This document provides **Part One** of Argyll and Bute Council's Electric Vehicle Charger Strategy, this provides the background as to why the Council are setting out a long term plan for Electric Vehicle Chargers, why it is the correct time to do so and how it will tie into wider National Policies.

A brief explanation on the workings of electric vehicles and electric chargers is also provided.

The cost recovery model is set out with explanations for the costs set and what, if any, surpluses will be used for. To ensure there is confidence for electric vehicle users on the availability of charging spaces the Council is also implementing enforcement penalties; section four sets out the penalties and the work the Council will do to update traffic regulation orders across all areas of the Council to ensure consistency.

As the cost model has been newly implemented Part One of the strategy concludes with how and why periodic reviews of charges will be required.

Ultimately the strategy will compromise various parts. It is essential to have a cost recovery model for the current asset group in place initially, prior to consideration of various future aspects of the development of the network.

Part Two will focus on future asset development criteria, with an aim to create various consolidated long lists of potential sites and mid-range cost estimates.

Part Three will give consideration to future funding requirements and options – mapping, application, management – to deliver on the outline programme developed through Part Two.

Part Four will cover management and maintenance of the developing network over time, with a focus on sustainable asset management.

Part Five

Part 1: Introduction and Cost Recovery Model Table of Contents

1. Introduction

This is part one of the Councils Electric Vehicle Charging Strategy; the Charging Regime. The following details why the Council are providing publically accessible charging points and why a charging strategy is now required.

Subsequent stages to follow will focus on the future asset development criteria, future funding opportunities, management and maintenance of network, installation planning and project management and the ongoing review of income

The expectation is that the National Government will provide significant levels of funding for this area of work in future years, therefore it is important that the Council has a thorough strategic development plan.

1.1 Background

In 2017 the Scottish Government set out an ambition to reduce Scotland's emissions of greenhouse gasses and to phase out the need for new petrol and diesel cars and vans by 2032. This strategy sets out how Argyll and Bute Council will provide a sustainable network of publicly available Electric Vehicle (EV) chargers and assist with meeting the national target of reducing the impact of climate change.

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1.3 Links to National Priorities Strategic Framework

National and Local Priorities

There is a wide range of strategies and policy agendas which will influence the direction of this strategy. This includes (among many others) the Outcome

Policies which contribute to the delivery of policy outcome 2

- continuing to grow the network up to 2022 (plans cover a 10-15 year period from publication)
- providing support for home charge points for consumers
- providing support for workplace charge points work with each of our delivery partners to create Scotland's 'Electric A9', including charging points along the route and demonstrating that electric vehicles offer important advantages to motorists in rural and urban Scotland
- providing funding for towns and cities to become 'Switched On' – working with partners, local authorities will get funding to meet local EV transition needs such as supporting charging initiatives for tenements and EV incentives

Working towards this, Argyll and Bute Council accessed capital funding for electric vehicle charging infrastructure of which over £700,000 was secured for the area. The funding paid for the acquisition and installation of 24 charging points and the extent of the current network, not only across Argyll and Bute but across Scotland can be viewed at https://chargeplacescotland.org/.

This strategy will also link directly into the Corporate Plan mission *of being a place that people choose to work and do business*, *corporate infrastructure that supports sustainable growth* and business outcomes BO113*; our infrastructure is safe and fit for the future and* BO114; *our communities are cleaner and greener which will assist the council to meet the mission of argyll and Bute being a place*[4]

In addition the HITRANS strategy which sets out a vision that the HITRANS region will be at the forefront of achieving national commitments for low emission transport, communities across the region[5]. HITRANS (Highlands and Islands Transport Partnership) is the regional transport partnership covering Western Isles, Orkney, Highland, Moray and most of the Argyll and Bute area; Helensburgh and Lomond is covered by SPT.

As vehicle ownership in the HITRANS region is 18% higher, and average distances travelled by road are estimated to be around 20% higher than the Scottish average investing in Electric Vehicle Chargers provides an opportunity to enhance the connectivity of people to each other and remove barriers to accessing employment, education, leisure activities and essential services. The low population densities in the area mean that private car use will remain a necessary mode of transport for many people and businesses.

The Councils Decarbonisation Plan is another document that this strategy must consider. The plan not only seeks to highlight work undertaken by the Council and promote planned activities but also to act as a

Friendly Argyll and Bute' a recognised brand and underpin behaviours of our staff and customers by using the new branding to underpin messages of our Decarbonisation Plan[6].

With the Scottish Government ambition to phase out the need for new ICE (internal combustion engine) vehicles by 2032, it is expected that sales and use of electric

AC Charger Menneke	DC Charger ChAdeMon (Japan/US) Type 2 CCS (Europe)

The difference between the two being the DC current directly charges the batteries in the electric vehicles, as opposed to AC chargers which utilise the rectifier in the vehicle to turn AC from the supply into DC to charge the battery. In most cases, the rectifier in the vehicle is limited to between 3 and 11 kW, using a single phase of AC power[9].

There are different speeds of charger, slow, fast and rapid however the length of time it takes to charge an EV battery depends on the battery itself and the type of charger; which are powered by kilo watt (kW). Slow chargers empty to 100% and typically takes around 5-8 hours for most EVs rising to around 12 hours for longer range cars with larger batteries and tend to come in 3 – 6 kW. Fast chargers range in kW also, a 7kW fast charger can charge an EV in 3-5 hours, while a 22kW unit could complete the task in a couple of hours. Using a rapid charger typically takes around 45mins – 1 hour for an 80% charge, rising to around 1.5 hours for the longer range EVs with larger batteries, a 15 minute charge using a rapid charger typically gives a 30-40 mile range.[10]

3. Charging Regime

In relation to the charging regime there are various elements to consider in order to set the cost, for example Aberdeenshire City Council applied 3 criteria to ensure all costs are covered; cost of energy, cost of maintenance and cost of transaction which includes administrative and management fees.

A review of charging models used in other Local Authorities suggests there are three main options for charging for the use of EV charge points:

a) Fixed Rate: A single rate is charged regardless of amount of energy drawn – a fixed rate is not equitable – customers Tw ((ad)-5 (m)-s)1 (r)Tj0notesus02e. lplikJ-34.6 0 Tw (y)(e)5 (

Galloway Councils are charging 25p per KWh as a flat rate. There is also a private developer in Edinburgh proposing to charge a flat rate of £10 *per hour* irrespective of the type of charger or how long the charging time[11]

Electric Vehicle Association (EVA) Scotland support a differential between Fast and Rapid chargers of a minimum of £0.03 per kWh used and recommend that the differential not exceed £0.10 while Transport Scotland recommended that a per kilowatt hour (KWh) charge is preferable. In addition to this some local authorities found there was another option of charging price per minute rather than kWh for rapid chargers. This is a useful took to assist when calculating the cost to use publically accessible charging sites; Public charging calculator - how much does it cost to charge an electric car? (zap-map.com)

The average home electricity rate is about 14.4p per kWh, but depends on the specific energy tariff. Then, as a rough guide, you need to multiply this by the size of the vehicle's battery. For example, Mii electric has a 36.8kWh battery so at 14.4p per kWh it could cost around £5.30 to fill up[12].

Applying a connection fee is thought to be counter-productive by EVA Scotland they state such a fee encourages behaviour that is unlikely to support optimum utilisation and availability of charge points. Users tend to maximise their stays to minimise the unit cost. Instead they recommend a minimum fee for charger use being around £1, or at least cost neutral[13]. However Edinburgh City Council believe connection charges are required to enable the programme to become self-financing[14].

It is thought, at this time it would be best not to implement a connection fee, EVC users will simply pay for electricity used, maintenance, administrative and management fee. It is important to acknowledge that should the model prove not to be financially viable after review we may have to revisit the application of a connection charge

3.1 Cost Breakdown

All options set out below will incur a cost that will be partially covered by the funds generated by EV chargers, the following table sets out what financial impact the Council has absorbed over the years for providing free EV charging:

Year	Financial Impact	Total kWh
2018/19	£15,605.80	62808.74
2019/20	£21,185.29	122188.1
2020/21	£32,875.46	253551
Total	£69,666.55	474959.6

Both aspects shown in graph format below:

[11] https://democracy.edinburgh.gov.uk/documents/s11552/Electric Vehicle Programme - Referral to TEC Full.pdf
[12] Electric Cars - FAQs | SEAT UK
[13] EVA SCOTLAND TARIFF GUIDANCE Billing for Public and Private EV Charging
[14] Electric Vehicle Programme - Referral to TEC Full.pdf (edinburgh.gov.uk)

As a rough guide, an electric car charging overnight to full can cost as little as £5.30*
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Car Type	Range (miles)	Electric cost / mile
Audi A7	31	6.74p
BMW 330e iPerformance	37	6.29p
Citroen A5 Aircross	34	5.76p
Citroen C Zero	93	3.33p
Ford Focus Electric	139	4.67p
Mercedes B250e Electric	124	4.85p
Mercedes EQC	259	5.14p
Renault Zoe Q90 ZE40	174	4.57p[16]

The following table sets out the 2021/22 costs for an EV driver to access a charger in Argyll and Bute:

	Net	VAT	Gross
kWh and Maintenance - Charge based on 20p to cover Council's electricity costs and 1p to contribute to future maintenance costs	£0.21p	£0.04	£0.25
Minimum Charge - covers management costs e.g. admin, banking fees, merchant fees etc - CPS recommend £1.50 minimum charge which would cover the transaction fees, please note this is a minimum charge, not a connection fee	£1.50	£0.30	£1.80

The following table sets out what charges, to the Council, will be covered from the costs to EVC user:

Fee type	Cost
CPS Transaction Fee	0.36p inc VAT
CPS Banking Fee	2.95% of total cost of charging session (Including VAT)
Merchant Fee	1.50% of total cost of charging session (Including VAT)

4. Enforcement Penalties

In order to give EV users confidence that parking bays will be available when required and that bays will be used correctly, only by electric vehicles, a new enforcement penalty is required which ideally would be based on current parking enforcement

[1616] Electric Vehicle Guides | Pod Point (pod-point.com)

practices, and this would be payable directly to the Council in the current way that parking penalties are issued.

Separately any overstay fee occurred is added to the invoice of the Charge Place Scotland (CPS) account holder[17]; CPS is the current contractor appointed by Transport Scotland to provide a "back office" function including management of all software and administrative functions that enable reporting of faults, collection of payment and collation of data. A ten minute grace period will apply, any one user ending charging within the period would not be charged, but as soon as the overstay exceeds that ten-minute window a £30 penalty will be applied. The fees will be collected as part of the standard transaction through the Charge Place Scotland management system.

The enforcement regime will be a key element to enforce exclusivity, this will be carried out by the Council's parking wardens who will ensure that only EV's will be able to use the charging bays. Under the new regime, any non-electric vehicle parking in an EV bay will incur an immediate fixed penalty notice and any EV occupying a charging bay but not charging will also incur a fixed penalty. Parking attendants will know the locations of all Council owned chargers and be able to monitor their use as part of the normal course of their duties.

In line with other local authorities a new maximum stay and no return periods will also be introduced to ensure that charging bays are available as much as possible. Penalties will be applied to any EV user who stays in the charging bay past the maximum stay period. The table below summarises the new procedures:

Charger Type	**Main Users**	**Max Stay Apply After**
Slow (7kW)		

charging model need to be amended for future years, this will be the subject of a future report prior to fees and charges being proposed in the normal Council budget process.

*****ENDS*****