehicles (BEVs) make up 66% of the total plug-in-vehicles, with the other categories identified here:



BEVs (combined car and van) rather than PiVs are used in the Climate Change Committee 7th Carbon Budget EV uptake forecasts and are therefore the numbers we take forward here.

Total BEVs

ABC	1209
CNES	251
OIC	515
SIC	280

Proportion of Vehicle Stock that are BEVs:

Cars	2025 Q3
ABC	2.49%
CNES	1.49%
OIC	4.30%
SIC	1.96%

Vans	2025 Q3
ABC	0.73%
CNES	0.49%
OIC	2.69%
SIC	1.10%

Scottish Average: BEVs as a % of total vehicle stock (cars & vans) = **3.4%**

Orkney has the highest proportion of BEVs to vehicle stock, often attributed to the long-established Eco-Cars sourcing second hand auction cars on request and shipping them to the Orkney islands. This indicates there would be success for second hand BEV funding schemes.

Current EV Infrastructure

The number of current EV charging devices provided in each Council area by the Council and by the private sector are listed below and mapped on the following pages.

It's interesting to note that with the exception of a handful of supermarkets, ownership is by local businesses or community organisations, adding support to the call for targeted funding intervention such as the Rural and Island Infrastructure Fund.

It's also noteworthy that CMAL still operate chargers with no tariff; six in Argyll and Bute (plus one with a tariff) and 2 in the Western Isles. EVIF identified that free charging is a barrier to competition and these free chargers will be undermining the use of Council owned chargers since they introduced tariffs. Understandably, we have anecdotal evidence that people will use these ahead of other local chargers that incur a tariff.

		Current EVSE			Public/private split	
Council area	**Chargers by Type (Units):**	**Current Council owned**	**Private owned public charging from ZapMap 03.04.26****	**Total EVSE**	**Council proporation of public charging**	**Private proportion of public charging**
ABC	Fast Charging (7 -22kW)	13	34	47	28%	72%
	Rapid -charging (50kW+)	**24**	**11**	**35**	**69%**	**31%**
CNES	Fast Charging (7 -22kW)	16	17	33	48%	52%
	Rapid -charging (50kW+)	**13**	**4**	**17**	**76%**	**24%**
OIC	Fast Charging (7 -22kW)	20	8	28	71%	29%
	Rapid -charging (50kW+)	**10**	**0**	**10**	**100%**	**0%**
SIC	Fast Charging (7 -22kW)	21	6	27	78%	22%
	Rapid -charging (50kW+)	**7**	**1**	**8**	**88%**	**13%**

**these are largely accomodation and destiantion chargers, including some ferry ports, schools, health bases and supermarktets

Argyll and Bute

All public chargers

All public AC chargers

All public DC chargers

Western Isles

All public chargers

All public AC chargers

All public DC chargers

Orkney Islands

All public chargers

All public AC chargers

All public DC chargers

Shetland Islands

All public chargers

All public AC chargers

All public DC chargers

The mapping of chargers by type highlights gaps in DC provision particularly, but also of AC provision on Orkney's Outer Isles.

Historical EV Utilisation

We had a year's utilisation data from each Council, spanning 2024, although data ranges vary from financial year to calendar year.

The data was cleansed to remove errors, for example:

- all consumption values less than 1 kWh removed (including negative values).
- Impossible dates (e.g. 1900) have also been removed.

However, Orkney's data appeared to have information missing and was surprisingly low for DC charging. We can adjust for this based on data analysis from previous consultancy work in 2022.

Recent utilisation averages are shown below. The figures highlighted pink are below the range expected by Scottish Futures Trust from external analysis, with the difference highlighted by number and percentage. The Western Isles AC utilisation and Orkney Islands DC utilisation is particularly far off the lowest end of the target range expected by SFT from external analysis. This might be explained by the respective journey lengths on each of the island groups, with the Western Isles substantially longer than the smaller and centrally focussed Orkney Islands.

Utilisation in kWh per unit

Average of latest 12-months	AC	Within SFT AC range* 5,620 - 26,977	Difference in numbers	Percentage of lowest SFT value	DC	Within SFT DC range* 18,110 - 54,329	Difference in numbers	Percentage of lowest SFT value
ABC	4,592	FALSE	-1,028	82%	23,842	TRUE	5,732	132%
CNES	1,349	FALSE	-4271	24%	11,215	FALSE	-6895	62%
OIC	2,539	FALSE	-3081	45%	6,651	FALSE	-11458	36%
SIC	3,570	FALSE	-2050	64%	13,533	FALSE	-4577	75%

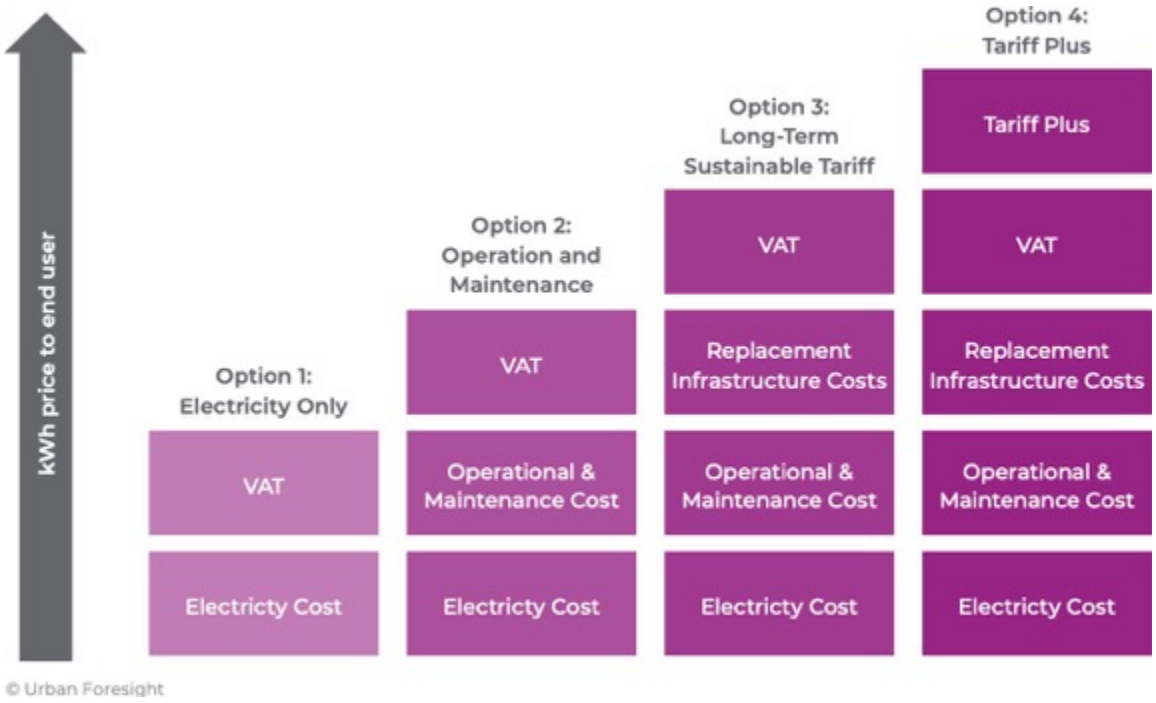
*expected from external analysis

Interestingly, when utilisation is split further across island and mainland chargers for Argyll and Bute, utilisation for those islands shows a similar trend to the Island Authorities, Shetland in particular.

Average of kWh Drawn - 2025		
Row Labels	AC	DC
Island	3,869.3	14,407.4
Mainland	4,723.9	28,558.5
Grand Total	4,592.4	23,841.5

Current Financial Position of Charging Networks

The diagram below shows how EV charging tariffs can be categorised according to the extent they cover their costs, essential for a financially sustainable EV charging network.



Councils have used this guidance diagram to categorise the current financial position of their public EV charging networks. This is an indicative overview - tariffs are detailed far further in the financial case of this document.

Argyll and Bute have just reached level four. Their tariff is comparable to private market rates and is breaking even after covering all costs, with a small profit starting to build for investment.

Islands Authorities are within option 2. Accounting varies for the expenditure above, with operation, maintenance and replacement costs allocated nominal allowances. Maintenance costs are much higher than SFT averages and are publicly subsidised or partially provided internally. Tariffs are below private market rates, and any proposed increases meet thorough questioning at Local Authority committee meetings.

The application of VAT is contentious following a landmark legal case this year. Charge My Street argued that supplying under 1,000 kWh per month constitutes "domestic" use under VAT law and should qualify for a reduced rate of 5% VAT instead of 20%. This ruling directly addresses the VAT disparity for drivers lacking off-street parking but is being appealed by HMRC.

Large Vehicle Charging Scope

Nationally, industry wide, charging provision for larger vehicles has become a major priority. HGVs are high emitters per vehicles, making up 16% of road transport emissions, despite being only 5% of road traffic (km travelled) (Transport Tcotland Road Transport statistics 2024, n.d.)

Exclusive HGV charging is in theory outside the scope of EVIF in terms of capital investment but recognising that aggregating energy demand may tip utilisation levels to make public charging commercially viable, this idea was explored.

Demand

- HITRANS reached out to representatives of several key industries within the area (Scottish Whisky Association, SSE, aquaculture & timber) to discuss electrification

plans. The only response received was from the SWA, who use the Road Haulage association for logistics and who are already involved in ZEHID (Zero Emission HGV and Infrastructure Demonstrator) projects
- The latest ZEHID report states that they don't have data for demand in the Island Authorities. Until then, charging provision for larger vehicles would be a Council risk.
- Rural suitability for larger electric vehicles (road structure and condition, hills, weather, value of upfront cost) is not yet established
- A current HITRANS study that is being taken forward with Transport Scotland and other partners (including HIE and the Road Haulage Association) will estimate the combined effect of renewable development projects on the transport network, which includes HGVs and will provide valuable data forecasting data for a regional approach

Opportunity

- Given the scale of large vehicle charging, there is an opportunity to coordinate with ferry electrification as this takes place throughout North and West Scotland. The small vessel replacement programme has already committed to new connections, but shared charging was never discussed. There has been no response from CMAL to say whether those connections are fixed or flexible, as the ferries will charge overnight.
- The Highland Council are already working on innovation and eHGV charging progress as part of their own EVIF development work and additionality. Their region, including Aberdeen, is an essential area that links each of the Local Authority areas in this Partnership. Regional collaboration would bring coherence and efficiency to plans.
- Any large vehicle electrification strategy needs to consider utilisation of alternative fuels as well. Shetland in particular are exploring this through the development of hydrogen projects and the proposed production of synthetic fuels at their proposed energy park, Neshion.
- High-capacity sites could include battery storage and link to local renewables, but site scoping and analysis would be required.
- Depot sharing is at an early stage and application across rural areas might benefit from early industry earnings

In conclusion, there is not yet the evidence basis to mitigate the risk of providing strategic large vehicle charging with public funding, but as uptake increases nationally, this will change. There is a timely opportunity for regional strategic collaboration on this to understand energy demand and prepare for that change.

Business Case

EVIF Progress to Date - Phase One

This section outlines the progress made to date by the Partnership in Phase One of EVIF.

In line with the National Transport Strategy Investment Hierarchy, the key aim of Phase One was to maintain existing assets; de-risk the networks for the current supervisors, the Councils, and for any potential near-future operators. This also encourages better use of capacity, by increasing reliability and resilience for users

Migration

Migrating current public charge points owned by the Partnership away from the ChargePlace Scotland (CPS) network was mandatory as CPS cwill ease operations in 2027.

In March, Scottish Power Migrated 95 chargers across our region to their software, payment provider and helpline, with 8 more in progress. They take on the same role CPS provided of CPNO, illustrated in Annex One.

Remote real-time diagnostics and increased automation add resilience to the network and aid meeting 99% reliability regulations in the Public ChargePoint Regulations (PCPRs)

Replacements

19 chargers remain on the Charge Place Scotland network because they have old software or hardware that is no longer fit for purpose. These are being replaced as a priority by the Partnership in an upcoming contract. A further 18 are due to be replaced after that due to their age and condition.

Both will improve the reliability of the existing network and the regional ability to meet the 99% reliability PCPRs.

New chargers

3 new rapid chargers are due to be installed -two at Tarbert, Harris, and one in Castlebay on Barra. Both locations were considered to lack sufficient and accessible charging provision to provide comprehensive network coverage.

Maintenance

We have been working towards establishing a local maintenance contract for a year, starting with our maintenance review this time last year, aiming to improve public confidence in network reliability by

- Improving fault fixing times and flexibility for resilience
- Reducing travel costs and milage/emissions

When a fault is reported, it will follow this escalation process:

1. The CPNO will try to fix this remotely
2. a local contractor will try to fix this on site
3. a technical specialist will be sent from the mainland.

Utilising local contractors for step 2 will contribute revenue and skills to the local economy.

This contract is time-bound by service level agreements and supported by KPIs, service credits and termination clauses (that were not possible with a sole supplier available previously), to help ensure a much stronger contractual position than was in place previously.

It has highlighted the need for funded resource to monitor and contract manage the maintenance and day to day operations of the networks

Partnership

Finally, Phase One has established a strong inter-authority working partnership that allows all parties to share learnings, challenges and opportunities. The Council officers involved include members of the operations, asset management, roads and climate change teams

and that diversity of expertise from their own work, localities and departments is a huge strength of the Partnership.

Strategic case

Our strategic case draws on the national, regional and local transport and climate policies summarised briefly below.

This is a constantly evolving landscape that will need to be monitored throughout EVIF.

National Policy

National Transport Strategy (2)

The Scottish National Transport Strategy (NTS2) focuses on a 20-year vision (2020-2040) underpinned by four key priorities that:

- Takes Climate Action: Aims for net-zero emissions by 2045, with a target to reduce car kilometres by 20% by 2030.
- Reduces Inequalities: Ensures transport is accessible, affordable, and inclusive for all, including supporting the Mobility and Access Committee for Scotland (MACS).
- Improves Health and Wellbeing: Promotes active travel (walking, cycling) to improve public health and creates sustainable, pleasant communities.
- Helps Deliver Inclusive Economic Growth: Connects people to jobs and services, improving transport reliability and efficiency, with investments in trunk roads and safety improvements.

These priorities are central to subsequent transport policies.

'A Network Fit for The Future: Vision for Scotland's Public Electric Vehicle Charging Network'.

EVIF is underpinned by Transport Scotland's '*A Network Fit for The Future: Vision for Scotland's Public Electric Vehicle Charging Network'.* This was published June 2023 and has five key themes, which are to ensure that:

1. Local communities, businesses and visitors have access to a well-designed, comprehensive and convenient network of public charge points, where these are needed.

2. The public electric vehicle charging network works for everyone regardless of age, health, income or other needs.

3. Scotland has attracted private investment to grow and sustain the public electric vehicle charging network.

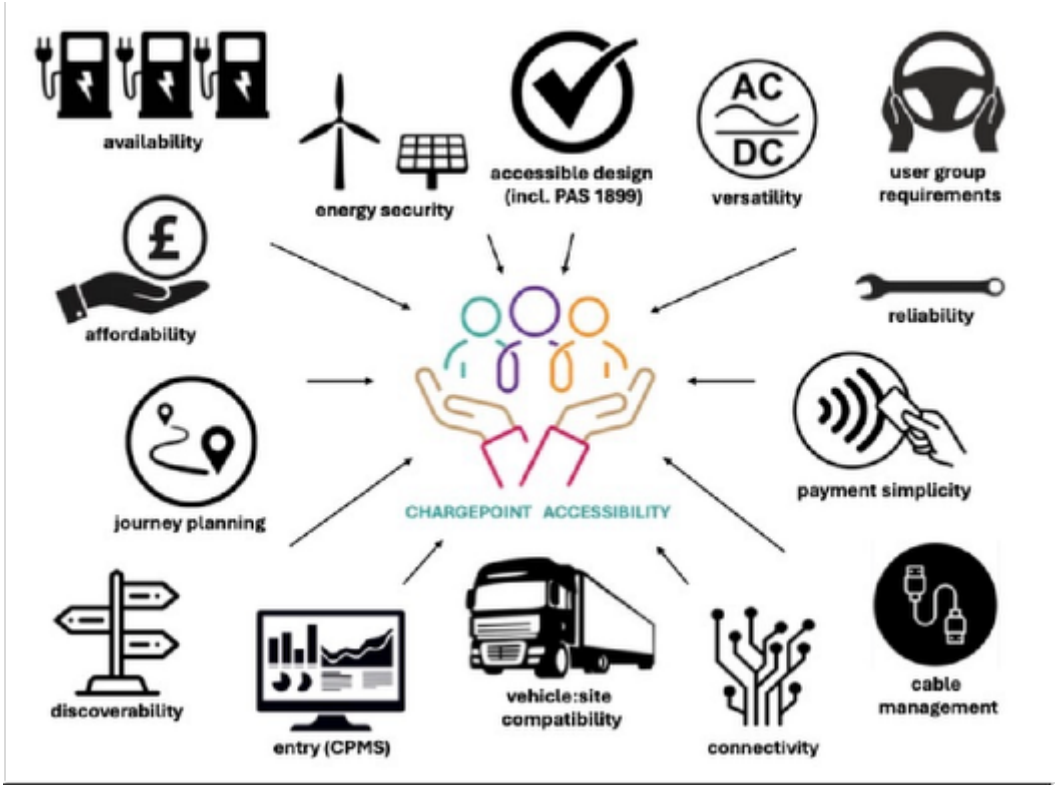
4. The public charging network is powered by clean, renewable energy and drivers benefit from advancements in energy storage, smart tariffs and network design.

5. People's first choice wherever possible is active travel, shared or public transport with the location of electric vehicle charge points supporting those choices.

The Cross-Cutting themes for EVIF are:

Delivering a just transition, including:

- Embedding Just Transition principles
- Fair tariffs (justified and affordable, particularly for those without access to off street parking)
- A network everyone can access and can use (inclusivity, considerations summarised below)



Environmental protection and sustainability, including:

- Embedding circular economy principles at all stages of developing and operating the network
- Incorporating green, renewable energy to power the network.
- Supporting a transition to a greater use of sustainable transport modes

Supporting development of Scotland's economy, including:

- Community wealth building
- Developing new economic opportunities, sustaining and creating quality green jobs
- A network that works for people and business that use EV cars and vans.

National Islands Plan 2026

Published in February 2026, Scotland's new National Islands Plan addresses unique challenges through seven key themes, aiming to improve housing, healthcare, and economic growth to increase population retention.

It recognises that every island is different, with its own unique mix of opportunities, challenges and aspirations.

It places strong emphasis on avoiding prescriptive top-down statements. Instead, the commitments set out in this Plan embraces place-based, flexible approaches and are designed to provide national-level support for solutions that are developed and delivered locally, in ways that are meaningful and relatable for the communities involved.

Island communities reported that benefits from renewable projects can be slow to materialise, while energy costs remain high and fuel poverty above Scotland's average. This points to the need for earlier, more inclusive approaches to ensuring communities share in the value of the energy transition.

Climate Change Plan 2026-2040
Scotland's Draft Climate Change Plan 2026–2040 prioritizes a just transition to net-zero by 2045, focusing on decarbonizing homes, accelerating a circular economy, and building infrastructure resilience.

Relevant Key Strategic Priorities include:

- Infrastructure & Energy: Rapid decarbonization of homes and energy infrastructure, moving beyond just technological innovation to fundamental improvements in building energy efficiency.
- Just Transition & Skills: Embedding workforce development as a core enabler, particularly for regional economies (e.g., Highlands) ensuring that skills training supports long-term economic and social resilience.
- Circular & Regional Economy: Transitioning towards a wellbeing-centred, circular economy, rather than focusing solely on GDP-based growth.
- Transport Decarbonization: Moving toward more sustainable transport solutions, addressing the need for faster action beyond current low-emission zones.

The plan stresses:

- a determination to maximise the economic opportunities for Scotland and seize the opportunities in front of us, while ensuring that people across our society can share in the benefits.
- that it is only by working together that we can deliver a united and ambitious response to the climate crisis across all sectors of society. Achieving net zero will be a collective effort

Transport Scotland Public Sector Fleet Action Plan (draft)
This identifies five barriers to fleet decarbonisation and intervening actions

1. Lack of senior leadership buy in to zero emission vehicles
2. High upfront cost of ZEV and infrastructure
3. Existing operational structure or approach/practices limiting alternative approaches or collaboration
4. Lack of skills and capacity within public bodies and the supply chain
5. Grid capacity and lead-in time for upgrades

Actions suggested include:

- Consider energy needs beyond transport and identify opportunities to integrate distributed energy resources, such as solar, battery storage or microgrids. Utilise

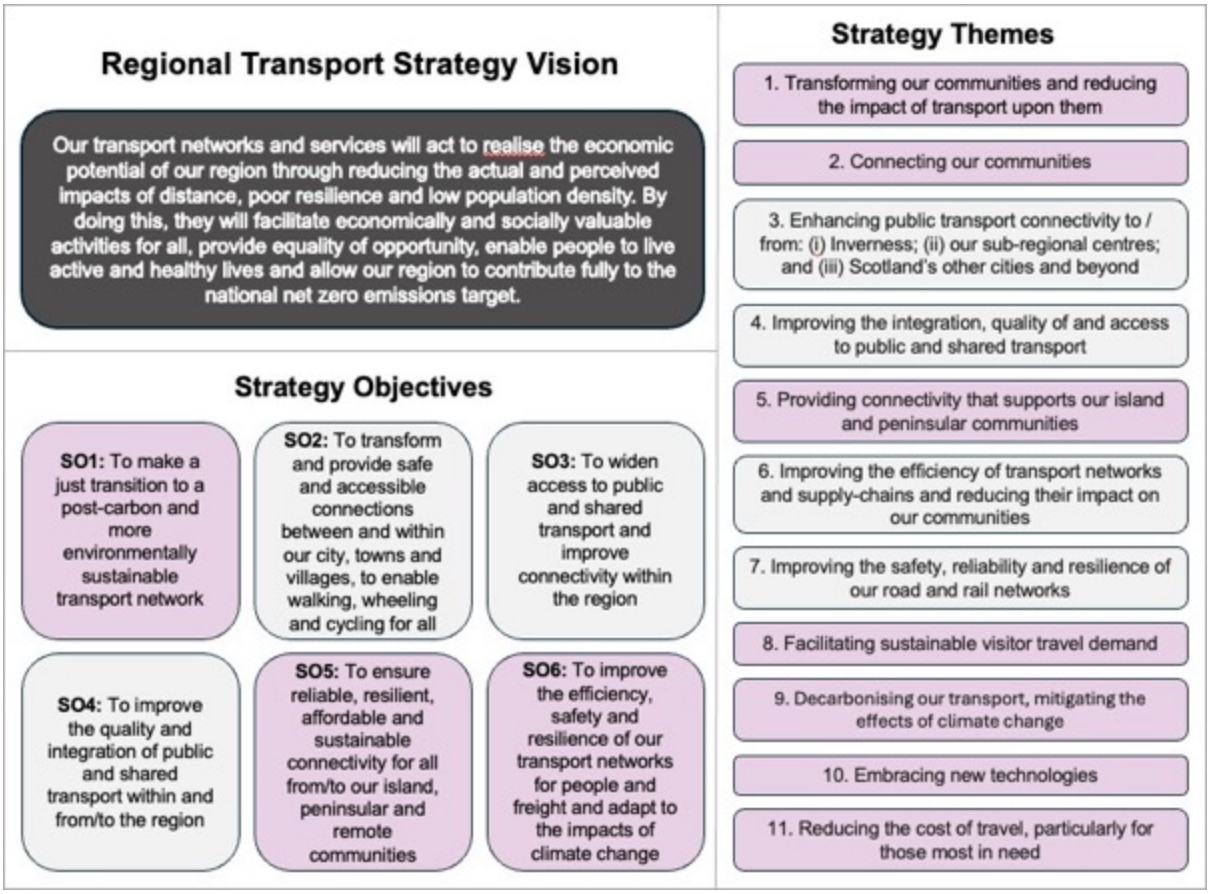
smart charging, load management and grid optimisation to enhance energy efficiency and maximise the use of available grid connections.

- Explore options to share access to charging infrastructure, partner with third parties and consider accessing charging or refuelling at other locations, particularly for high-capacity charging requirements. Where possible identify opportunities for the private sector to invest in infrastructure for zero emission vehicles, minimising public investment and maximising utilisation of installed infrastructure, regardless of who owns or operates the infrastructure.
- Consider opportunities to create revenue streams by partnering with the private sector and providing access to EV charging, where appropriate and possible, to other fleets or EV drivers.
- Ensure organisational energy needs are understood and contribute to coordinated planning of management and investment in energy systems for the public sector estate and fleets
- support cross-sector collaboration and enable early engagement with DNOs.

Regional Policy

HITRANS Regional Transport Strategy

The objectives of the HITRANS Regional Transport Strategy (RTS) 2025-2045 are summarised in this diagram, with the sections highlighted in purple particularly relevant to EVIF.



HITRANS EV Strategy

The HITRANS EV Strategy was developed in 2016, before tariffs, PCPRs etc. Much of it has been achieved or superseded, but collaborative expansion and exploiting renewable energy opportunities remain relevant (exploring battery technology to help manage peaks and troughs in generation and supply, making use of energy generated in the region, and smart charging/load balancing)

Local Policy

Orkney Sustainable Energy Strategy (2017-2025)

A Sustainable Energy Strategy for Orkney has been developed in partnership by, among others, Orkney Islands Council, Highlands and Islands Enterprise (HIE), Community Energy Scotland (CES) and the Orkney Renewable Energy Forum (OREF), on behalf of the wider community.

It presents a vision for the islands:

'A secure, sustainable, low carbon economy driven uniquely by innovation and collaboration, enabling the community to achieve ambitious carbon reduction targets, address fuel poverty and provide energy systems solutions to the world.'

The Strategy sets out five targets for Orkney:

- The achievement of ambitious carbon reduction targets.
- The reduction and eradication of fuel poverty in Orkney.
- Positioning Orkney as the globally recognised innovation region to develop solutions for the world's energy systems challenges.
- Ensuring a secure energy supply during transition to a low carbon future.
- Maximising economic opportunity and investment in Orkney.

Shetland Transport Strategy Refresh (2018-2028)
In this refresh, the vision was revised to develop travel and transport solutions for Shetland that underpin their Economy, support their communities and conserve their Environment

So1 To underpin Shetland's economy by enabling residents to access employment, training and leisure, businesses to access labour markets, customers and suppliers, and non-residents to visit

SO2 To support Shetland's communities by enabling individuals, families and localities to thrive socially, physically and economically

SO3 To conserve and enhance Shetland's unique natural environment by developing and promoting healthy, sustainable and low-carbon travel choices

Shetland Islands Climate Change Strategy 2023-2027

The Shetland Islands Council (SIC) Climate Change Strategy aims to transition Shetland to a net-zero, resilient community, focusing on fairness, sustainability, and economic benefit. Key aims include fostering partnership-driven solutions, enhancing energy efficiency, and adapting to climate risks systematically.

Key Strategic Aims

- Just Transition: Ensuring the transition to a low-carbon economy reduces, rather than increases, existing structural inequalities, such as high fuel poverty and transport costs.
- Systematic Response: Implementing a "Strategic Outline Programme" that offers a proactive approach to tackling climate issues, rather than reactive measures.
- Partnership Working: Actively identifying and delivering shared solutions alongside partners to maximize effectiveness.
- Targeted Solutions: Developing strategies that realistically address Shetland's unique environmental and structural challenges.

These aims are part of a broader, long-term effort to ensure Shetland can adapt to climate change while fostering a sustainable, equitable local economy.

Comhairle nan Eilean Siar Climate Change Strategy 2022-2027

The Climate Change Strategy sets out how the Comhairle will support the islands' decarbonisation Net Zero whilst strengthening resilience to climate change and its increasingly threatening impacts. The Strategy aligns with The Climate Change Act (Scotland) 2019 which commits Scotland to Net Zero by 2045 and outlines three strategic priorities which align with national priorities. These include:

1. 'Carbon Neutral Comhairle – zero direct emissions by 2038 and minimal indirect emissions
2. Net Zero Islands – support the islands towards net zero by 2045
3. Climate Resilient Islands – support improved climate resilience throughout our islands'

Furthermore, the Strategy highlights how transport emissions are the single biggest source of greenhouse gas emissions in Scotland, signifying the national commitment to phase-out new petrol and diesel cars and vans by 2030 and in turn, Comhairle's commitment in ensuring the islands are ready for this transition through the roll-out of EV charging infrastructure.

Comhairle nan Eilean Siar *Draft* Carbon Management Plan 2026–2030

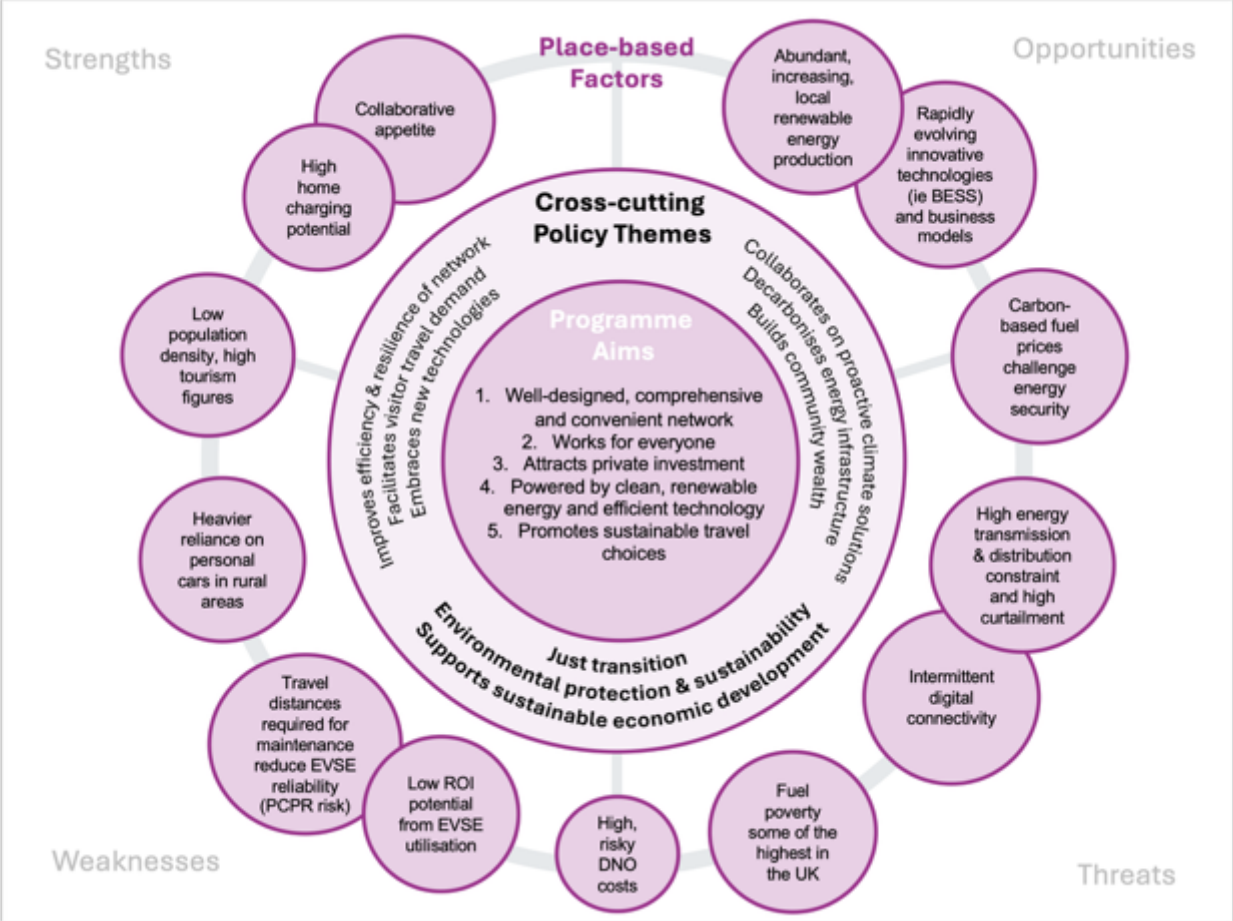
The draft Carbon Management Plan 2026–2030 sets out how Comhairle nan Eilean Siar will reduce its greenhouse gas emissions across its estate, fleet, and operations in line with statutory climate duties and national net zero ambitions. The Comhairle has already achieved substantial reductions but aims to achieve a corporate emissions reduction of approximately 60% by 2030, measured against their established 2016/17 baseline year. The plan establishes a structured framework for this, integrating carbon management into governance, decision-making, and service delivery, while recognising the unique challenges of operating across a dispersed island geography. Strategic Objectives include decarbonising fleet transport, including expansion of electric vehicles and charging infrastructure.

Argyll and Bute EV Charging Strategy
Argyll and Bute developed their own EVIF Strategy and expansion plan in 2024 before joining this Partnership, that incorporated its own policy, objectives, outputs and outcomes. This evolved into its EV charging policy in October last year, which has been approved by its committee.

This Business Case aims to incorporate that Strategy into a regional business approach to the benefit of all.

Policy Summary

This summary shows the policies determining the development of our business case, and



the place-based strengths, weaknesses, opportunities and threats that equally shape its direction.

Vision

To develop a commercially investible EV charging network that secures affordable clean energy so that it is financially and environmentally sustainable.

Network growth will deliver an effective charging network that works well for locals, businesses and visitors alike and is based on lifestyle charging, where the solution fits with current behavioural patterns and facilitates sustainable travel choices where possible.

Objectives

Short term objectives for 2026

- Complete Phase One– Transition: Improved maintenance & upgrade of existing charging infrastructure
- Submit this business case recommendation to Council committees
- Coordinate & sign-off the agreement of the inter-council legal agreement for Phase Two
- Agree network design parameters for:
    - network gap analysis, taking private provision into account
    - applying PAS and accessibility guidance across a percentage of each Council's network portfolio
    - a minimum digital communication threshold for each site and a communications or contingency plan if that isn't achievable
    - utilisation viability for a public network installation
    - maximum distance or cost for connection
    - the energy supply
- Design a network that
    - is based on convenient lifestyle charging
    - facilitates sustainable travel choices through installing co-located charging at appropriate travel intersections (e.g. ferry terminals, last mile zones)
    - Meets PCPR 99% reliability with each Council area rather than as a CPO network
    - considers charging expansion and development potential for fleet and large vehicles
    - removes or mitigates flood risk and touch potential (risk of electric shock from being in contact with 2 electrical circuits at the same time)
    - appraises options to power the network with clean, renewable energy
    - utilises the most appropriate charging type and technology for each site
    - is in close proximity or mitigates distance from existing electrical infrastructure (through battery storage or off-grid solutions)
    - is financially self-sustaining
    - is a low-risk operation
- Prepare procurement to expand and deliver the infrastructure proposed in this business case

Medium-term objectives from 2027-2030

- Procure and deliver infrastructure towards the demand forecast in this business case
- Monitor the performance and scope of the network for commercial viability
- Test the market for commercial interest in the region
- Promote customer knowledge and behaviour change in support of objectives
- Engage with fleet owners to understand and facilitate sharing public chargers for mutual financial sustainability
- Resource the day-to-day operation of the regional network
- Feedback to Transport Scotland on specific challenges encountered that would benefit from funded exploration, particularly for annual funding if muti-year funding is not available

Long-term objectives (beyond EVIF, long term operation)
Optimise regional opportunity by collaboratively exploring how EV charging can

1. best integrate into and compliment the regional energy systems as they decarbonise and
2. utilise and support local power to the benefit of local people

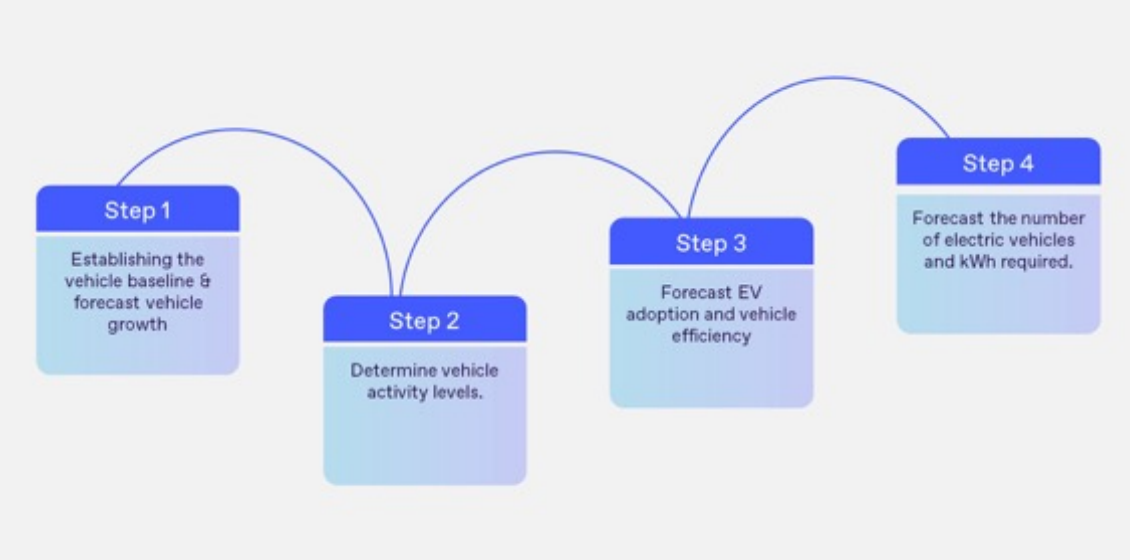
Collaborate with regional stakeholders on an integrated plan for large vehicle decarbonisation

Economic case

Forecasting Demand

Approach

Urban Foresight undertook a detailed modelling exercise and defined a four-step approach to forecast the expected demand for EV charging across the Partnership region.



1. Establishing the vehicle baseline and forecast of vehicle growth

Electric Vehicle Ownership Baseline
In February 2025, the Climate Change Committee (CCC) published their Seventh Carbon Budget.

Below are the baseline figures for EV ownership across the Partnership area and the targets in the Climate Change Committee's 7th Carbon Budget. The variance in projections highlights the significant gap between the current EV adoption and the target projections set out in the CCC's Seventh Carbon Budget.

Total BEVs*

ABC	1209
CNES	251
OIC	515
SIC	280

* DfT registrations + motability leasing uplift

Proportion of Vehicle Stock that are BEVs

Cars	2025 Q3	2025 7th Carbon Budget Target	Difference
ABC	2.49%	5.83%	-3.34%
CNES	1.49%	5.83%	-4.34%
OIC	4.30%	5.83%	-1.53%
SIC	1.96%	5.83%	-3.87%

Vans	2025 Q3	2025 7th Carbon Budget Target	Difference
ABC	0.73%	2.99%	-2.26%
CNES	0.49%	2.99%	-2.50%
OIC	2.69%	2.99%	-0.30%
SIC	1.10%	2.99%	-1.89%

2: Forecast Vehicle Growth

Forecasting a growth in motorisation rate (vehicles per 1,000 population) was adopted as the most suitable approach to project total vehicle stock to 2035 across the partnership region.

	2026		2030		2035	
	Cars	**Vans**	**Cars**	**Vans**	**Cars**	**Vans**
A&B	**44,000**	**9,680**	**43,772**	**9,630**	**43,357**	**9,539**
CNES	**13,686**	**4,390**	**13,481**	**4,324**	**13,158**	**4,221**
OIC	**11,525**	**3,546**	**11,485**	**3,534**	**11,412**	**3,511**
SIC	**12,077**	**3,948**	**12,029**	**3,933**	**11,903**	**3,891**

The vehicle numbers fall because of the population decline expected

2 Vehicle Activity Levels

Once a baseline for the total number of vehicles was established, the next stage was to investigate transport activity levels by understanding the average vehicle kilometres travelled across each local authorities' roads on annual basis.

2024 statistics for each Council were taken from DfT Road Traffic Statistics, which include visitor-based mileage made within each Council area. All road kilometres were then divided by the registered cars in the area to get a baseline of vehicle activity at an individual level and although this is therefore slightly inflated per vehicle, it does capture visitor travel too. These are:

- 692 million car-km in A&B in 2024 (12,898 per vehicle)
- 158 million car-km in CNES in 2024 (8,787 per vehicle)
- 105 million car-km in OIC in 2024 (7,016 per vehicle)
- 164 million car-km in SIC in 2024 (10,263 per vehicle)

Scottish Average Car & taxi km = **15,224km** (https://roadtraffic.dft.gov.uk/regions/S92000003)

Although there is a government target to reduce car km by 20%, progress to this target is reportedly 7-8%, but likely less in rural areas where car journeys are longer and relied upon more heavily for travel.

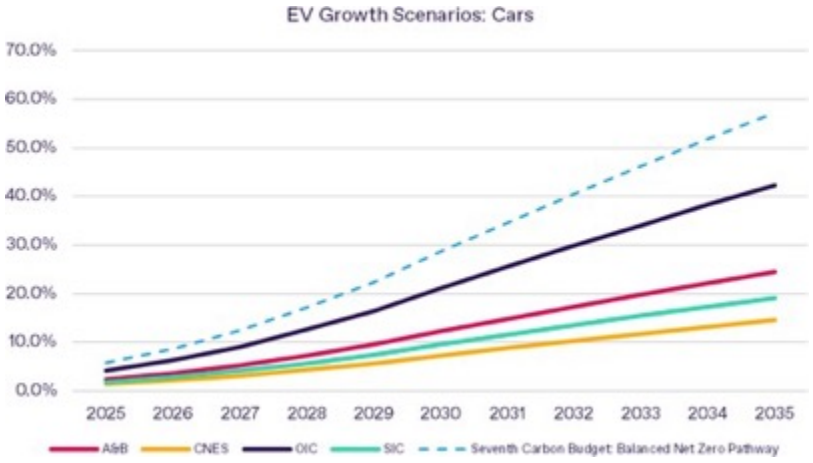
Average car kilometres have therefore been kept constant for projections onto EV ownership growth. The total vehicle kilometres are therefore expected to decrease with the projected

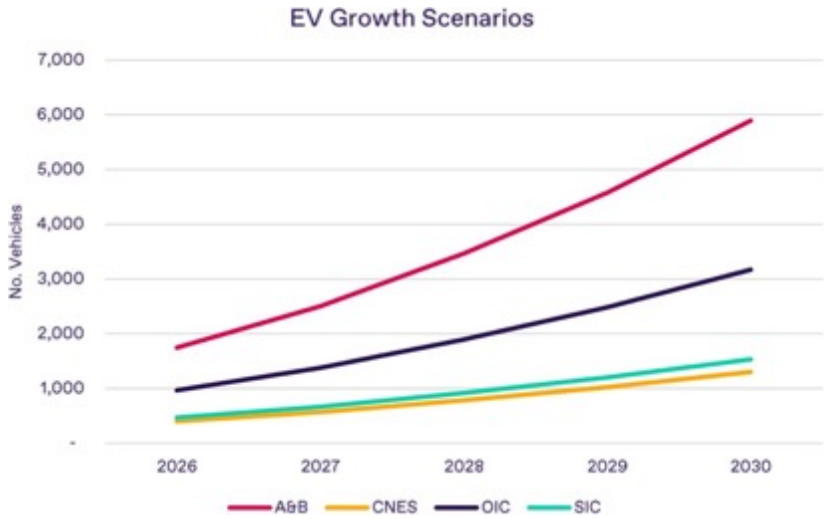
decrease in the total number of vehicles. The proportion of total vehicle km that are electric is expected to increase as the percentage of EVs in the vehicle stock increases.

Note, that the difference in the distance travelled to access key services is extremely variable between rural and urban settlement geographies in each local authority area. The averages of vehicle activity levels therefore provide the best estimate of the Council-wide average vehicle activity but are likely to differ between locations significantly.

3. Forecast EV adoption and vehicle efficiency

The adjusted CCC Growth reflects the current starting position of EVs as a percentage of the total vehicle stock when compared to the projected Climate Change Committee scenario for 2025. This was selected as the most appropriate curve to compare projections of EV growth within the partnership area, illustrated by the dashed blue line in the graph below.





Orkney has a higher proportion of its vehicle stock as BEVs compared to Argyll and Bute, so is the highest line on the top graph. Argyll and Bute however have a higher number of vehicles than Orkney overall and therefore are the highest line in the bottom graph

Vehicle energy efficiency

A wide range of sources were used to estimate the energy efficiency for the car and van vehicle segments considered in this analysis. Market assessments of historic EV models were carried out by Urban Foresight, to understand the current average efficiency in km/kWh for each vehicle segment.

4. Forecasting the kWh of charging required from the projected number of EVs

The number of projected EVs for each local authority were multiplied by the average car kms per vehicles and energy efficiency of EVs to project total energy demand from EVs by 2030.

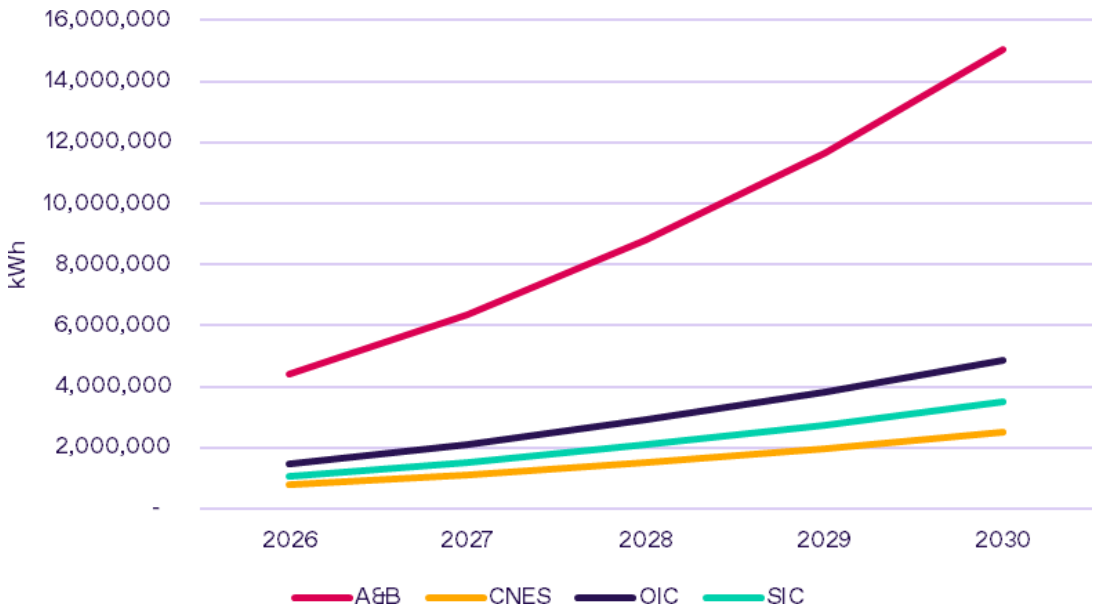


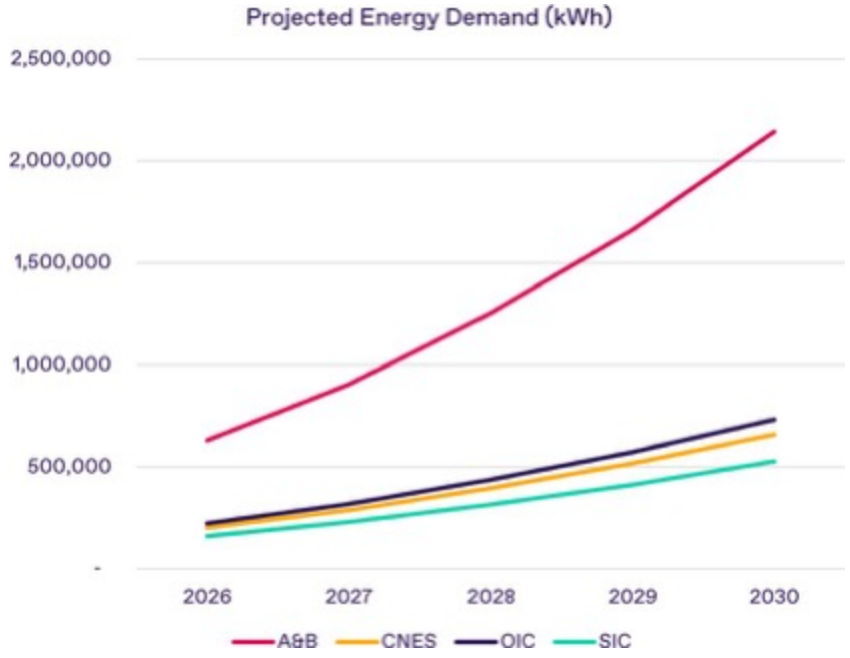
Figure 1 Projection of Total Energy Consumption from EVs

To understand the current proportion of energy consumption from EVs on the Council-owned EVC network, we compared the current utilisation against the estimated total energy requirements for each local authority.

It is estimated that between 14-26% of EV energy consumption was undertaken on the Council owned EVC public networks, with CNES having the largest percentage of the local authorities (26%).

	% of energy used on public charging in area	Energy projection for 2030 in kWh
ABC	14%	2,143,334
CNES	26%	658,771
OIC	15%	732,160
SIC	15%	527,802

The proportion of energy used on the Council network was assumed to remain constant to 2030, providing the projected energy demand required for public EV charging in the Partnership area below



Projected infrastructure demand

After following the four- step approach to forecast the expected demand for EV charging across the partnership region, the final process was to calculate the infrastructure required.

We first needed to project historical utilisation data to future forecasts.

Current utilisation averages are shown below, with aspirational figures for 2030 based on a target 5% growth recommended by Scottish Futures Trust. The figures highlighted pink are below the range expected by Scottish Futures Trust from external analysis.

Utilisation in kWh per unit

	Current		Aspirational 2030 utilisation with 5% annual growth on current figures	
	Fast	Rapid	Fast	Rapid
A&B	4592	24,373	5,582	30,196
CNES	1,349	11,215	1,640	13,632
OIC	2,539	6,651	3,086	8,085
SIC	3,570	13,533	4,339	16,449
SFT Target Range*	5,620 - 26,977	18,110 - 54,329	6,831- 32,791	22,013 - 66,037

*expected from external analysis

The estimated quantity of public EV charging, both fast destination and rapid “top-up” charging infrastructure was established by dividing the total annual charging energy required (kWh) by the current Council owned percentage of the network (detailed in the Baseline position) and further dividing it by the aspirational charger utilisation (kWh).

This forecast the number of publicly owned chargers required by 2030 (highlighted pink)

Chargers by Type (Units)	projected energy demand for 2030	council infrastructure proportion of energy as a percentage	council infrastructure proportion of energy in kWh	strategic AC/DC installation ratio for EVIF programme	energy demand per charging type	aspirational utilisation rates (5%annual growth)	total public infrastructure required by 2030 with aspirational utilsiation	adjusted aspirational utilisation rates	total public infrastructure required by 2030 with adjusted aspirational utilisation
A&B	2,143,334	0.6	1,286,000						
Fast Charging (7 -22kW)				1	643,000	5,582	115	6,831	94
Rapid -charging (50kW+)				1	643,000	30,196	21	30,196	21
CNES	658,771	0.71	467,727						
Fast Charging (7 -22kW)				1	155,909	1,640	95	6,831	23
Rapid -charging (50kW+)				2	311,818	13,632	23	22,013	14
OIC	732,160	0.89	651,622						
Fast Charging (7 -22kW)				2	434,415	3,086	141	6,831	64
Rapid -charging (50kW+)				1	217,207	8,085	27	22,013	10
SIC	527,802	0.83	438,076						
Fast Charging (7 -22kW)				1	219,038	4,339	50	6,831	32
Rapid -charging (50kW+)				1	219,038	16,449	13	22,013	10

* changed to lowest aspirational value in SFT range

A sensitivity test was conducted to see what happened if utilisation didn’t grow and remained at current levels. Though not shown in this table, this resulted in a higher number of chargers required to accommodate the same vehicle growth that was forecast.

The errors in Orkney’s data, concluding very low utilisation, therefore skews these forecasts. Data analysis from 2021/22 showed DC utilisation to be largely in line with the Western Isles and therefore the calls highlighted orange were manually increased to the lowest value from the SFT expectations.

It’s preferable to increase provision through utilising existing capacity rather than installing more chargers, especially given regional utilisation compared to SFT expectations, so AC utilisation for Orkney and the Western Isles was also manually adjusted (highlighted orange above) to reflect this. This resulted in a more reasonable infrastructure requirement

This forecast represents a snapshot calculation and there are multiple factors and assumptions that could go on to change this forecast (policy, tariffs, oil prices) in the future.

The infrastructure requirements analysis estimates the level of infrastructure and power impact on the grid (kVA) and does not account for demand created by dispersed utilisation across large land areas.

Economic distribution

The next section summarises the factors explored so far that influence the economic distribution of new infrastructure within the Partnership region and the distinct profile of each authority that shape its place-based charging approach

In all the local authority areas, there is:

- Grid constraint
- Mobile signal can be weak or intermittent
- Renewable energy generation growth is very high
- Fuel poverty is high
- Evidence of creative solutions to energy system challenges

Argyll and Bute:

- Has a larger land area than the three Island Authorities combined
- Currently has utilisation well within SFTs expected range for DC mainland and close to it for AC, an increasing growth forecast and a tariff close to private market averages
- Is likely to use less contingency costs for installations than Island Authorities
- 42% lack off-street parking, compared to 15-20% on Island Authorities
- Includes 28 inhabited islands

All Islands (including Argyll and Bute's)

- Require additional contingency for civils works (length and underground uncertainty) and travel expenses
- Vehicles qualify for MOT exemption if driven exclusively on island (Orkney and Shetland mainland not included). These vehicles must still be roadworthy, but the length of time these vehicles may circulate may impact EV uptake on the islands.
- As strategy considers charging provision extending into smaller islands, best value for public spending needs to be considered: Hoy and Walls – 419, Iona- 177. (https://www.gov.scot/publications/scottish-islands-typology-overview-2024/pages/7/ , n.d.) For these numbers, do public chargers offer best value or would assistance and encouragement towards co-charging (for homes and businesses) be better value?
- May benefit from behaviour change initiatives as much as installations given utilisation rates
- Incur additional travel costs to resolve vehicles recalls and faults

Island Authorities/Islands

- Utilisation is lower than in Argyll and Bute and there is capacity on existing infrastructure to improve that. Prioritising the infilling of network gaps and building redundancy to improve public confidence in reliability will help.
- 15-20% homes have no access to on-street parking on the Island Authorities. It is generally assumed that this translates to home charging provision being high but anecdotally, installing smart meters has been a significant barrier to this. Public charging is a top up to base charging and an essential foundation for both uptake and public charging demand.
- Tariffs are still subsidised

The Western Isles

- A long island chain with multiple access points to UK mainland to cater for
- the most dispersed population with EV charging supporting/being supported by the highest multiple of visitors
- the highest fuel poverty in the country
- AC utilisation is low, perhaps reflecting the provision of private AC chargers
- Has the highest percentage of energy used on public charging network of the partnership area -26% compared to 14/15%

Orkney Islands

- Passionate EV community of innovative adopters

- High EV uptake and proportion of BEVs to vehicle stock
- Driving distances are really low (approx. 20miles a day according to Reflex)
- AC utilisation is low, perhaps reflecting the previous point
- DC utilisation is low but is likely a data anomaly
- Has the long and intermittent intra-island crossings, creating access barriers to chargers on Orkney mainland and to local maintenance

Shetland Islands

- Furthest from mainland UK, impacting maintenance and skills access most but driving independent solutions
- Economy was built on energy and is undergoing an energy transformation and connection to UK mainland for first time
- Rural energy hubs learnings
- Last of the partnership authorities to introduce a charging tariff but has steadily increased this
- Council agreement to look at opening up access of fleet chargers to the public (at the Council's discretion)
- Relatively small driving distances within the archipelego

Funding distribution

We are not proposing relying on private capital as part of the approach to the Phase Two business case, so the investment required will be the grant required.

Argyll and Bute Council were given an indicative grant of around one third of the £3m before joining this partnership.

All 4 Councils agree that given the forecast infrastructure demand and profiles above, it would be fair for Argyll and Bute to still receive this proportion of the partnership funding. They also agree it would be best to divide the remining funding approximately equally between the Western Isles, Orkney and Shetland.

Orkney is most likely to start attracting independent private investment given uptake figures.

Western Isles arguably has the highest barriers to adoption, but as it has the lowest uptake, 5% utilisation growth may not materialise.

Outputs

Budget spend is detailed in the financial case, but we propose the following outputs

- **13 AC and 13 DC chargers in Argyll and Bute**
- **4 AC chargers and 5 DC chargers for Western Isles**
- **4 AC chargers and 5 DC chargers for both Shetland Islands**
- **10 AC chargers and 3 DC chargers for Orkney Islands.**

Total output: 31 AC chargers, 24 DC chargers

Council committees will be asked to authorise these installations and the charger types may vary with that, so installation outputs will be an equivalent cost to this budget rather than specifically the numbers given.

Installation costs across the Island Authorities are costed at a higher per charger rate, so it does appear that Argyll and Bute are getting nearly half of the benefits, where this is not the case financially.

Network expansion is unlikely to achieve comprehensive *accessible* coverage across historic single charger sites, so the Island Authorities also want to commission a desktop review of accessibility provision by buffer zones.

Contingency has been budgeted separately, approximately £150,000 for Argyll and Bute and £300,000 for the Island Authorities

We propose that unspent contingency would fund further chargers in Argyll and Bute

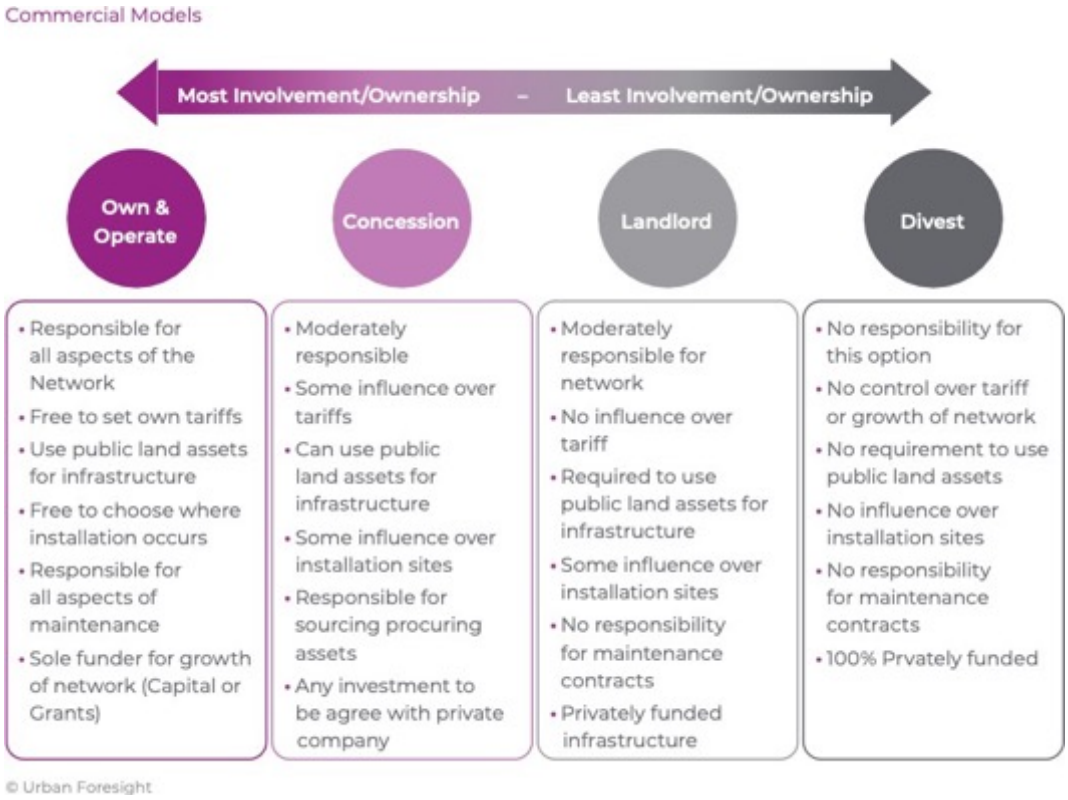
Unspent contingency in the Island Authorities may be better used to prioritise other strategic objectives over further network expansion. Tasks to this end might include:

- Network review and remedial work for improved communications
- Remedial work from accessibility review
- Behaviour change initiatives to encourage uptake, such as:
    - Encouraging local EV champions to volunteer as eyes/feet on the ground for fault fixing, especially important in the less accessible areas such as the outer isles of Orkney. This might be achieved through the incentive of a lower charging rate
    - Promoting ZapMap (signposting charegpoint locations for accessibility)
    - Trialing smart pricing to demonstrate how this can change behaviour, save money and increase or reduce energy demand as necessary
    - A 2-way platform to challenge myths and listen to local challenges
    - Encouraging home and business co-charging. This is a benefit for users, makes maximum use of grid connections and is a form of private investment

To inform this decision we propose a further funding outcome:

To identify the criteria that determines when the network is considered commercially viable, but also strategically successful.

Theis might include the design parameters we define from our objectives, and opportunities and risk from the model diagram below:

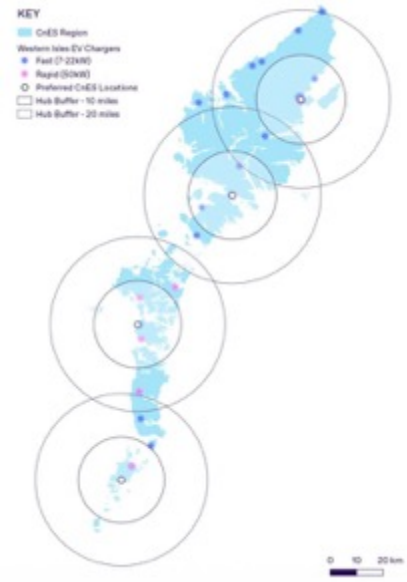


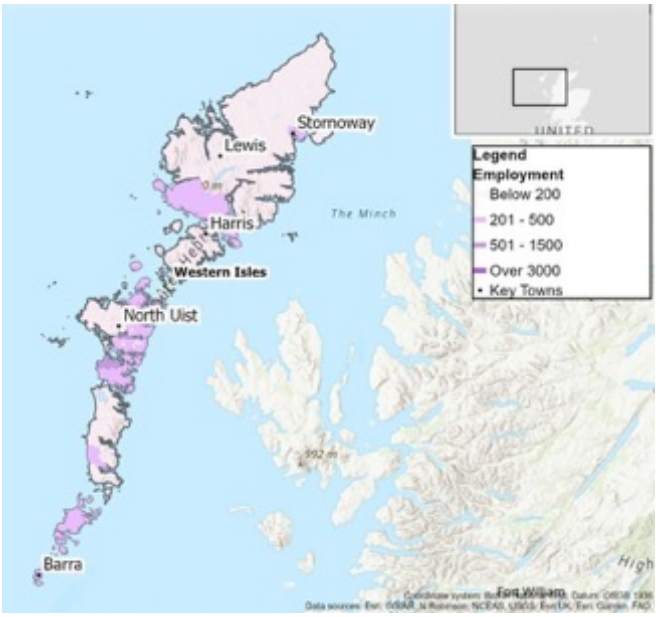
In summary, the success criteria would indicate when the network has reached the desired foundational level for private partnership expansion. Fulfilling those criteria might go beyond the EVIF timeframe but would give structure to future financial, management and operational decisions.

Council approaches and reasoning for network expansion

Theis section outlines the criteria and priorities that determine the expansion strategy in each Local Authority area.

Western Isles – 4 hubs





Approach:

- Looking to develop four hub clusters in Lewis (Stornoway), Harris (Tarbert), Uist (Balivanich) & Barra (Castlebay). Clusters refers to chargers within a settlement area rather than a hub where are the chargers are physically on the same site.
- Rapid chargers would be deployed at central points then fast chargers deployed in surrounding areas in the longer term, subject to private provision

Reasoning:

- Comprehensive gap analysis shows it to cover nearly all landmass
- This also helps those driving the length of the island chain or entering and exiting the islands from different mainland ferry ports
- It supports employment centres, shown above right, and commutes to them
- Hubs have proved to help with their maintenance challenges (building in redundancy) and improved confidence in public charging as a result, (demonstrated by increased utilisation on the FASTER project)

<u>Orkney</u>

Approach and reasoning

- Theme one: install standard chargers at Healthy Living Centres and Schools to support locals on the outer isles
    - Travel between Orkney mainland and the Outer Isles can take days
    - Supports employment areas outside of the mainland, where there is currently no public provision
    - Fills in area gaps identified from network mapping
- Theme 2: install standard to rapid chargers at tourist attractions and transport terminals to support tourism and onward travel

- Kirkwall has a high tourism swell and is a major cruise port
- Electric hydrofoil charging is on trial at Kirkwall harbour

- Theme 3: add chargers to existing sites to increase availability and reliability (site confidence and utilisation was shown to increase in the Western Isles as redundancy was built into networks)

Preference for fast chargers

- Driving distances on Orkney are small
- AC connection, install and maintenance costs are lower than DC costs
- Current 150kW charger not used much

Shetland

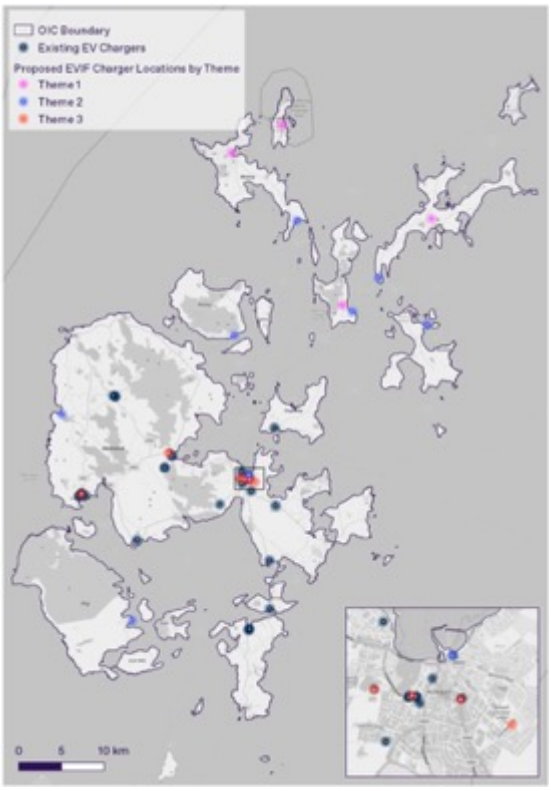
The geography of Shetland reduces the number of main routes through the Islands. The main spinal route is the A970 (south to north mainland) with the A968 covering the North Isles and A971 the West Mainland.

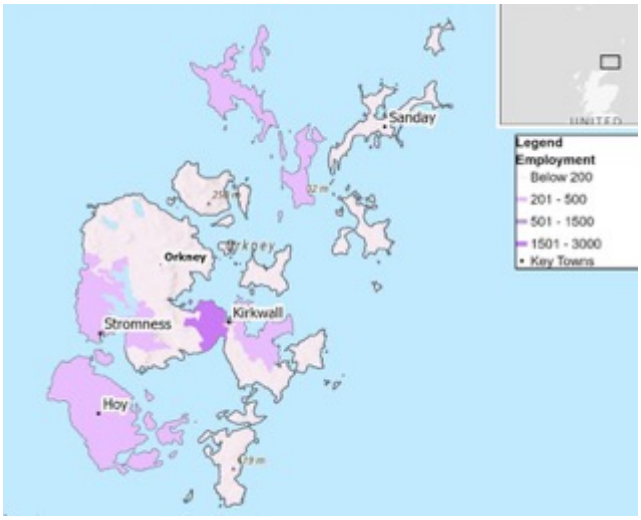
Shetland's EV charging approach is to meet the twin aims of providing public coverage for Shetland's residents and also tourist season.

The Council look to expand existing locations where possible to small hubs (to provide backup and increase confidence) and provide additional on-route chargers.

They will also combine fleet/public hubs where possible to make the network more economically viable & account for separate private developments in planning the network expansion.

For additionality, there is potential for co-located e-bike charging facilities, for example on the network of roads to the Viking windfarm





Argyll and Bute

Argyll and Bute's expansion strategy has evolved over the course of EVIF so far.

Originally expansion was based on themes of charging that fitted in with how people already travelled -lifestyle charging.

Theme 1 — 50kW or mixed hubs for charging on the move, providing a rapid charger every 25-35mins, prioritised in tranches according to the existing road and pier hierarchy
Theme 2 – 22kW destination charging to fit in with the sustainable travel hierarchy and provide some residential support
Theme 3 – 7kW residential charging

Performance analysis showed rapids were providing 70% of charging income and with a drive towards commercial viability and long-term financial sustainability, this, alongside installation efficiencies, would raise further funds for growth.

They re-profiled requirements, categorising settlements by population and tourist swell, looking to provide scaled hubs to correlate.

Town/area	Pop	Tourist swell	Hub/cluster
Helensburgh	13k	N	5R; 5F
Oban	8.5k	Y	5R; 5F
Dunoon	8.9k	N	3R; 3F
Lochgilphead	2.3k	N	2R; 2F
Campbeltown	4.5k	N	2R; 2F
Islay – Bowmore	3k island	Y	3R; 3F
Mull – Craignure	3k island	Y	3R; 3F
Bute – Rothesay	6k island	N	3R; 3F

By hub they mean a cluster site inside a 1mile radius, and these would be provided inclusive of existing provision, both council and private.

A long-term second phase (beyond EVIF) will see installations in network gaps, particularly island and lifeline locations, but considering utilisation potential.

Essentially, Argyll and Bute are taking a portfolio approach to their network, with more profitable charging supporting some of the less profitable sites.

Long-Term Economic Approach

Establishing the long-term economic approach is more complex.

At present, the commercial case for EV charging in the Islands Authorities particularly is weak and we are looking to add long term to very constrained energy systems. This comes at a time when constraint is at a peak. Systems are evolving fast on a huge scale, but the energy system upgrades required are 5-10 years away and current systems have flexed as much as they can. The challenge is at its peak and therefore the opportunity is at its peak because necessity drives innovation.

Regional renewable generation opportunities are growing rapidly and by 2030, constraint particularly should be less of a regional challenge, but as subsea links are built on committed demand, it's unclear quite how this will evolve. Reducing constraint helps the wholesale market but may negatively impact on the opportunity for residents to benefit from local energy production, something there is a strong call for, as demonstrated in the Shetland energy profile from the Islands Centre for Net Zero.

Nationally, regionally and locally, there is reason to explore opportunities here. Renewable energy production is a huge and growing regional natural asset. However, the commercial case for EV charging networks, as energy assets, is weak, despite public buy-in to transition to local energy sources.

The Partnership proposes that a task force is set up to explore these opportunities and clarify what the partnership can bring to the table in a commercial partnership and how we collectively leverage that for best regional value. This would bring long-term additionality to the EVIF project work.

Proposed outcome: Establish a regional cross-sector transport and energy taskforce to optimise regional economic opportunity by collaboratively exploring how EV charging for all types of vehicles can

3. **best integrate into and compliment the regional energy systems as they decarbonise and**
4. **utilise and support local power to the benefit of local people**

The taskforce will set its own objectives, but it will also identify any specific project scopes and further funding opportunities that would support these aims, particularly for annual rather than muti-year funding to facilitate the delivery of an ambitious national Climate Change Plan

Taskforce objectives could include:

<u>Strategy</u>

- A key priority in energy transition for all four local Councils is improving the capacity and efficiency of heating buildings through Council LHEES (Local Heat and Energy Efficiency Strategies) action plans. With the cost-of-living crisis, this is a major concern above transport decarbonisation for many residents. However, whole energy transition plans including heat, electricity and transport are vital. It's important to still consider the opportunities arising in collaborative networks, system and connection upgrades and the 2-way capacity of EV charging.

- Regional Energy Strategic Planning is due to come in to, bringing together planning for electricity, gas, and hydrogen networks, but there will only be one plan to cover Scotland. This taskforce could provide observations that represent rural and island perspectives
- Power Purchase Agreements are increasing in England, where an offtaker commits to purchasing power long term at a fixed price. The offtaker can then trade with their energy, potentially bringing savings for EV charging through dynamic pricing, which changes in line with real-time market supply and demand. Scottish Futures Trust are exploring this possibility for Scotland. A step towards this could be to introducing smart public tariffs to encourage demand shift. This helps empower locals to impact energy transition through their behaviour, as identified in the Shetland energy profile from the Islands Centre for Net Zero, and can change demand profiles and even constraint, demonstrated in a Reflex Project in Orkney.

Technological and operational opportunities

- Explore what emerging technologies like V2G could do for energy back-up/resilience on islands and in rural locations. Charge MY Street is trialling this
- Explore load balancing for physical hubs (to maximise connections) and dispersed hubs (Reflex completed a project on Virtual Power Plants and SSE are embracing distributed energy assets)
- Investigate battery storage. This is a rapidly evolving technology, regulated as generation, with questions over long term benefits and capacity. National battery storage gives just 12mins of back up at present. Shetland's battery for its HVDC link could feed into this, as could findings from Drax's 2022 'Renewable Curtailment and the Role of Long Duration storage' report.
- Low powered DC charging – this can replace AC charging but doesn't change its output depending on your vehicle and can be used with battery storage
- Explore how we can make use of local energy to reduce costs, either behind the meter or with microgrids and private wires (microgrids;energy circuits that can generate and supply local renewables directly to charging infrastructure, working with, or independently of, the national grid). This might apply well to community or development projects.

Collaborative opportunities

Where utilisation of chargers is limited, collaborative use will support their financial sustainability

- Flexible connections can offer substantial cost savings, but we also need to weigh those up against aggregating demand on a fixed connection
- High level engagement with DNOs such as optioneering will help identify the best value connections rather than costing what is requested without analysis, which is standard.
- Ferry electrification offers collaborative opportunities on grid connections especially for hubs or larger vehicles. In the Small Vessel Replacement programme, the new ferries will charge overnight. This may, depending on the connection, have capacity in the daytime. We want to be in a position to seize these opportunities.

- Many regional wind turbines are due to be replaced in approximately 5-10 years because they were built approximately 15 years ago when feed in tariffs were introduced to incentivise renewable generation projects. There is anecdotal evidence that some are looking to review capacity and exploit the benefits of new technology, providing an excellent window of opportunity for new demand from EV infrastructure. The Checkley Wood EV Charging Site is the only wind turbine in the UK to directly power a public and commercial EV charging station. HITRANS introduced Aquaterra to AW Energy to initiate regional discussion on this.
- Our conclusion in the Large Vehicle Charging Section of this Business Case demonstrates an opportunity to develop a regional large vehicles decarbonisation strategy. This would support the Public Sector Fleet Action Plan. In addition, it is vital to understand where the charging may take place for the various vehicle segments to meet the future requirements for EVs.
- The R&I Infrastructure Fund has been received enthusiastically. This taskforce may help shape future policy and funding, like RIIF, to ensure maximum value for public funding and impact at a local and regional level

- Share the vast range of learnings from initiatives and projects mentioned in this Business Case. For example, Western Isles Council is working with stakeholders to explore the concept of the Local Energy Economy and develop a mechanism that would allow locally generated, electricity to be delivered to local consumers at a competitive price.

Behaviour change and education

There is widespread regional interest in community renewable energy and energy efficiency projects to help reduce reliance on grid electricity. This is an opportunity to empower rural and island communities, as called for in the National Islands Plan. Behaviour change and education might include:

- Sharing our learnings with stakeholders on how locally generated, electricity can be delivered to local consumers at a competitive price.
- Promoting domestic and workplace co-charging. This helps build community wealth, is an important foundation for a need for public charging, & increases resilience in areas where installing and sustaining public infrastructure is challenging.
- Educating people on what demand side response is, & how empowering it is due to the impacts it can have

Financial Case

Tariffs

Approach to Tariff Modelling

Future tariffs need to ensure the network is sustainable, balancing the increase in costs due to national Government subsidy ending and encouraging drivers to use the Council-owned network.

Urban Foresight developed an excel-based Tariff Review toolkit for the purpose of modelling the costs associated with operating each local authority's current EV charging network.

The toolkit has been developed using data and assumptions provided by the local authorities, and the current baseline position in terms of EVC provision. A key component of the Tariff Review Toolkit is the projection of utilisation across the Council-owned EVC network. A 5% annual growth profile has been projected on the average AC and DC utilisation for the last calendar year of data 2025.

Results and outputs are generated by the toolkit to aid the Councils' understanding of costs and evaluate the potential tariffs that may need to be implemented to cover costs.

The toolkit does not consider the influence of external factors (e.g. fluctuation in energy prices or inflation of the cost-base) on the modelling of costs.

Tariff Costs

Tariff Costs

FIXED COSTS	AC	DC	ABC	CNES	OIC	SIC
Back Office, eSIMs & Call Centre per unit per year	[redacted]					
Annual Maintenance Per Unit per year						
Unplanned Maintenance - percentage of annual maintnenace						
Annual Warranty Per Unit per year						
Officer Resource Cost (Assigned to DC units only)			£58,000	£25,000	£25,000	£25,000

VARIABLE COSTS						
Energy Cost (p/kWh)			£0.35	£0.31	£0.26	£0.26
Energy Cost (p/kWh) - Additional Elements (DC)			£0.12	£0.12	£0.12	£0.00
Energy Cost (p/kWh) - Additional Elements (AC) (assumed as 50% of DC additional costs)			£0.06	£0.06	£0.06	£0.06
Replacement EVC Cost per unit from SFT targets	£6,000	£33,400				

The table above lists the network costs across the 4 Councils that are used in the modelling tool.

- [redacted]
- Unplanned maintenance costs are estimated at 20% of annual maintenance costs to account for parts out of warranty, etc
- Council energy costs vary
- Additional energy costs were calculated from an electricity bill summary provided by the Western Isles Council. The proportion of standing charges/fees paid per kWh varies significantly across sites;12p/kWh is the average. This was applied to DC units only, 6p/kWh applying to AC chargers.
- Additional costs were not included for Shetland DC as they don't have many capacity chargers given most of their chargers are a single charger per site
- Replacement costs apply values provided by Scottish Futures Trust, as the higher cost used for installation costs is largely due to DNO works.
- Argyll and Bute have a larger network and therefore require higher officer resource costs

Future annual tariff reviews will need to include not only the above, but a mechanism to benchmark against the private sector prices (see benchmarking section below) and an agreement on the extent they need to align. Tariffs are also subject to committee approval, who bring their own expectations and concerns from experience, knowledge and public interaction.

Tariff Models

Below are the tariff estimates for each Council area.

In de-risking our portfolio in Phase One the Partnership is not due to replace any other units during EVIF. This was not a good scenario to base tariff modelling on as a replacement fund would need to build up. 1/8 of the portfolio was therefore calculated as needing replacement costs. This would allow for the whole portfolio to be replaced in 8 years. The life expectancy is closer to 10, so this gives some leniency.

Argyll and Bute

AC	2026	2027	2028	2029	2030
Utilisation Baseline	66,224.2	74,884.3	78,628.6	82,560.0	86,688.0

DC	2026	2027	2028	2029	2030
Utilisation Baseline	560,578.5	614,199.0	644,909.0	677,154.4	711,012.2

Western Isles

AC	2026	2027	2028	2029	2030
Utilisation Baseline	21,591.5	22,671.0	23,804.6	24,994.8	26,244.6

DC	2026	2027	2028	2029	2030
Utilisation Baseline	145,797.9	153,087.7	160,742.1	168,779.2	177,218.2

Orkney Islands

AC	2026	2027	2028	2029	2030
Utilisation Baseline	50,780.3	53,319.3	55,985.3	58,784.5	61,723.8

DC	2026	2027	2028	2029	2030
Utilisation Baseline	100,380.0	105,399.0	110,669.0	116,202.4	122,012.5

Shetland Islands

AC	2026	2027	2028	2029	2030
Utilisation Baseline	74,972.0	78,720.6	82,656.7	86,789.5	91,129.0

DC	2026	2027	2028	2029	2030
Utilisation Baseline	94,733.3	99,470.0	104,443.5	109,665.7	115,148.9

[redacted]

Tariff estimates summary

Urban Foresight's Tariff Review toolkit does not include VAT or transaction costs as these created circular references in the model. These are added to summaries below:

Matches Urban Foresight tariff models

	average tariff £ per kWh for next 4 years, excluding VAT and [redacted] transaction costs		average tariff £ per kWh for next 4 years, Includes VAT, excludes [redacted] transaction costs		[redacted]
	AC	DC	AC	DC	
ABC	0.61	0.70	0.73	0.84	
CNES	1.09	0.92	1.31	1.10	
OIC	0.81	0.99	0.97	1.19	
SIC	0.66	0.76	0.79	0.91	

These tariff models show significant variation. As outlined, a key component of Urban Foresight's Tariff Review Toolkit is the projection of utilisation, which is particularly low for Western Isles AC charging and Orkney DC charging. This increases the maintenance cost per kWh because the annual costs are apportioned by utilisation.

This learning directly impacts strategy, with Western Isles seeking more DC charging than AC, and vice versa for Orkney. It also adds weight to the call for behaviour change intervention and uptake incentive to utilise existing capacity, as well as adding more infrastructure.

Shetland has a high ratio of AC:DC chargers, so benefits from minimal capacity charges and low DC replacement (which are more expensive than AC). Whilst their strategy calls for an even split of AC and DC charging for resident and tourist demand, they are also looking to open up their fleet chargers, which are predominantly AC.

As a sense check, ABCs current tariff at 74p without transaction costs, comes close to requirements is why they consider themselves at option 4 in the baseline financial section earlier. Transaction costs for back-office services are due to be factored into all Council tariffs at their next review, as this was a new pricing structure and expected increase from ChargePlace Scotland

Benchmarking

Other EVIF partnerships have stipulated benchmarking tariff for concession contracts, and even in a rural context without a concession contract, this protects customer tariffs from rising despite any naturally capped utilisation. In essence, this reduces the risk of networks being solely market led to support a just transition.

The North of Scotland EVCI Partnership (the Highland Council, Moray Council, Aberdeenshire Council and Aberdeen City Council) used ZapMaps monthly price index for benchmarking:

https://www.zapmap.com/ev-stats/charging-price-index

If we benchmark existing tariffs against ZapMap's price index, AC tariffs across the four Councils are very close, but only Argyll and Bute are close to the DC market rate tariff. Those results worsen with the modelled tariffs, but there are many variable factors at play then, including the price index itself.

Benchmarking of existing tariffs against commercial market average

	ZapMap average commercial rate, March 2026	ABC		CNES		OIC		SIC	
AC	0.54	0.74	0.20	0.45	-0.09	0.49	-0.05	0.52	-0.02
DC	0.76	0.74	-0.02	0.59	-0.17	0.59	-0.17	0.62	-0.14

Tariffs that are not close to market averages will likely have one or more of these impacts:

- Drive people to chargers with other operators, if available and an easily accessible distance away
- Cause people to use the public network as little as possible, maximising alternatives such as home, shared or workplace charging
- A captive audience such as tourists may pay increased rates, but this will impact feedback and potentially tourism
- Put people off of getting an EV due to the running costs

In the Partnership region, with high fuel poverty, tariff increases will be felt keenly.

In summary, Councils can continue to increase tariffs towards commercial rates but increasing them further is likely to have a negative effect on utilisation and be unsustainable. Likewise, if they are too far below market rates, private operators can't compete and won't invest. Benchmarking within a percentage of market rate would be a useful introduction in future Council tariff reviews.

Project affordability

Project funding for Phase One is on track, shown in the first table below as approximately one third of our budget.

Contingency has been budgeted as a percentage of costs and would be tracked per Council to ensure they get the correct proportion of contingency spent in their council area.

Any unspent contingency from Phase One would be rolled into contingency for Phase Two and we propose that is spent as follows:

Argyll and Bute's network financially supports itself so we suggest any unspent contingency funds further chargers as their expansion builds on this hub and spoke approach to support access for all.

The Island Authorities' networks are not yet financially self-sustaining, shown in the tariff modelling above. To become more financially sustainable, utilisation needs to increase to support their more rural and largely lesser used assets. Unspent contingency in the Island Authorities may therefore be better used to prioritise other strategic objectives over increasing infrastructure, and we propose identifying and using success criteria to decide this

Excluding contingency, the total available for Phase Two is estimated at £1,583,584

Phase Budgeting **3,097,680**

Phase 1	2025/26	2026/27	2027/28	2028/29	Contingency	Balance
HITRANS partnership service to 2029		56,500	59,500	62,500		178,500
Maitnenance contract to 2028		75,000	75,000			150,000
Replacement contract		450,000				450,000
DNO costs (Castlebay and Tarbert)	30,000					30,000
Subtotal						808,500
20% Contignency for above					161,700	
Total Phase 1						970,200

Phase 2	2025/26	2026/27	2027/28	2028/29	Contingency	Balance
Remainder for phase 2						2,127,480
Shared operational service		38,000	53,500	56,500		148,000
Subtotal						1,979,480
20% Contingency for phase 2					395,896	
Capital remaining for phase 2						1,583,584
				Total:	557,596	

The total available for Phase Two infrastructure has been distributed by Council area as per the economic case and then divided by estimated costs to provide as much of the infrastructure demand forecast as possible.

This works out at

- 13 AC and 13 DC chargers in Argyll and Bute (changed with hub approach ratio being 1:1)
- 4 AC chargers and 5 DC chargers for Western Isles (including 2 being installed at Tarbert)
- 4 AC chargers and 5 DC chargers for both Shetland Islands
- 10 AC chargers and 3 DC chargers for Orkney Islands.

Total output: 31 AC chargers, 26 DC chargers

Council committees will be asked to authorise these installations and the charger types may vary with that, so installation outputs will be an equivalent cost to this budget rather than specifically the numbers given.

The estimated installation costs for the Island Authorities and Argyll and Bute are separated, sense checked by Urban Foresight and by FASTER installations. Island DNO costs in particular are higher than on the mainland, due to distances to connections, travel costs for equipment as well as contractors, costs for postponed or additional visits and the risk of unforeseen circumstances underground.

Phase 2 Budgeting 1,583,584

Argyll and Bute	SFT modelled values					
AC Capital enabling costs	2200					
AC Capital EVI and installation costs	6000					
AC DNO costs	2000					
Total AC installation cost	10200				13	132,600
50kW Capital enabling costs	4000					
50kW Capital EVI and installation costs	33400					
50kW DNO costs	4000					
Total DC Installation cost	41400				13	538,200
ABC Total						670,800

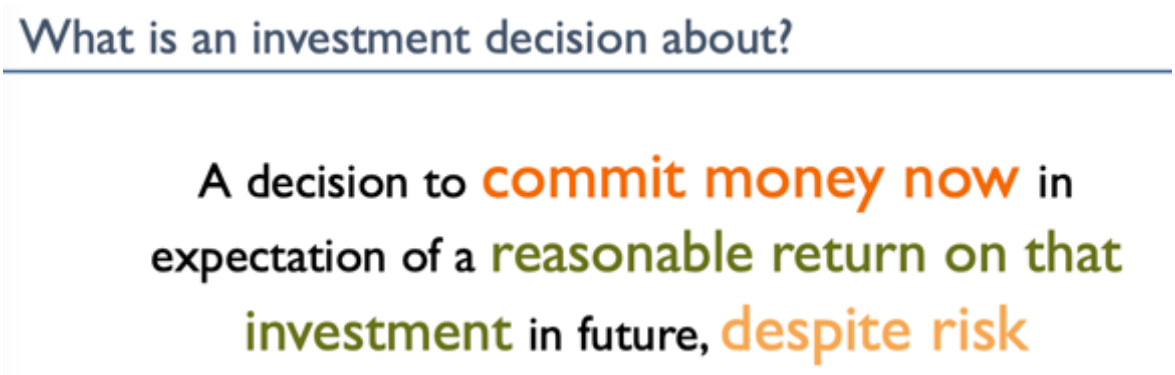
Island Authorities	Rural experience adjustment	CNES	OIC	SIC		
AC Capital enabling costs	13000					
AC Capital EVI and installation costs						
AC DNO costs	3000					
Total AC installation cost	16000	4	10	4	18	288,000
50kW Capital enabling costs	52000					
50kW Capital EVI and installation costs						
50kW DNO costs	4000					
Total DC Installation cost	56000	3	3	5	11	616,000
Islands Total						904,000

Phase 2 Total Spend **1,574,800**

Commercial Case

Investment

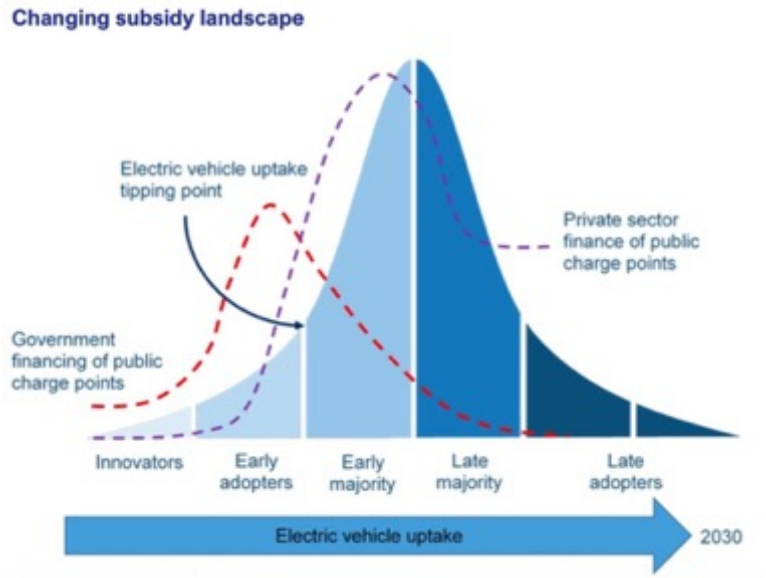
Simon Gill of the Energy Landscape provided an excellent definition of investment:



Whilst Argyll and Bute's EV charging network is financially self-sustaining, it is breaking even rather than making a profit and the latter would be required for a financial investment return.

The Island Authority EV charging networks are not yet financially self-sustaining. Whilst investment may not be purely financial (see risk 7 in commercial risk assessment) it will certainly be a major part of an investment decision.

In addition, EV growth forecasts do not predict majority uptake for the Partnership region during EVIF. Compared to the national uptake curves, the region is at the end of the innovators phase, with EV uptake tipping point – where the private sector is predicted to finance public charge points – not forecast to start until 2029 in the Partnership area.



Risk

The risk assessment below identifies major commercial risk, assumptions, issues and dependencies. It's noteworthy that there is only one future risk forecast in this list, the rest are valid current issues or assumptions.

Mitigation and contingency are also detailed; whilst the list is both long and complex, this business case takes considerable steps to lowering those risks for future investment to be viable.

Commercial Risks

ID	Description	Cl				Mitigation and contingency plan
1	Tariff does not yet cover costs (excluding ABC)	Issue	3	3		Tariffs have been increasing and reviews will continue to propose increases towards commercial market rates to cover costs, balancing the risk of loss of utilisation from tariff increases. However, tariff projections are calculated to be required well above commercial rates to cover costs in these regions, and VAT per mile on EVs will exacerbate this, leaving considerable risk
2	Growth adoption rate is not yet at tipping point	Issue	3	3		**This business case outlines a plan that considers behaviour change incentives in** contingency funds, should improve reliability of the network and proposes support for home charging as a foundation for cost effective uptake. Monitoring the network against success criteria will help to indicate market readiness
3	Utilisation is at lower end of market (excluding ABC)	Issue	3	2	6	Projections have been adjusted to reflect the need for capacity to be utilised to a sufficient SFT target before more infrastructure is built. Engagement has started with key public sector fleets and the HGV market towards shared charging. Plus all of the points above
4	Connection costs are both high and uncertain	Issue	3	2	6	This was a major concern of respondents in the North of Scotland EVIF negotiations and something they were keen to apportion public funding to. The long-term outcome of an energy and transport taskforce seeks to address this. Short term mitigation includes exploration of flexible and collaborative connections
5	Reliability regulations **are harder to meet** with the geographical **distances involved**	Assump **tion**	3	2	6	**This is a misconception because exclusions are allowed, but evidencing those** and ensuring they are not abused remains key. Once the first years reliability records are available it will help to clarify the process
6	**Communication is** weak and/or Intermittent In places	Issue	3	3		**This business case suggests both a review of communications and its critical** consideration In choosing sites. Communication was the biggest technical fault causing chargers to be unavailable In our maintenance review
7	CPO decisions are purely financial	Assump tion	2	3		Engagement showed that although finance in important, there are other factors influencing interest in the Partnership region. ScottishPower were keen to increase their Scottish presence. FOREV is funded in part but SNIB and is committed to a target rural provision through that. Engagement is key to ensuring opportunities are not missed
8	Market- led expansion site decisions are unlikely to meet equalities policies	Risk	3	3		This is a key reason that Councils are keen to retain some control in their business model. Social equality is a national, regional and local policy aim, not necessarily a commercial one. Monitoring market readiness through our network success criteria, as well as hub and spoke (ABC), themed approaches (OIC, SIC) and gap analysis (CNES) addresses this
9	CMAL charging is still free	Issue	3	3		This may require discussion and/or government intervention as it will be undermining the aims of EVIF. With transport links a key cross-cutting theme and tariffs by councils a condition of funding for EVIF, it would be ideal to incorporate these into the public network, even if ferry travel for onward travel is not yet decarbonised
10	Business model is utilisation based	Assump tion	2	3	6	Utilisation will remain an important factor but there are other ways to operate commercial charging. The AW Energy site at CheckleyWood makes its money from selling surplus wind energy produced on site back to the grid. Whilst that's not a viable option throughout most of the Partnership region, the energy and transport taskforce seeks to find a way to utilise the region's energy assets for efficiency savings and to leverage commercial interest
11	Home charging exists **because homes have** parking spaces	Assump **tion**	2	3	6	This is widely assumed, but the reality of getting smart meters installed is a huge **barrier to this, reducing uptake, even reversing it at times. This business case** seeks to address that through facilitating support and encouraging private investment from home owners to open up the public network and make it more **resilient and competitive**
12	Investment will come from a CPO	Assump tion	2	3	6	Private investment to date has come from local organisations, accommodation, tourist spots, etc. Investment may not be just be from industry but from workplaces, energy companies, homeowners. This is a significant and evolving opportunity in the Partnership region

Engagement

This risk assessment above references some of the organisations we have engaged with whilst preparing this business case, with a list of further stakeholders provided below who have aided understanding of opportunities, challenges and commercial options:

- Local organisations
  - Climate Hebrides
  - Orkney Renewable Energy Forum
  - ReFlex
  - Island Centre for Net Zero
  - Carbon Neutral Islands community development officers
  - Rural Energy Hubs (CES)
- Public sector
  - Transport Scotland
  - Scottish Futures Trust
  - Energy Savings Trust
  - EVIF partnerships, particularly North of Scotland
- Fleet users
  - Blue Lights
  - NHS
  - Scottish Whisky Association
  - Royal Mail
- CPOs
  - FOREV
  - Jorro
  - Connekt
  - Zest
  - ScottishPower Energy Retail
  - eVolt
- Private sector
  - Charge My Street (pioneering digital communication solutions and energy resilience in rural EV charging)
  - AW Energy (established the first wind turbine directly powering EV charging and selling surplus energy to the grid)
  - Paua (shared depot and large vehicle charging network)
  - Felten (battery backed charging solutions)
  - Manxx Utilities (local maintenance on the Isle of Man)
  - Scottish Water/TUAL (innovative fleet solutions)
  - Dan Turner (experience in Marine charging from previous role at Plymouth Council)

Procurement Plan

Since the commercial case for the Partnership area at the moment is weak at best, we propose planning for delivery without it but enabling investment if the appetite is there or grows.

The Partnership plan to procure a delivery partner to install the additional charging infrastructure budgeted,

In that process, we will test the market by inviting CPOs to bid back on standalone investment opportunities, allowing CPOs to show their commercial interest, explore gains and build relationships. This will not be a requirement of the ITT but a well-weighted part of the procurement quality evaluation that becomes contractual. Ideas include:

- Local advertising
- Home charging support including the installation of smart meters. This would mobilise a dormant network in much the same way that the rural and island infrastructure fund seeks to promote through making workplace shared charging available to the public
    - CP(N)O obtains home charging business.
    - The Councils achieve a wider foundation of home charging for the more expensive public charging to support. The inability to have smart meters installed is a known barrier to EV uptake on the Islands
    - If the CP(N)O can manage to persuade the customer to open their charger to the public, they get an increased revenue, and the Councils can count customer investment towards their private investment target.
- The CP(N)O provides off grid charging provision with battery/solar/wind technology. There are plenty of proven technologies to site (3TI, charge cube, wind powered container battery from Flogen).
    - This decarbonises energy, stops reliance on grid so improves energy security and allows the CP(N)O to take the risk on proving the commercial model.
    - Off grid solutions are self-contained and temporary- the CP(N)O can take the profits and take the charger away if needed at the end of the contract.
    - The Councils would give access to land and test the commercial model and interest.
- Suggestions proposed by CP(N)O's

As delivery of the additional infrastructure draws to an end, we will review networks against success criteria to prioritise and use unspent contingency budget to either fulfil this or expand infrastructure.

Long-term value from EVIF funding will also be added by the establishment of an energy and transport workforce, detailed in the economic case.

Management case

The Partnership currently has an MoU in place that will be reviewed and renewed once Phase Two is authorised by both Transport Scotland and each of the Council committees.

A shared operational resource will monitor day to day operation of the chargers and performance manage the local maintenance contract.

Major project risks, issues, assumptions and dependencies are shown below and will be reviewed regularly throughout EVIF.

Risk

Project management Risks

ID	Description	[illegible]	[illegible]	[illegible]	Pre-mitigation rating 1-9	Mitigation and contingency plan
	Project timescales slip	Risk	2	3	6	These are regularly reported on to Transport Scotland and HITRANS board and are part of the quarterly meeting agendas
2	Single point of failure	Dependency	1	3	**3**	Each Council now has more than one staff member involved in EV and the Partnership is due, if approved, to appoint operations resource, who will oversee the day to day operations but also engage with the wider project.
3	Aimsof4councIls within the Partnership diverge	Risk	3	2	6	The Business Case Is designed to be flexible enough to align but accommodate different aims. There will be an obvious exit point at the end of the EVIF programme, but also the opportunity to continue/exit at the completion of the success criteria. The current MoU goes to 2026 and on approval of Phase Two business case, needs formally updatingto the new project dates and to include Argyll and Bute as a signed party
4	No commercial Interest shown	Risk	3	2	6	This Business Case offers a bid back invite for private companies to show commercial Interest. If there is no commercial interest we can then address that
5	Not financially sustainable	Risk	3	3	[redacted]	Likely linked to above, but if the charging network is not long-term financially viable, it will notbe investible or sustainable by the Councils without funding intervention
6	The Councils don't all achieve success criteria within the EVIF timeframe	Risk	3	2	6	This is likely from the graph showingEV growth tippingpoints. Whilst commercial viability may not be achievable in the programmetimeframe, it will be demonstrably worked towards and offers structure for future planning. Value from EVIF funding will also be added by the establishment of an energy and transport workforce. MoU and/or success criteria will address separate timings to completion
7	Council committees do not approve the Business Case	Risk	2	2	4	The Business Case was developed with Council and wider stakeholder input to give our best collaborative recommendation for committees to review and decide on. We will do our best to accommodate change requests and if that is not possible, work through to a solution
8	Lack of uptake for energy and transport taskforce	Risk	2	2	4	If there is a lack of uptake we will endeavour to understand why and to engage with stakeholders In other ways, but a targeted workforce would be much more impactful
9	Missed opportunities	Dependency	3	3	[redacted]	As renewablesgrow, curtailment bites and charging networks look to commercialise, there are many opportunities on offer. This Business Case is ambitious and sought to identify as many of those opportunities as possible, with a view to exploring rather than missing them.

Schedule

Below is a Gantt chart that sets out the schedule of delivery within the EVIF timeframe. The remainder of 2029 offers valuable flexibility for delivery.

	2026 calendar				2027 calendar				2028 calendar				2029 calendar			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Phase 1																
CPS migration																
Chargepoint porcurement																
Installations																
Maintennace procurmenet																
Phase 2																
Business Case to committees																
Recruit operations resource																
Formalise legal agreement for phase 2																
Maintenance Contract																
Determine network design parameters and select and prepare sites																
Procurement for phase 2 delivery																
Phase 2 delivery																
Establish energy and transport taskforce																

Funding and policy development will be kept under review as the project is delivered and the final suite of new installs will be reviewed as the project is being delivered

Conclusion

This business case, and in particular the commercial risk assessment in the commercial case section, acknowledges the significant barriers to attracting private investment in EV charging networks across the project region, particularly on island locations, including:

- Not all tariffs cover costs yet
- BEV growth adoption rate is behind national average and not yet at tipping point
- Utilisation of the majority of existing chargers at levels lower than the national targets
- Challenges with maintenance and communications to keep the chargers working reliably in line with PCPRs
- Integration with highly constrained local energy systems which adds to installation and therefore indirectly, running costs

It's clear that financial support from the government may well still be needed to make EV charging in this region sustainable, financially and environmentally, beyond EVIF, but this Partnership has created a route map towards this aim and identified a means of measuring our progress along it to monitor our collective achievements and help identify any further intervention required.

In the meantime, the EV infrastructure fund required collaborative approaches to network expansion, and this has highlighted strong alignments for a regional approach across the 4 project area councils, such as

- Common operating challenges

- Comprehensive network growth needing to cover landmass and travel routes, not solely energy demand. These dispersed assets have a natural utilisation cap that is not necessarily attractive to commercial operators, but are essential for a just transition
- PAS application across dispersed assets
- Electricity tariffs not guaranteed as 100% renewable, so the power behind charging is not yet fully green
- Renewable energy generation potential as a growing asset
- A desire to utilise local energy generation for local benefit and reduce reliance on diesel back up
- Enable residents to respond to price or production fluctuations and modify demand

However, this business case also draws out differences for each Council area too, distinct place-based considerations that give nuance to their own individual approaches and aims, such as

- Different uptake statuses and forecasts
- Travel patterns borne of geography, such as island size, navigating ABCs peninsulas or the Western Isles having 5 ferry ports with travel connection to the mainland.
- Creative energy system solutions with learnings and expertise that benefit all and have shaped approach
- Off-street charging provision nuances, higher in areas of ABC mainland and lower on the islands, where it is assumed but not necessarily in place
- Clusters of localised uptakes, such as on Orkney, and intervention that helped that evolve
- Local fleet plans & policy priorities
- Historical network service experiences, both failures and successes

The medium-term outputs and incomes proposed in this business case will deliver strategic network growth and work towards commercial viability.

Simultaneously, work on long term outputs and outcomes will create a flexible and collaborative approach - vital to keep pace with industry, external impacts and local context. In particular, as the region undergoes an energy transformation that serves the nation, there is a time-bound opportunity to identify a proactive, collaborative approach to incorporating EV charging into this region, that could both benefit it economically and be key to further forming a commercial case for public charging in the region.

Our recommendation is as follows:

In line with the National Transport Strategy Investment Hierarchy, the key aim of Phase One was to maintain existing assets; de-risk the networks for the current supervisors, the Councils, and for any potential near-future operators. This also encourages better use of capacity, by increasing reliability and resilience for users

This phase is well underway. We have at the time of writing:

- Migrated 95 chargers from the CPS system, with a further 8 in progress
- Prioritised plans for the remaining 19, with a migration deadline extension agreed to end of August.
- Contracted:
    - A locally based maintenance contract, to increase resilience and reliability, reduce milage and carbon emissions and increase local skills and community wealth. On request, HITRANS engaged with and named the Blue Lights Services on the procurement for this contract, facilitating regional benefit
    - 37 replacement chargers to reduce fault risks
    - 3 new changepoints, to close network gaps in the Western Isles

Implementing the migration and maintenance contract has further highlighted a need for shared operating resource in the region. **A proposed output is therefore to fund day to day operations resource for the remainder of the EVIF timeframe**

The aim of Phase Two is to expand the networks towards infrastructure forecasts, whilst simultaneously optimising and enabling a long-term sustainable approach.

We propose identifying design parameters and designing accessible, comprehensive expansion of the network in line with each Council's identified approach, procuring a delivery partner for the following:

Proposed outputs for delivery within the EVIF timeframe

- **13 AC and 13 DC chargers in Argyll and Bute (changed with hub approach ratio being 1:1)**
- **4 AC chargers and 5 DC chargers for Western Isles (including 2 being installed at Tarbert)**
- **4 AC chargers and 5 DC chargers for both Shetland Islands**
- **10 AC chargers and 3 DC chargers for Orkney Islands.**

Total output: 31 AC chargers, 24 DC chargers

Council committees will be asked to authorise these installations and the charger types may vary with that, so installation outputs will be an equivalent cost to this budget rather than specifically the numbers given.

We will test the market by inviting CPOs to bid back on standalone investment opportunities, allowing CPOs to show their commercial interest, explore gains and build relationships. This will not be a requirement of the ITT but a well-weighted part of the procurement quality evaluation that becomes contractual.
Ideas include:

- Local advertising
- Home charging support and co-charging encouragement, leveraging the private investment of homeowners into a locally resilient network
- Standalone off-grid solutions at Council identified sites
- CPO suggestions

We propose that any unspent contingency would fund further chargers in Argyll and Bute as their network financially supports itself and expansion builds on their hub and spoke approach to support access for all.

The Island Authorities cannot use this approach as they don't have sufficient utilisation hotspots yet to support dispersed assets. Unspent contingency in the Island Authorities may therefore be better used to prioritise other strategic objectives over further network expansion, reducing the risk of networks being solely market led and supporting a just transition.

To decide this, we propose **a further funding outcome:**

- **To identify success criteria that determines when the network is considered commercially viable, but also strategically successful for the region in terms of comprehensive design and good service levels.**

Achieving this success criteria might go beyond the EVIF timeframe but allows us to measure our progress, monitor our collective achievements and help identify any further intervention required.

The extension to the timeframe of EVIF to end 2030 calendar year rather than the 2029/30 financial year provides maximum chance to achieve this in the EVIF timeframe.

The long-term aim of the EVI fund is to de-risk charging network operations for local and national government by moving to a commercially viable model. Whilst the success criteria above will determine when the project area reaches that point (and as aforementioned, it may not be within the EVIF timeframe) we are undoubtedly working towards financial sustainability and de-risking operations, whilst maintaining and balancing commitment to a just transition. We will end up with a better understanding of what a commercial case for EV charging could be in the future for a region that is naturally capped in scope but presents extensive natural assets and therefore alternative business models.

EVIF also called for public charging networks to be powered by clean, renewable energy and for drivers to benefit from advancements in energy storage, smart tariffs and network design

In alignment, the Climate Change Plan 2026-2040 stresses:

- a determination to maximise the economic opportunities for Scotland and seize the opportunities in front of us, while ensuring that people across our society can share in the benefits.
- that it is only by working together that we can deliver a united and ambitious response to the climate crisis across all sectors of society. Achieving net zero will be a collective effort

Recognising this, our regional vision also calls for us to secure affordable clean energy so that the charging network is both financially and environmentally sustainable.

To these ends, we suggest:

Proposed outcome: Establish a regional cross-sector transport and energy taskforce to optimise regional economic opportunity by collaboratively exploring how EV charging for all types of vehicles can

5. **best integrate into and compliment the regional energy systems as they decarbonise and**
6. **utilise and support local power to the benefit of local people**

The taskforce will set its own objectives, but it will also identify any specific project scopes and further funding opportunities that would support these aims, particularly for annual rather than muti-year funding to facilitate the delivery of an ambitious national Climate Change Plan

Summarised by the Shetland Islands Climate Change Strategy 2023-2027, this would enable us to take a proactive approach to tackling climate issues, rather than reactive measures.

This taskforce would be established as soon as the delivery programme of EVIF allows but outputs and timeframes will be highly dependent on stakeholder participation, objectives and funding streams. Suggestions for meaningful workstreams are detailed in the long-term economic case of this document, as the value of this work goes beyond EVIF.

Appendix One