

Inverclyde Council

Public Electric Vehicle Charging Strategy and Expansion Plan

March 2023

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Inverclyde Council

Public Electric Vehicle Charging Strategy and Expansion Plan

March 2023

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Executive summary

Summary

This Business Case sets out how Invercive Council can invest in electric vehicle charging infrastructure (EVCI) to meet projected demand over the next three-to-four years. The proposed EVCI programme will enable Invercive Council to work with other local authorities in the Glasgow City Region (GCR) and commercial suppliers to increase EVCI through this programme from an existing 41 charging devices, to 443.

This total figure includes existing (upgraded where required), new publicly accessible charge points assumed to be installed by independent providers (without any intervention from the public sector) and the strategic provision requirement of 323 outlined in Table 0.1 below. The term strategic provision is used to identify EVCI estimated to be required on top of existing and independently provided, to meet the strategic aims of this business case. The application for funding covered by this business case therefore includes funding to support the strategic provision outlined below.

Table 0.1: Summary of Total Proposed EVCI to be Procured

	Residential AC (7kW)	Destination AC (7 – 22kW)	Rapid DC (50kW)	Total Future Strategic Provision	Strategic Provision (Existing & Future
Existing	0	19	1	20	222
New / Future	174	91	38	303	323

The estimated capital investment required to achieve the above network is summarised in Table 0.2: Summary of Total Proposed EVCI Capital Costs

Table 0.2: Summary of Total Proposed EVCI Capital Costs

Cost Item	Value £, 2022 prices
Existing Asset replace and update	£200,000
Capital Enabling Costs	£900,000
Capital EVI + Installation Costs	£3,200,000
Standard DNO Costs	£700,000
Total Capital Cost requirement	£4,900,000

Source: Mott MacDonald

Strategic Case

The Strategic case for investment is outlined in the overall GCR Phase 2 Summary report. The EVCI programme aligns with and helps to deliver the wider Draft Vision for Scotland's Public Electric Vehicle Charging Network 'A Network fit for the Future' (Transport Scotland, 2022), and its four key principles underpinned by the need for a 'just transition':

- a people-focused network
- accelerating commercial investment
- coordinating with the electricity network; and

• integration with Scotland's sustainable transport system

The Scottish Government has mandated Scottish Futures Trust (SFT) to undertake programme management of the Electric Vehicle Infrastructure Fund (EVIF), including providing the framework for local authorities to bid to the fund, and making recommendations to the Scottish Government on funding awards. SFT has developed the business case template that this document follows and stipulated key metrics to be provided in the rest of this Executive Summary.

The proposed programme of EVCI in this business case meets SFT's strategic aims as outlined in Table 0.3.

SFT's Strategic Aims	How the Approach of the EVCI Programme in this Business Case Meets Those Aims
A comprehensive network of public charge points	From 2025, the successful delivery of EVCI programmed in this business case will result in there being a comprehensive charging network throughout Inverclyde Council. It is predicted that over 99% of Inverclyde properties will be within a 10-minute drive of a charge point as a result of the investment made through this business case. Five-minute walking catchments have been assumed to residential chargers where off-street parking is limited to help deliver the 'equitable' and 'usable' objectives.
Access, fairness and need	The vison of this programme is to provide a usable network, accessible for all and through the 'Place Principle' and 'Community Wealth Building' approach should ensure that rural communities are not left behind.
Leveraging private investment and approach to enabling this investment	A 20-year concession-type ('public sector ownership with private sector operation') contract is recommended for new and existing assets, and it is estimated that c.82% of the estimated capital cost will be secured from the private sector under the SFT assumptions.
Enabling wider sustainable transport outcomes	This EVCI programme aims to reduce private car use and integrate with the sustainable and active travel offering. The Scottish Government have published a target to reduce vehicle km by 20% by 2030. This business case is strategically aligned with that target through incorporating the 20% reduction into the demand forecasting and ensuring proposed locations for EVCI complement walking, cycling and public transport.

Table 0.3: Meeting SFT's Strategic Aims

Economic Case

From the baseline data and range of forecasts analysed, low, central and high EV uptake forecasts were derived for Invercive Council. This data is summarised for the overall EVCI uptake across Invercive in Table 0.4.

Table 0.4: Forecast Number of EVCI in Inverciyde

	2026 Forecast Requirement		2030 Fo	2030 Forecast Requirement		
	Low	Central	High	Low	Central	High
Residential (Slow)	112	174	278	202	335	565
Destination (Slow)	124	182	298	283	446	781
Destination (Fast)	29	42	69	66	104	182
Rapid	31	45	74	81	134	230
Total Devices	296	443	719	632	1,019	1,758

Source: Mott MacDonald

The current charge point provision has been compared to the 2021 mid population estimates. The subsequent EVCI forecasts for 2025 and 2030 were then also compared to the 2021 population to derive the forecast charge points per 100,000 population. The results are shown in Table 0.5.

Table 0.5: Forecast charge points per 100,000 population (based on Mid-2021 population estimate)

	2022	2026	2030
Inverclyde	41	574	1329

Source: Department for Transport Vehicle Statistics and Mid-Year Population Estimates for Scotland, 2021

The existing number of EV within Inverclyde observed at the end of Q4 2021 was compared with the number of publicly accessible EVCI to derive the EV to charge point ratio.

Table 0.6: Forecast EV to charge point ratio

	Total Plug-in Vehicle Registrations (2022 Q3)	2022 EV Chargers 2	2022 EV to EVCI Ratio
Inverclyde	405	31	14
Source: Department for T	rependent Vahiele Statistics Matt Mag	Donald ChargeBlage Sectland	National Chargenoint

Source: Department for Transport Vehicle Statistics, Mott MacDonald, ChargePlace Scotland, National Chargepoint Registry and discussions with Council officers

Commercial Case

Local authorities have an interest in intervening in the EVCI market, both to promote EV uptake towards Net Zero targets and to ensure a socially equitable network. They also have several strengths to bring to the market. However, it is also recognised that local authorities are not as well placed as the private sector for borrowing capital and responding to the significant delivery and operating uncertainties associated with this emerging market. SFTs guidance is that authorities are not be able to access the EVIF if they choose to adopt a local authority owner operator delivery model (described as Model D within the report). The draft vision for the Public EV Charging Network in Scotland states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland.

After considering four different commercial models in terms of affordability, risk allocation, social outcomes, contestability, procurement, resources and revenue, the Commercial Case recommends a concession-based contract (public sector ownership with private sector operation). It is recommended that Inverclyde Council work together to procure EVCI with one or more local authorities within the region.

Financial Case

The table below summarises indicative results of the SFT feasibility model under SFT standard assumptions.

Table 0.7: SFT Feasibility Model results

Funding Source	Value £, 2022 prices
Indicative Private investment	£4,000,000
'Minimum' Transport Scotland Grant	£300,000
Remaining capital amount	£600,000
Total Funding/Capital Cost requirement	£4,900,000
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Source: Mott MacDonald

In this example, the Remaining capital amount is £600,000 which is 12% of the total Capital Cost requirement. This indicates that the scheme is likely to be feasible without significant public funding and should be taken forward to the next stage to engage with private CPOs to determine the true value of private sector investment, and hence confirm the Remaining capital amount required.

Management Case and next steps

The next steps for the EVCI programme are summarised below:

Month/year	Key tasks
April 2023	 Business Case presented to the Chief Executive's Group Initiate further discussions on commercial model and collaborative working arrangements
	 Submission of draft business case document to SFT for comment Further engagement with SPEN to confirm any constraints
June 2023	 Confirm collaborative working arrangements and agree and establish Inter-Entity Agreement IEA(s) as required Einalisation of business case
	 Internal approval process of the business case document within each of the eight local authorities begins
September 2023	 Internal approval process of the business case document within each of the eight Councils complete
	 Submission of final business case document to SFT for consideration
	 Procurement of consultancy support (if required) for procurement and development stage may be underway
	Soft market testing complete
Q4 2023	 Development of procurement/tender documentation for suppliers Commencement of procurement process with commercial suppliers
Q1 2024	CPO partners in place
	 Commencement of capital works for new EVCI
	 Existing asset replacement where required
Q2 2024	Commencement of service delivery
2024-26	 EVCI programme in place, with installation of new EVCI ongoing, and service delivery ongoing

1 Introduction

1.1 Purpose of the Report

This report presents the proposed package of publicly available electric vehicle charging infrastructure (EVCI) for Invercelyde, predicted to be required to service the growth in EVs. The report should be read in conjunction with the overall Glasgow City Region EVCI Phase 2 Summary Report which provides the overall strategic case for investment, the methodology and assumptions and sets out options and recommendations for collaborative delivery among all authorities of the Glasgow City Region:

- East Dunbartonshire
- East Renfrewshire
- Glasgow City
- Inverclyde
- North Lanarkshire
- Renfrewshire
- South Lanarkshire
- West Dunbartonshire

The Scottish Government has mandated Scottish Futures Trust (SFT) to undertake programme management of the Electric Vehicle Infrastructure Fund (EVIF), including providing the framework for local authorities to bid to the fund, and making recommendations to the Scottish Government on funding awards. The purpose of this report is to enable Inverclyde Council to access the EVIF.

The report describes a range of commercial delivery options for EVCI. Whilst a range of options are considered, the SFTs guidance is that authorities are not be able to access the EVIF if they choose to adopt a local authority owner operator model (described as Model D within the report). The draft vision for the Public EV Charging Network in Scotland states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland. For this reason, the Financial Case included within this report uses the SFT Feasibility Model to appraise a concession contact option only.

1.2 Vehicle Types

The scope of this EVCI business case includes EVCI requirements for the following vehicle types:

- Cars
- Light Goods Vehicles (LGVs)
- Taxis
- Private Hire Vehicles (PHVs)

Charging facilities for other vehicles, for example motorcycles, Heavy Goods Vehicles (HGVs) and buses/coaches are out of scope of the EVIF.

For the purposes of this report, the following definitions are used:

• **Battery Electric Vehicle (BEV)**: A vehicle powered by electricity, which is stored in a battery, and recharged by plugging into a source of electricity or by regenerative braking.

The range depends on the size of the battery, which is measured in kWh, but most new BEVs have a range of at least 200 miles based on a 50kWh battery.

• **Plug-in Hybrid Electric Vehicle (PHEV)**: A vehicle that has both a 'traditional' Internal Combustion Engine (ICE) fuelled by petrol or diesel, which is supplemented with a battery-powered electric motor. These can travel on electric-only power for up to 40 miles, depending on the size of the battery. The battery is recharged by plugging into a source of electricity or by regenerative braking.

Other types of low emission vehicles such as conventional hybrid ICE and Hydrogen Fuel Cell EV (FCEV) have been excluded from the analysis as they do not require the same EVCI. The term plug in vehicle (PiV) is used throughout the report to refer to BEV and PHEV combined.

1.3 Charging Types

There are various charger types that provide power to EVs, which are categorised based on the power output of the charger. These are summarised in Table 1.1.

Charger Type	Output (kW)	Typical Time to Fully Recharge BEV	Examples of Location Suitability
Slow (AC)	Up to 7kW	6 to 12 hours	Residential on-street, workplace, private driveway, car parks, transport hubs.
Fast (AC)	7kW to 22kW	2 to 5 hours	Destinations including car parks, supermarkets, leisure centres, retail parks, transport hubs.
Rapid (DC)	43kW to 100kW	20 to 60 minutes	Destinations such as supermarkets, retail parks and transport hubs, or en-route journey charging like motorway services and service stations
Ultra-rapid (DC)	100kW to 350kW	15 to 30 minutes	En-route journey charging such as motorway services and service stations.

Table 1.1: EV Charger Types

Further detail relating to vehicle types and charger type characteristics is provided in Section 2 of the 'Glasgow City Region EVCI Phase 2 Summary Report'.

1.4 Structure of the Business Case

The structure of this business case follows the SFT template and is outlined below, for the sections following this introduction:

- Section 2: Background
- Section 3: Baseline position
- Section 4: Stakeholder Engagement
- Section 5: The Strategic Case
- Section 6: The Economic Case
- Section 7: The Commercial Case
- Section 8: The Financial Case
- Section 9: The Management Case

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2 Background

The Scottish and UK Governments policy is that no new petrol and diesel cars and vans will be sold from 2030, with all new cars and vans required to be fully zero emission by 2035¹. The number of plug-in cars and light goods vehicles licenced in Scotland increased from 500 in 2012 to almost 50,000 in 2022. It is therefore vital that Scotland expands the EVCI network to meet the growing demand for EVs.

This section outlines the relevant demographic data from the Inverclyde Council area. The data used in this section comprises of population estimates, Scottish Indices of Multiple Deprivation (SIMD), dwelling statistics from National Records, employment characteristics and local plan data. This data is used to understand the socioeconomic conditions across Inverclyde, informing the assessment of potential demand for future EVCI.

2.1 Study Area

Figure 2.1 illustrates the Inverclyde study area, which is one of eight local authorities (LAs) in Glasgow City Region (GCR).



Figure 2.1: Inverclyde Study Area

Source: Mott MacDonald, Boundary: statistics.gov.uk

¹ Scottish Government. Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update (2020).

2.1.1 Number of Dwellings

Dwelling density and access to off-street parking are both considered when assessing the future EVCI requirements. Access to off-street parking enables owners to charge vehicles at home, as opposed to relying on the publicly available charger network.

Table 2.1 sets out the total number of dwellings and the percentage of dwellings with off-street parking. There are around 39,500 dwellings in Inverclyde. Inverclyde has a lower percentage (39%) than the average of Glasgow City region (49%) for dwellings with access to on street parking.

Table 2.1: Dwellings by Local Authority and Off-Street Parking Percentage

	Number of Dwellings in 2021	Percentage of Dwellings with Off-Street Parking
Inverciyde	39,446	39%
Glasgow City Region	895,721	49%

Source: National Records of Scotland, house-est-21-data.xlsx (live.com), and Scottish House Condition Survey 2020

Figure 2.2 shows the number of dwellings per hectare in the Inverclyde study area, with darker blues indicating higher dwelling density. The areas with higher dwelling density are within the main towns to the north in Inverclyde with Greenock, Gourock and Port of Glasgow. While most of the central and southern areas of Inverclyde being rural with low dwelling density highlighted by white on the figure below.

Figure 2.2: Number of Dwellings per Hectare in Inverclyde



Source: Mott MacDonald, Data: Dwelling estimates and characteristics of dwellings, by 2011 Data Zone, NRS, 2020

2.1.2 Indices of Multiple Deprivation

Equitable distribution is an important aspect of the Draft Transport Scotland vision for the public charger network. This section provides an overview of the levels of deprivation and economic disadvantage in Inverclyde. The purchase price of EVs is a significant barrier to uptake at present, meaning the socioeconomic context represents an important consideration for charging infrastructure. Demand for EVCI may therefore increase sooner in higher decile zones, and so be more attractive to private sector investment. In turn, this may mean that lower decile areas may be less attractive to the private market. These are important considerations to ensure that the decarbonisation of transport is fair and just.

To aid understanding of deprivation and economic disadvantage, Scottish Indices of Multiple Deprivation (SIMD) were mapped to acquire a spatial understanding of the socio-economic distribution in the study area.

Deciles are calculated by ranking the data zones from most deprived to least deprived and dividing them into 10 equal groups. Zones in decile 1 fall within the 10% most deprived zones nationally, whilst zones in decile 10 fall within the 10% least deprived of data zones nationally.

The SIMD is the official measure of deprivation and combines information from the following:

- Employment Deprivation
- Education, Skills, and Training Deprivation
- Health Deprivation and Disability
- Crime
- Barriers to Housing and Services
- Living Environment Deprivation

Figure 2.3 illustrates the SIMD deciles for Inverclyde in the form of a heatmap, whereby red hues signify areas that suffer from higher percentages of deprivation and green hues signify areas with lower percentages.



Figure 2.3: Indices of Multiple Deprivation, Inverclyde

Slasgow City Region | Inverciyde | 29 Mar 2023

Source: Mott MacDonald, Scottish Index of Multiple Deprivation

Deprivation levels are relatively low across much of the spatial area of Inverclyde area. However, the red hues indicate that in some towns including Gourock, Greenock and Port Glasgow there are higher levels of deprivation up to 10% of the most deprived in Scotland.

2.1.3 Housing and Commercial Development

The housing targets and requirements for Inverclyde are set out in Table 2.2. These housing targets help inform the likely areas of development which will introduce additional future EV demand and a subsequent impact on the local electricity grid. Furthermore, Inverclyde's Local Development Plan includes a requirement for new housing developments to provide EVCI. New housing with EV charge points will therefore reduce the need of these vehicles to use the public network to fulfil most of their charging needs.

Table 2.2: Inverclyde Housing Supply Targets and Requirements 2024-2029

	Housing Supply Target 2024- 2029	Housing Supply Requirement 2024-2029
Inverclyde	1,250	1,440

Source: Strategic Development Plan, Clyde Plan, 2017

Inverclyde's housing supply target is ranked amongst the lowest of the LAs in the Glasgow City Region, having the fourth lowest housing target.

The Clyde Spatial Development Strategy identifies 22 Strategic Economic Investment Locations which will contribute to achieving the long-term vision of a 'rebalanced low carbon economy, boosting competitiveness and tackling inequality². Inverclyde is one of the eight LAs which will make up Clydeplan. The identified locations are illustrated in Figure 2.4.



Figure 2.4: Clydeplan Strategic Economic Investment Locations

Source: Glasgow and the Clyde Valley Strategic Development Plan, 2017

2.1.4 Road Network and vehicle kilometre travelled

The EVCI requirement is based on travel patterns and vehicle km travelled within the region. Inverclyde hosts a 401km road network, as illustrated in Table 2.3.

Table 2.3: Road Network in Ir	nverclyde in kilometres
-------------------------------	-------------------------

	Motorway and slips (km)	A Roads (km)	Local Authority Roads (km)	Total Road Network (km)
Inverclyde	-	28	373	401

Source: Transport Scotland³

Table 2.4 shows the vehicle km driven for Inverclyde; the table is divided into Motorways, Trunk Roads, and Minor Roads. Data was sourced from the Scottish Transport Statistics.

² Glasgow and the Clyde Valley Strategic Development Plan, 2017. Available at: <u>ApprovedPlanHighRes.pdf</u> (clydeplan-sdpa.gov.uk)

³ Chapter 4: Road Network | Scottish Transport Statistics 2021, Transport Scotland.

Table 2.4: Traffic on major and minor roads in Inverclyde, 2021 (in million vehicle kilometres)

	Motorways	Trunk A	Non-Trunk A	Minor Roads	Total
Inverclyde	-	165	56	218	439

Source: Transport Scotland⁴

2.1.5 Population

Population characteristics can also influence the uptake of EVs and therefore the need for EVCI.

Inverclyde had a total population of approximately 76,700 in 2021⁵. Table 2.5 illustrates the midyear 2021 population estimate distributions by age for Inverclyde, Glasgow City Region, Scotland, and the United Kingdom as a whole. Shading indicates where the % is higher than the UK average.

Inverclyde has a similar age profile to the Scottish profile with largely similar percentages across all age groups. However, when compared with Glasgow City and Scotland, Inverclyde has an older aged population. Those aged 65+ account for 22% of the population in Inverclyde in comparison to just 19% in Scotland and 14% in Glasgow City Region. Furthermore, Inverclyde has the highest % of 45-64 year olds, suggesting on a whole that Inverclyde has more of an aging population than that in comparison to Glasgow City region, Scotland and the UK on average.

Age Cohorts	Inverclyde	Glasgow City	Scotland	UK
	% of po	opulation within Age	Cohort	
0-14	15%	15%	16%	17%
15-24	11%	13%	11%	12%
25-44	23%	35%	26%	26%
45-64	30%	23%	27%	26%
65+	22%	14%	19%	19%
16-64 (Working age)	62%	71%	64%	60%

Table 2.5: Mid-year Population Distribution Estimates by Age, 2021

Source: Population Estimates 2021, ONS. Shading denotes where % is higher than UK average.

Figure 2.5 depicts the population density of Inverclyde, as of 2020. Population density is generally low across much of the council area having less than 16 people per hectare. Areas of higher density are within the main towns of Greenock, Gourock and Port of Glasgow.

⁴ Chapter 5: Road Traffic | Scottish Transport Statistics 2021, Transport Scotland (<u>Chapter 05 - Road Traffic |</u> <u>Transport Scotland</u>)

⁵ <u>Labour Market Profile - Nomis - Official Census and Labour Market Statistics (nomisweb.co.uk);</u> Population Estimates, 2020. Office for National Statistics.

Figure 2.5: Inverclyde Population Density



Source: Mott MacDonald, National Records of Scotland

2.1.6 Employment characteristics

The types of jobs people have in the region can also influence the need for publicly available EVCI. The Business Register and Employment Survey (BRES)⁶ provides an overview of the employment characteristics for Inverclyde.

Office for National Statistics (ONS) and the Business Register and Employment Survey (BRES) provides an overview of the population employment occupation for Inverclyde. Data from July 2021-June 2022 illustrates that most people within the region work in professional occupations, associate professional occupations and as managers, directors, and senior officials, as depicted in Table 2.6 below. With 37.4% working as Senior officials and other professional occupations. However, compared to Scotland and the Great Britain benchmarks this percentage is much lower with a percentage of 48.3% in Scotland and 51.4% in Great Britain.

For Major groups 6-7 and 8-9 Invercelyde has higher employment % than the benchmarks in Scotland and Great Britain. With Sales and Customer service occupations for example, covering 14.3% of employment in Invercelyde, compared to the benchmarks in Scotland and Great Britain being significantly less at 8.6% and 6.6%.

⁶ Business Register and Employment Survey (BRES), 2020. Office for National Statistics.

Table 2.6: Employment by occupation (Jul 2021-Jun 2022)

	Inverclyde (Numbers)	Inverciyde (%)	Scotland (%)	Great Britain (%)
Soc 2021 Major Group 1-3	13,800	37.4	48.3	51.4
Mangers, Directors, and Senior Officials	1,800	4.9	8.2	10.3
Professional Occupations	7,800	21.2	25.3	25.8
Associate Professional Occupations	4,200	11.4	14.8	15.0
Soc 2021 Major Group 4-5	6,100	16.6	18.5	18.7
Administrative & Secretarial Occupations	3,500	9.5	9.8	10.1
Skilled Trades Occupations	2,600	7.1	8.7	8.6
Soc 2021 Major Group 6-7	8,800	23.8	17.1	14.6
Caring, Leisure and other Service Occupations	3,500	9.5	8.4	7.9
Sales and Customer service occupations	5,300	14.3	8.6	6.6
Soc 2021 Major Group 8-9	8,200	22.1	16.0	15.3
Process plant & machine operatives	3,300	8.8	6.0	5.7
Elementary occupations	4,900	13.3	10.0	9.6

Sample size too small for reliable estimate

Numbers and % are for those 16+

Source: ONS annual population survey; Labour Market Profile - Nomis - Official Census and Labour Market Statistics (nomisweb.co.uk)

This information aids understanding of employment trends and the industry types which underpin economic activity in the region, including the vehicle types used/ required for different industries (such as delivery vans, fleets etc.), commuting patterns and types of employment land which can be used to identify charging locations.

3 Baseline Position in Inverclyde

This section outlines the existing EV ownership and publicly accessible EVCI in Inverclyde, both council and independently provided.

3.1 Existing Electric Vehicle Ownership

The Department for Transport (DfT) VEH01 statistical dataset⁷ was utilised to analyse the existing number of registered EVs within the study area. As of 2022 Q3, a total of 57,687 cars and LGVs PiVs were registered in Scotland. Within this, there were approximately 23,235 cars and LGVs PiVs registered in the Glasgow City Region consisting of 14,536 BEVs and 8,699 PHEVs.

In Inverclyde, there were approximately 405 registered cars and LGVs PiVs in 2022 Q3, as shown below in Table 3.1.

Table 3.1: Registered Plug-in Vehicles per 100,000 Population

	Total Plug-in Vehicle Registrations (2022 Q3)	Plug-in Vehicles per 100,000 Population (2022 Q3 based on Mid- 2021 Population Estimates)	Plug-in Vehicles per 100,000 Population (2026 based on Mid- 2021 Population Estimates	Plug-in Vehicles per 100,000 Population (2030 based on Mid- 2021 Population Estimates
Inverclyde	405	529	2499	6,002

Source: Department for Transport Vehicle Statistics and Mid-Year Population Estimates for Scotland, 2021

3.2 Existing Electric Vehicle Charging Infrastructure

The publicly available EVCI in Inverce comprises a mix of council owned infrastructure at 19 locations (20 devices) and independently provided infrastructure at 8 locations (11 devices), as shown in Table 3.2Table 3.. Each device may provide more than one charging socket, although it is not always possible to charge two vehicles simultaneously.

Table 3.2: Inverclyde Existing EVCI Devices

	Destination 7kW	Destination 22kW	Rapid 50kW and above	Total
Council Provided	0	18	2	20
Independently Provided	1	8	2	11
Total	1	26	4	31

Source: Mott MacDonald, ChargePlace Scotland, National Chargepoint Registry and discussions with Council officers

The total number of EVCI compared to the number of PiV within the local authority areas is shown in Table 3.3.

⁷ Vehicle Statistics Collection, Department for Transport and Driver Vehicle Licensing Agency. January 2022. Available at: <u>Vehicles statistics - GOV.UK (www.gov.uk)</u>

	Total Plug-in Vehicle Registrations (2022 Q3)	2022 EV Chargers	2022 EV to EVCI Ratio
Inverclyde	405	31	14

Table 3.3: Inverciyde EVs (2022 Q3) Compared to EVCI Ratio

Source: Department for Transport Vehicle Statistics, Mott MacDonald, ChargePlace Scotland, National Chargepoint Registry and discussions with Council officers

At present, most EVCI is located in larger settlements such as Greenock, Gourock and Port of Glasgow, with some piecemeal EVCI elsewhere. In the settlements, most chargers are located in areas of high commercial activity. There are gaps in service provision in rural parts of Inverclyde.

Figure 3.1 shows the 31 public electric vehicle charge point locations within Inverclyde.



Figure 3.1: Inverciyde Public and Independently provided EVCI Locations.

Source: Mott MacDonald, ChargePlace Scotland, National Chargepoint Registry and discussions with Council officers

3.3 Current Approach to Service Delivery

3.3.1 Council Owned EVCI

Discussions with Inverclyde officers were undertaken to understand the existing approach to EVCI service delivery for council owned infrastructure in Inverclyde. This currently accounts for 20 sites and the network is operated by ChargePlace Scotland.

Figure 3.2 below shows the locations of the council-owned charging network.



Figure 3.2: Council owned EVCI in Inverclyde

Source: Mott MacDonald, ChargePlace Scotland, National Chargepoint Registry and discussions with Council officers

Responsibility for managing, maintaining, procuring, and replacing the network sits with the traffic and transport team in the council.

3.3.2 Independently provided EVCI

The remaining publicly accessible EVCI is operated by independent private entities at a range of locations including retail sites, filling stations and Bogston Railway Station. These sites typically provide fast chargers.

Figure 3.3 below shows the locations of the privately-owned charging network.



Figure 3.3: Privately owned EVCI in Inverclyde

Source: Mott MacDonald, ChargePlace Scotland, National Chargepoint Registry and Zap-Map

3.4 Revenue and Operations

As of 31st January 2023, Inverclyde Council has the following EV tariffs in place⁸:

- £1 connection fee then:
 - £0.20 per kWh, for destination chargers (22kW and lower).
 - £0.30 per kWh, for rapid chargers (over 50kW).

⁸ Charge Place Scotland | Charge point tariffs | Charge Point Tariffs - Charge Place Scotland

4 Stakeholder Engagement

Stakeholder engagement on the EVCI plans has taken place through engagement with targeted stakeholders and a public/business survey. The overall stakeholder engagement methodology and survey analysis is provided in the Glasgow City Region EVCI Phase 2 Summary Report with the results for Inverclyde described below. The surveys provide useful insights that enables the demand modelling in the Economic Case to be tailored to the Glasgow City Region.

4.1 Stakeholder Workshop

A stakeholder workshop took place on 25th January 2023 with 3 attendees from Inverclyde Council. A 'SWOT' (Strengths, Weaknesses, Opportunities and Threats) analysis was undertaken collaboratively, and the stakeholders reported the following:

4.1.1 Strengths

EVCI plays a key role in helping to shape communities for the better, by building more resilient communities, and promoting sustainable economic growth. The presence of EVI helps to encourage local tourism, staycations and footfall to local towns in turn helping to boost the local economy.

Visitors to Inverclyde need to know the EVCI will be available to enable them to visit the area. Sufficient EVCI will help to achieve its ambition of becoming carbon neutral as part of the Scottish Government's Plan.

Inverclyde has fairly low levels of deprivation and perhaps as a result EV uptake is fairly high when compared to other local authority areas within Glasgow City Region.

4.1.2 Weaknesses

EVCI can be a challenge to deliver and operate in more rural locations. Although EVCI installation can be more costly in more rural locations, it is important they do not get left behind to access to EVCI.

The reliability of EVCI is important: infrastructure that becomes broken must be guaranteed to be fixed in a short time period.

4.1.3 **Opportunities**

There is an opportunity to learn from other areas on EVCI and decarbonisation. Furthermore, there is potential to work collectively with the other local authorities within Glasgow City Region to develop a regional network.

Integration between transport modes by introducing EVCI at existing transport hubs or creating new transport hubs will enable all-day charging while commuting to Glasgow and other destinations. This could encourage modal shift from car-only journeys to drive-and-ride. However, there may be land ownership issues and therefore a requirement for collaboration.

EVs help in reducing carbon and vehicle emissions but also provide indirect benefits such as health benefits, supply chain opportunities, and local job creation. They provide an opportunity to shape and influence travel behaviours by locating EVCI close to commercial and retail services.

EVCI should be linked to sustainable generation from renewable energy sources such as wind and solar farms where possible.

4.1.4 Threats

Several potential threats were identified which could have an impact on the success of EVCI. These include:

- Vandalism
- Uptake of electric vehicles
- Affordability
- Impact of ongoing maintenance of EVCI
- Lack of understanding of EV
- Reliability of EVCI
- Accessibility of EVCI to different user groups e.g., disability
- Safety at remote charge point sites
- Utilisation EVCI must be commercially viable, and the demand must be balanced
- Other factors must be considered such as lighting, road surface, markings and signage.

4.2 Survey

The methodology for the survey and results for all local authorities can be found in the Glasgow City Region Phase 2 Summary Report. The total number of respondents in Inverclyde was 71 (2.7%) of a total of 2,609 across the Glasgow City Region as a whole.

4.3 Current situation

- 73% of survey respondents with access to a car had access to an electric vehicle of which 81% are Battery Electric Vehicles.
- 75% of respondents have access to off-street parking and 16% are willing to walk more than 10 minutes to a charge point if they were unable to charge at home. EV owners are more likely to travel further to a charge point than those who do not currently own one, 23% of EV owners will travel more than 10 minutes whereas this falls to just 6% of those without an EV.

Figure 4.1 shows that the majority of respondents (59%) normally charge their car at publicly accessible charge points which is 5% more than Glasgow City Region as a whole.



Figure 4.1: Which of the following best describes where you normally charge your vehicle?

Source: Mott MacDonald

4.4 EVCI Preferences

Table 4.1 outlines the typical weekly car milage of respondents. This shows that 50% of respondents travel between 51 and 150 miles a week by car, only 12% travel between 0-50 miles and 23% travel over 200 miles.

Table 4.1: What is your typical weekly car milage?

Distance travelled	Number of respondents	Percentage (%)
0 - 50 miles	7	12%
51 - 100 miles	15	25%
101 - 150 miles	15	25%
151 - 200 miles	9	15%
201 - 250 miles	8	13%
251+ miles	6	10%

Source: Mott MacDonald

Table 4.2 shows that in Inverceyde, the main reason for people not planning to buy or lease an EV in future is due to there not being enough charging infrastructure (34%) followed by EV's being too expensive. This shows the potential to encourage more people to switch to an electric vehicle by introducing more charging infrastructure throughout Inverceyde.

Reason	Percentage (%)
Electric vehicles are too expensive	21%
Electric vehicles take too long to charge	0%
There is not enough charging infrastructure	71%
The range of electric vehicles are too low	0%
The cost to charge an electric vehicle is too high	4%
I don't know enough about electric vehicles	4%

Table 4.2: Why do you not plan to buy or lease an EV in future?

Figure 4.2 shows where people who own or have access to a BEV would like to see more charging locations in their area depending if they have off street or on street parking. This shows that 44% of respondents with off street parking would like more destination chargers such as at community facilities, supermarkets and businesses compared to 47% in Glasgow City Region. Those without off street parking would rather see more destination chargers (43%) compared to residential chargers (38%) which includes on street, at charging hubs or near active travel facilities (35% which is lower than the regions average (40%).





Figure 4.3 shows where people who own or have access to a PHEV would like to see more charging locations in their area depending on if they have on street or off-street parking. This shows that a higher percentage of respondents with on street parking (25%) would like more residential chargers than those with off street parking (21%). 59% of respondents with off-street parking would like to see more destination chargers, this is higher than in Glasgow City Region where it is 50%.

Source: Mott MacDonald



Figure 4.3: PHEV additional charging locations

Source: Mott MacDonald

5 The Strategic Case

The overall strategic case is described in the overall Glasgow City Region EVCI Phase 2 Summary Report, with findings specific to Inverclyde is described below.

5.1 Policy Context

5.1.1 National Policy and Strategy

The Scottish Government has set legally binding climate targets to realise net-zero by 2045 and has committed to phase out the need for petrol and diesel cars and vans by 2030 as part of the Scottish Government's Climate Change Plan⁹.

Electric vehicles have an important role in supporting the net zero transition as part of the future transport system, alongside public transport and active travel. National policy highlights the need for long-term strategies and guidance for transport and infrastructure, which are provided by the National Transport Strategy 2 (NTS2)¹⁰ and National Planning Framework 3 (NPF3)¹¹ respectively. Further details of relevant national policy and strategy are provided in Section 4 of the 'Glasgow City Region EVCI Phase 2 Summary Report'.

5.1.2 Local Policy

The Invercive Local Development Plan 2019 sets out the council's strategy, policies and proposals for building and land use within the area. This includes a requirement for EVCI to be installed in new developments.

Additionally, the council has a Net Zero Strategy 2021 – 2045 that outlines the interventions to meet the council's net zero targets and transport decarbonisation within the area. It identifies priorities for EVs as part of the council vehicle fleet and the rollout of additional EVCI.

5.2 Vision, Outcomes and Priorities

The project vision was agreed as part of an earlier stage of the project and is discussed in the overall GCR Summary report. Inverclyde's Council's aims and objectives are consistent with the overall project vision.

⁹ Securing a green recovery on a path to net zero: climate change plan 2018–2032, Scottish Government, Update 2020. Available at: https://www.gov.scot/publications/securing-green-recovery-path-net-zero-updateclimate-change-plan-20182032

¹⁰ National Transport Strategy 2, Transport Scotland, 2020. Available at: <u>National Transport Strategy 2</u> <u>Transport Scotland</u>

¹¹ National Planning Framework 3, Scottish Government. 2014. Available at: <u>National Planning Framework 3 -</u> gov.scot (www.gov.scot)

6 The Economic Case

This section sets out the economic case for the investment including the scale of EVCI likely to be required, preferred charge point mix, proposed locations, and analysis of the proposed network against the agreed vision. This section should be read in conjunction with the overall economic case described in the Glasgow City Region EVCI Phase 2 Summary Report which describes the methodology and assumptions used.

6.1 EVCI Requirements

6.1.1 Forecasting Results

The number of EVCI required to support the forecast EV demand in Inverclyde is shown in Table 6.1. The methodology and assumptions used to generate the forecasts, including charger preference, are provided in the overall Glasgow City Region EVCI Phase 2 Summary Report.

	2026 For	2026 Forecast Requirement			2030 Forecast Requirement		
	Low	Central	High	Low	Central	High	
Residential (Slow)	112	174	278	202	335	565	
Destination (Slow)	124	182	298	283	446	781	
Destination (Fast)	29	42	69	66	104	182	
Rapid	31	45	74	81	134	230	
Total Devices	296	443	719	632	1,019	1,758	

Table 6.1: Inverclyde Council Forecast EV Charging Infrastructure Requirements

Source: Mott MacDonald

The central forecast was selected for more detailed analysis as it provides the most balanced uptake forecast.

6.1.2 Future Strategic Provision

There is existing EVCI located within Inverclyde and it is anticipated that some EVCI will be installed by independent providers without any intervention from the public sector. Taking these two factors into consideration, the total future strategic provision requirement has been identified in Table 6.2. The term 'Strategic provision' is used to define where Council intervention (for example through a concession contract) is likely to be required to provide EVCI needed to meet the strategic targets of this business case. The total strategic provision represents the total EVCI which would be included within a concession contract, made up of existing council owned assets and the estimated future strategic provision.

The methodology for assessing the level of independently provided provision and the charger preference is outlined in the overall summary report. As outlined in SFT guidance, only requirements to 2026 are included within the business case.

		Independent Provision			Str	ategic Provis	sion
	Total estimated requirem ent in 2026 (central scenario)	Existing (2022)	Future Provision (2026)	Total Independ ent Provision (2026)	Existing (Council Provided) (2022)	Future Provision (2026)	Total Strategic Provision (2026)
Residential 7 kW	174	0	0	0	0	174	174
Destination 7 kW	182	1	90	91	0	91	91
Destination 22 kW	42	8	13	21	19	2	21
Rapid 50 kW	45	2	6	8	2	36	38
Total	443	11	109	120	20	303	323

Table 6.2: Inverclyde EVCI 2026 Devices

Source: Mott MacDonald

The proposed strategic provision represents one possible scenario only and may be subject to change. For example, it is plausible that a scenario more focussed on rapid charging hubs may eventuate as charging times decrease and infrastructure (both above and below ground) matures. However, the scenario outlined above is reflective of likely preferences over the short term (next four years) based on existing charger preference data from other parts of the UK and the Glasgow Region and our discussions with private charging infrastructure providers. The proposed scenario also reflects the aims and objectives of the EVIF.

6.2 Site Identification

The proposed locations for residential and destination chargers identified by our Electric Charging Optimum Solution (ECOS) tool are illustrated in Figure 6.1 with a list of locations provided in Appendix A. Information on the assumptions and process used to identify locations are described in the GCR summary report. The proposed locations are provisional and will be subject to further refinement through discussions with local authority officers, SPEN and charge point operators. Some of the site locations identified may be situated in neighbouring local authorities to adequately cater for assessed demand at a suitable location.

Figure 6.1: Future Proposed EVCI Network



Source: Mott MacDonald.

6.3 Grid Connection

The ECOS tool provides an initial assessment of primary sub-station capacity. The data on the electricity grid was obtained from SPEN distributed generation data¹². To derive the spare capacity on the network, the primary substation maximum load was subtracted from the firm capacity to derive the current substation capacity.

The capacity of the substation was then compared with the total power draw of the proposed EV charging infrastructure for both the residential and destination charging analysis. A new maximum load for the primary substation was then calculated.

Within Inverclyde, no primary substations were identified as having limited capacity with less than 2MVA, which could potentially require upgrades to support the proposed charging provision identified in the analysis. However, further discussion with Scottish Power Energy networks (SPEN) is required as part of the next stage of the project.

Correspondence has been held with SPEN, along with a meeting held on the 9th March 2023 where it was confirmed that the data used in our analysis was the most appropriate publicly available data set. SPEN are aware of planned developments which may impact on future grid capacity but they are not able to supply this information. In addition, they have access to more

¹² Scottish Power Energy Networks, 2022. Distributed Generation Heat Map data. Available at: <u>https://www.spenergynetworks.co.uk/pages/sp_distribution_heat_maps.aspx</u>

detailed datasets to understand the localised power grid opportunities and constraints. It was agreed that a list of proposed locations would be provided to SPEN following finalisation of the draft business case and they would respond with any potential constraints resulting from grid capacity.

Grid Assessment Disclaimer:

The potential number of EVCI that the primary substation could support is only an approximation, and no forecasting assessment was carried out on the potential future maximum load for other purposes such as residential developments or industrial uses. In addition, while a primary substation may theoretically accommodate additional load, the local grid infrastructure in the vicinity may require upgrades to support the proposed locations to provide sufficient power to a charging site.

Any future developments such as housing schemes or new National Grid connections have not been considered for the potential impact on the grid capacity. Therefore, ongoing engagement with SPEN is highly recommended throughout the infrastructure planning phases to ensure aspirations are aligned. Where constraints have been identified in the analysis, this information will be shared with SPEN to ensure clarity.

6.4 Alignment with the Agreed Vision

Alignment of the proposed EVCI network with the agreed vision is discussed in the overall Glasgow City Region EVCI Phase 2 Summary Report. For Invercive this analysis reveals that:

- 100% of properties are located within a ten-minute drive of a proposed charger.
- The proposed charger network is spread across SIMD decile zones, indicating it is not focussed on areas with low deprivation.
- The proposed network supports the transport hierarchy through ensuring chargers are provided in close proximity to active travel and public transport as potential mobility hubs.

Individual maps supporting this analysis are provided in Appendix 0.

6.5 Potential Ultra-Rapid Sites

Ultra-Rapid charging is not a focus of the EVIF as it is assumed that this type of charging will be provided by the private sector independently, due to the high cost barriers for installation and associated increased risks. Alternatively, ultra-rapid charging could form part of a different funding stream, for example similar to the RAPID Charging fund available in England and Wales¹³. However, some initial analysis has been undertaken to enable local authorities within the Glasgow City Region to consider as part of their wider EVCI Strategy.

Discussions with CPOs reveal that Ultra-Rapid charging is considered suitable at sites with the following characteristics:

- Close proximity and easy access to the trunk road network or major A roads.
- High volume of pass-by traffic.
- Other site uses such as fast food, coffee shops and toilets.
- Well lit locations with good passive security.

Examples include motorway service stations or large charging hubs.

Based on these characteristics potential locations have been mapped based on the availability of land, represented as Council owned car parks located within 1 km of the Trunk Road

¹³ Rapid charging fund - GOV.UK (www.gov.uk)

network. This analysis is intended to be used as a starting point only and further analysis can be undertaken by individual local authorities to determine site suitability, especially around available grid capacity.

The analysis for Inverclyde revealed 17 sites meeting these criteria, as indicated below:

- Bruce Street
- Bullring
- Catchart Street West
- Cathcart Street East
- Dalyrymple Street
- East Road
- Fore Street
- Fran Terrace
- Hastie Street
- Highholm Avenue
- Princes Street
- Shore Street
- Station Avenue East
- Station Avenue West
- Waterfront
- West Stewart Street
- William Street

It is noted that further analysis on the above site suitability for ultra-rapid charging has not been undertaken, and only the outlined criteria of proximity to the trunk road network has led to the identification of the above. Furthermore, these sites may already feature or propose to feature charging infrastructure.

7 The Commercial Case

This section summarises the commercial models presented in Section 7 of the overarching Phase 2 Summary Report and focusses on the commercial preferences expressed by Inverclyde Council through commercial workshop sessions, taking into account that EVIF funding is only available for commercial models which involve private sector funding. This reflects the Public EV Charging Network in Scotland vision, which states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland.

7.1 Recap of Potential Commercial Models

The EVCI network the local authority chooses to implement will generate capital and operating costs as well as operating revenue. The commercial model determines how these costs and revenues are distributed across public and private sector parties.

On that basis, there are a minimum of three potential commercial models to consider, as follows:

- Fully private-sector-led model
- Fully public-sector-led model, and
- Some form of public-private partnership hybrid.

In the following table, we identify four main commercial models to consider, which include the first two of the above models plus two types of hybrid models.

	A – Privately owned and operated	B – Privately operated only	C – Privately operated with risk share	D – Public sector owned and operated
Approach	Private sector ownership and operation of network	Public sector ownership with private sector operation	Public sector ownership with private sector shared-risk/revenue operation	Public sector ownership and operation of network
Existing and new EVCI asset ownership	Private	Public (concession model)	Public (concession model)	Public
Loss making assets	Bundled with profit- making assets	Bundled with profit- making assets	Bundled with profit- making assets	Public
Operator	Private	Private	Private	Public
Risk to LA	No	No	Yes	Yes
Revenue stream to LA	No	No	Yes	Yes
Tariff setting	Private	Private / Public	Private / Public	Public
EVIF eligibility	Yes	Yes	Yes	No

Table 7.1: Commercial model options

Source: Mott MacDonald

Some observations from this table are as follows:

 Model A assumes that the private sector would own and operate all existing and new assets, giving them greatest control over tariff setting and charger locations.

- Model D assumes that the public sector would own and operate all existing and new assets, giving them full control over tariff setting and charger locations.
- Model B assumes that the public sector would ultimately own all existing and new assets, but that the network would be leased via a concession model to a private sector operator who receives all revenue but assumes all asset and operating risk.
- Model C is the same as Model B, except that the public sector also enters into a risk and revenue sharing agreement with the operator (as part of the terms of the concession), receiving a level of income for assuming a level of operating risk.

It is also noted from this table that EVIF funding is only available for models which involve private sector funding. This reflects the Public EV Charging Network in Scotland vision, which states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland. This discounts Model D as a path to securing EVIF funding, but the model is nonetheless included in the assessment for the sake of completeness.

Further details and examples of each model are provided in the Phase 2 Summary Report.

7.2 Feedback from Commercial Workshop Sessions

An introductory commercial workshop was held with Inverclyde Council representatives on 24th January 2023. The basis for the four commercial models was presented and their strengths and weaknesses discussed. Potential procurement preferences were also explored. The presentation slides were circulated to attendees for further consideration after the meeting.

A follow-up commercial workshop was then held on 14th March 2023 to discuss model and procurement preferences in more detail. These are described in the following sections.

7.3 Commercial Model Preferences

7.3.1 Model Preferences

Inverclyde officers expressed a preference for commercial model B, with interest in model C if a suitable risk/reward share balance could be identified. They confirmed that they are not in a position to resource model D, either in implementation or operation.

7.3.2 Model Scoring

After the discussion about model preferences, Mott MacDonald presented Invercelyde officers with a model scoring assessment, where each model is scored on a scale of 1 to 3 against the seven assessment objectives described in Section 7.1.3 of the Phase 2 Summary Report. The following table provides examples of what, in each case, constitutes a low score and a high score.

Objective	Description	Low score example	High score example
Affordability	Ensuring that a scheme's public sector capital investment demand falls within local authority capital access limits	Models which maximise capital investment burden to local authority, e.g. model D	Models which minimise capital investment burden to local authority, e.g. model A
Risk allocation	Ensuring that scheme risks are	Models which assign high-	Models which assign high-
	allocated to parties best placed	resource / high-reward risks	resource / high-reward risks
	to manage them and able to	to public sector, e.g.	to private sector, e.g. model
	offset against scheme reward	model D	A
Social outcomes	Allowing the local authority a	Models which release	Models which retain charge
	level of control to ensure the	charge point location and	point location and pricing
	equitable distribution and pricing	pricing control to private	control with public sector,
	of charge points	sector, e.g. model A	e.g. model D
Contestability	Stimulating a competitive market	Models which grant long-	Models which limit
	that avoids private sector	term full infrastructure	competition enhancing
	monopoly conditions or public	ownership to either sector,	assets to private sector, e.g.
	sector over-regulation	e.g. models A or D	model B
Procurement	Preference for models which can be procured through standard channels to reduce implementation time and resource	Models with greatest level of public-private partnership, e.g. model C	Models with least level of public-private partnership, e.g. models A or D
Resources	Preference for models which can	Models requiring greatest	Models requiring least local
	be delivered within the	local authority back-office	authority back-office
	constraints of local authority	resource commitment, e.g.	resource commitment, e.g.
	back office resourcing	model D	model A
Revenue	Preference for models which can	Models least likely to return	Models most likely to return
	increase net revenue stream to	a long-term profit to the local	a long-term profit to the local
	local authority	authority, e.g. model A	authority, e.g. model D

Table 7.2: Commercial model assessment criteria

Source: Mott MacDonald

The objectives have also been weighted on a scale of 1 to 3 to reflect local authority priorities.

The below table shows the model weighting and scoring result presented to Inverclyde officers in the second commercial workshop meeting. This was based on the table being pre-populated by Mott MacDonald according to the above scoring criteria, and the objectives weighted on the following basis:

- Affordability, social outcomes and risk allocation are given the highest weightings because the model:
 - Must be affordable to the Council
 - Should not expose the Council to unmitigated risk, and
 - Must meet the Councils' vision of providing a fair and equitable network, and
- Contestability, procurement, resources and revenue are given lower weightings as, though these are important objectives, they are of a lower priority.

Objective	Agreed weighting	A – Privately owned and operated	B – Privately operated only	C – Privately operated with risk share	D – Public sector owned and operated
Affordability	3	3	2	2	1
Risk allocation	3	3	3	2	1
Social outcomes	3	1	3	3	3
Contestability	2	1	3	3	2
Procurement	1	2	2	1	3
Resources	1	3	3	2	1
Revenue	1	1	1	2	3
Weighted avg score	e	2.07	2.57	2.29	1.86
Normalised score		0.81	1.00	0.89	0.72

Table 7.3: Commercial model scoring – Inverclyde weighted results

Source: Mott MacDonald

Inverclyde officers noted the outcome of this scoring exercise, which corresponds with their concession model preferences noted above.

7.4 **Procurement Preferences**

Given the size of the Council, officers stated their preference for a joint procurement approach with other GCR authorities, if possible. Alternatively, if neighbouring Council West Dunbartonshire progresses with the same commercial model a joint procurement approach with just the two council may be preferred.

7.5 Summary

Through commercial workshops, West Dunbartonshire officers expressed preferences for:

- Commercial model B, with interest in exploring model C if advantageous, and
- A joint approach to procurement with some or all of GCR authorities.

8 The Financial Case

The objective of the Financial Case is to identify the financial requirement to bring about the wider benefits outlined in the Strategic and Economic Cases. Whilst non-monetisable benefits are included in the Economic Case to offset costs to produce a Net Present Value, the actual costs of delivery need to be accounted for with options for funding and financing identified. The draft vision for the Public Electric Vehicle Charging Network in Scotland states that further investment from the private sector is required to meet the scale and pace of EVCI expansion within Scotland. For this reason, the Financial Case uses the SFT Feasibility Model to appraise a concession contact option only.

8.1 Funding Sources

Regardless of the preferred commercial option (as discussed in the Commercial Case), there are principally three sources of potential funding used to mobilise the construction phase of the EVCI;

- Grant funding from the Scottish Government
- Local Authority contributions
- Operator investment from a private sector operator or a local authority

For operator-led investment, financing will be required to cover the timing mismatch between up front capital costs and long-term operator receipts. Private sector financing is likely be central to this business case as affordability constraints will make it challenging for the public sector to finance the extensive implementation of charge points that the strategic and economic cases outline. With private investment the infrastructure requirements can be met, and thus meet the objectives of the Scottish Government, SFT and Glasgow City Region Councils.

It is therefore important to structure this investment opportunity in a way that is attractive to private investors, ensuring that there is a suitable return on the investment that mitigates risks in an emerging market. Based on initial discussion with private sector suppliers, we expect the opportunity put forward by Glasgow City Region authorities for investment in EVCI will be of interest, though further market engagement is recommended prior to procurement.

The quantities and profile of spending by funding source are all set out in the next section of this Financial Case.

8.2 Capital cost requirement

All figures and charts have been calculated using the 'SFT EVI Feasibility Model v4.1', referenced henceforth as the 'SFT Feasibility Model', spreadsheet model provided¹⁴. All inputs have been discussed with colleagues at SFT and are deemed appropriate for this analysis, and consistent with the approach they expect to see in all model applications.

The results of the SFT Feasibility Model are largely driven by two kinds of key input; the technical inputs, which comprises of the charger requirements, the cost of installing and maintaining the chargers and electricity provided to form an income stream, and the financial inputs, which are made up of local, regional and national figures, optimised to provide the best reflection of the circumstances of each scenario. The total Capital Cost requirement indicates the full value required to deliver the number of chargers in this business case and is the key

¹⁴ SFT Feasibility Model provided by Scottish Futures Trust (SFT) for use on all Pathfinder projects.

figure in the financial case. The table below shows a breakdown of the Capital Cost requirement.

Table 8.1: Capital Cost breakdown

Cost Item	Value £, 2022 prices
Existing Asset replace and update	£200,000
Capital Enabling Costs	£900,000
Capital EVI + Installation Costs	£3,200,000
Standard DNO Costs	£700,000
Total Capital Cost requirement	£4,900,000

Source: Mott MacDonald

As previously noted, there are three funding sources outlined for delivering this scheme; operator investment, central government grant funding, and Local Authority contributions.

8.3 Financial Viability of Service/Concession Type Contracts

8.3.1 Core feasibility test

For this business case, as part of the SFT feasibility assessment, a particular set of assumptions are used as standard to assess the affordability and feasibility of the scheme put forward. These are:

- A private sector Charge Point Operator (CPO) would invest a capital amount such that they would make a return of 15% on that initial investment.
- All revenue would be received by, and costs borne by the CPO.
- Transport Scotland, through the EVIF will award a minimum grant of £300k for any Local Authority that applies with a business case that aligns with the Transport Scotland and SFT strategy. Any further grant above this minimum will be assessed following the initial stages of the procurement phase when the true value of the private sector investment is known.
- The Remaining capital amount required to deliver the scheme would need to be assessed and funded through other measures, including further private sector investment, Local Authority contribution or national grant funding.

It is key to note that these assumptions, particularly the desired return on investment from the CPO, are indicative only. They are intended to produce a set of results that are comparable across all local authorities. It is expected that the contributions from bidding CPOs will be different, and therefore the remaining capital amount will be different in all cases.

The table below summarises indicative results of the SFT feasibility model under these specific assumptions.

Table 8.2: SFT Feasibility Model results

Funding Source	Value £, 2022 prices
Indicative Private investment	£4,000,000
'Minimum' Transport Scotland Grant	£300,000
Remaining capital amount	£600,000
Total Funding/Capital Cost requirement	£4,900,000

Source: Mott MacDonald

In this example, the Remaining capital amount is £600,000 which is c.12% of the total Capital Cost requirement. This indicates that the scheme is likely to be feasible without significant public

funding and should be taken forward to the next stage to engage with private CPOs to determine the true value of private sector investment, and hence confirm the Remaining capital amount required.

8.3.2 Sensitivity test

The financial results above are based on a scenario where private operators receive an IRR of 15%. However, this is an assumption as internal investment criteria for private operators is not information that is, or can be, known with certainty. Therefore, this sensitivity test considers the impact of the financial results if private operators require an IRR of 20%.

Table 8.3: Sensitivity test - SFT Feasibility Model results

Funding Source	Value £, 2022 prices
Indicative Private investment	£3,200,000
Minimum Transport Scotland Grant	£300,000
Remaining capital amount	£1,400,000
Total Capital Cost requirement	£4,900,000
Courses Matt MacDanald	

Source: Mott MacDonald

In the scenario where a higher IRR is applied, this results in an initial lower private investment leading to a higher Remaining capital investment required of £1.4m. This Remaining capital investment will need to be covered by a combination of national grant funding and local authority contributions.

8.4 Next steps

Financial considerations for future attention include:

- Once all EVIF applications have been received, SFT and Transport Scotland will consider the mechanisms through which they might allocate funding. This will inform the approach to procurement with two possible options set out below:
 - Market led procurement, with no initial subsidy: whereby CPOs are committed to deliver all sites within an authority. They are to submit an amount they would be willing to invest and therefore also an amount they would require as subsidy in a competitive process. The competition element would drive investment amount to be higher, and therefore minimise public contribution.
 - Capped grant: a maximum subsidy is agreed between Transport Scotland and the authority following a review of all submitted business cases. CPOs can bid against what they believe is affordable with the stated level of subsidy. Where a CPO plans to deliver all of the infrastructure, they have the ability to 'bid back' against the subsidy amount. The competition element would drive CPOs to use as little of the subsidy as possible and therefore minimise the public contribution.
- SFT and Transport Scotland are currently in the process of determining their preferred approach to procurement. Once this has been established, they will communicate this to all Local Authorities and suggest the way forward.

9 The Management Case

The overall Management Case is outlined in the GCR Summary report. An individual summary for Invercelyde is provided below.

9.1 Governance and Management

Inverclyde Council stated a preference for joint governance and management with local authorities within the region. There is some precedence for joint working with West Dunbartonshire Council but there are no formal agreement or Memorandum of Understandings (MoU). Inverclyde Council do not have sufficient resources to govern the delivery of the EVCI programme alone. Joint governance and management is also recommended to ensure sufficient funding is available.

The EVIF programme is designed to achieve the benefits of collaboration and it is recommended that local authorities work together to agree a form of collaborative governance and management. Three options have been considered for project/programme management of the EVCI roll-out:

- 1. Option 1: Setting up a delivery team which is given the terms of reference and governance structure to allow them to operate as an arms-length delivery organisation on behalf of all eight local authorities. Such a team would be delegated funding, and would manage development, delivery, and operation of the new EVCI network and the CPO partner(s).
- 2. Option 2: Each Council operating separately from a financial and management perspective with the allocated funding used to pay for the EVCI planned for their area in this business case. While the financing and management issues (e.g. responding to local people and monitoring maintenance requirements) would be divided, a Steering Group or Programme Board would still provide coordination between the Councils and ensure economies of scale are exploited and the same standards maintained. Procurement could still be joint, and the same CPO partner(s) could deliver across all eight Council areas but be paid through the eight organisations.
- 3. Option 3: A mix of Option 1 and 2 whereby some local authorities within the GCR form a combined delivery team and some local authorities operate independently.

Option 1 would:

- Ensure more consistency;
- Provide more efficiencies and economies of scale; and
- Consolidate skills;

However, it would also:

- Require revenue-sharing and payment-sharing to be organised, which could be complex;
- Require provision for liabilities to be correctly apportioned; and
- Be affected by differences in approach, politics, and governance between authorities.

Option 2 is more complex in the long-run, however it is easier to set up and mobilise in the short-term. Given the rapid timescales required to deliver the EVCI planned in this business case, Option 2 may be more attractive to some local authorities.

The preferred governance model of a Council is likely to be driven to a large extent by how far they wish to jointly procure EVCI with other GCR authorities. It is recommended Inverclyde Council continue to work with the other local authorities within the Glasgow City Region to agree the most appropriate working arrangements and set out an Inter-Entity Agreement (IEA) as a precursor to a formal Memorandum of Understanding (MoU) covering governance and management of the EVCI programme. Further details are provided in the overall summary GCR report.

9.1.1 Programme delivery

To ensure efficient and effective management, it is recommended Inverclyde Council divide delivery of the EVI programme into the following stages:

- Stage 1 Business Case (almost complete). Development of this business case document, overseen by Officers at GCR and Council.
- Stage 2 Confirmation of collaborative working arrangements. Further discussion and agreement on preferred commercial delivery option(s) informed by more detailed financial analysis as required and collaborative working arrangements.
- Stage 3 Approval Process. Approval of proposed delivery model and working arrangements by Executive Teams and Cabinets.
- Stage 4 Procurement & Development. The further development of this business case and the procurement strategy, including identification of a (or some) CPO partner(s), soft market testing, official procurement process and developing the governance required to achieve the required Council approvals. Senior management, procurement, legal and financial representatives will also be involved as required.
- Stage 5 Monitoring & Delivery of the capital works and commercial operation. Overseeing contract awards and monitoring contractual delivery, including ensuring CPO partners deliver to time and budget, dealing with problems and issues, and reporting on progress.

9.1.2 Required Resources

The proposed governance and management require technical, procurement, legal, management and administrative support. Existing resources and specialist capability varies across the local authorities within the region. External Consultants may be required to assist the teams in the local authorities to develop, deliver, or operate the EVCI roll-out. GCR used the Scotland Excel Framework to procure support to develop this business case on behalf of the eight local authorities, and it is anticipated that the same approach would be used if additional specialist support was required.

At the time of writing, it is not possible to provide an estimate of costs as final costs will depend on the commercial model adopted, procurement routes used and the need for any external consultancy support. However, Transport Scotland has allocated £80,000 funding per local authority in the 2023/2024 financial year (in addition to any funding rolled over from 2022/2023) to progress next stages and procurement. There is a significant risk that this level of funding may not be sufficient to cover procurement costs if each local authority undertakes procurement separately. Collaborative working is therefore recommended to achieve efficiencies and economies of scale.

Once the concession contract is in place (assuming Council adopt this model) it is assumed any management costs for the local authority will be funded by the CPO partner. This would represent an annual recurring cost; collaborative procurement between multiple local authorities would deliver economies of scale which would reduce this charge.

Inverclyde Council has its own internal approvals process to approve this business case and then agree the proposed governance and management structure, procurement approach and sign-off of any funding and financing plans. This includes the need to present papers for approval to committees and Cabinets. In addition, GCR will also progress this business case through their own Cabinet, although this approval will be subject to approval of the individual local authority reports to maintain local democratic oversight.

Expected key approval timescales are as follows, although timeframes may vary:

- GCR will present this overall summary report to the Chief Executives Group in late April and Cabinet in May.
- Further discussion on proposed collaborative working arrangements is required to enable local authorities to finalise their individual papers to be submitted for their own approval process. This will require further engagement with Chief Executives and relevant officers. It is expected this process will begin in April and take two-three months from receipt of this business case.
- Each of the local authorities will then take papers through their Executive Leadership Team (or equivalent) then to their own Cabinets for approval. This process is expected to start in July and will most likely also take two-three months.
- Each of the Councils may also need to take the final procurement documentation through the same approval processes. This includes the use of PINs, if used (as recommended).
 Timescales for this are not currently known, as legal advice may be required during the process.

9.2 Timetable and Next Steps

The timescales for this EVCI programme are subject to discussion but are expected to be:

Month/year	Key tasks
April 2023	Business Case presented to the Chief Executive's Group
	 Initiate further discussions on commercial model and collaborative working arrangements
	 Submission of draft business case document to SFT for comment
	Further engagement with SPEN to confirm any constraints
June 2023	 Confirm collaborative working arrangements and agree and establish Inter-Entity Agreement IEA(s) as required
	 Finalisation of business case
	 Internal approval process of the business case document within each of the eight local authorities begins
September 2023	 Internal approval process of the business case document within each of the eight Councils complete
	 Submission of final business case document to SFT for consideration
	 Procurement of consultancy support (if required) for procurement and development stage may be underway
_	Soft market testing complete
Q4 2023	Development of procurement/tender documentation for suppliers
	 Commencement of procurement process with commercial suppliers

Month/year	Key tasks
Q1 2024	CPO partners in place
	 Commencement of capital works for new EVCI
	 Existing asset replacement where required
Q2 2024	Commencement of service delivery
2024-26	 EVCI programme in place, with installation of new EVCI ongoing, and service delivery ongoing

9.3 Risk Management and Mitigation

A risk register and suggested mitigation is provided in the overall Summary Report. All risks are considered relevant to Inverclyde Council.

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A. Proposed Locations for residential and destination chargers

Table A.1: Proposed locations for residential and destination chargers

Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Bullring, Greenock	PA15 1JB	227969	676286	Car Park	Destination	4	7
Hastie Street Car Park, Greenock	PA15 1SR	227513	676385	Car Park	Destination	4	7
Highholm Avenue Park and Ride, Port Glasgow (Additional)	PA14 5JH	232040	674505	Car Park	Destination	4	7
Inverclyde Royal Hospital	PA16 0XN	226157	675649	Car Park	Destination	4	7
Kempock Street, Gourock	PA19 1NA	224097	677960	Car Park	Destination	4	7
Boglestone Activity Centre, Port Glasgow	PA14 5UD	233787	673426	Car Park	Destination	3	7
Cathcart Street Car Park, Greenock	PA15 1BQ	228038	676109	Car Park	Destination	3	7
Clydeview Academy	PA19 1UX	225233	676664	Car Park	Destination	3	7
Greenock Cut Visitor Centre	PA16 9LX	224709	672155	Car Park	Destination	3	7
Inverclyde Academy	PA16 0FB	226157	675649	Car Park	Destination	3	7
Lady Octavia Sports Centre, Greenock	PA15 2JN	229425	674826	Car Park	Destination	3	7
Lomond View School	PA15 4UQ	228492	675304	Car Park	Destination	3	7
Lunderston Bay Car Park	PA191BB	220456	674580	Car Park	Destination	3	7
Notre Dame High School	PA16 9BJ	226673	675566	Car Park	Destination	3	7
Port Glasgow Community Campus	PA14 6PP	236490	673540	Car Park	Destination	3	7
Rankin Park	PA16 9DJ	226157	675649	Car Park	Destination	3	7
Ravenscraig Activity Centre, Greenock	PA16 0JE	226157	675649	Car Park	Destination	3	7
Roxburgh Street Car Park, Greenock	PA15 4JU	227281	676103	Car Park	Destination	3	7
Station Road, Gourock (Additional)	PA19 1QR	224284	677929	Car Park	Destination	3	7
Whinhill Golf Course	PA16 9LN	227472	674848	Car Park	Destination	3	7

Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Aileymill Primary School	PA19 1TP	226157	675649	Car Park	Destination	2	7
Bay Street Car Park, Port Glasgow (Additional)	PA14 5ED	232197	674484	Car Park	Destination	2	7
Binnie Street Children's Centre	PA19 1JS	224230	677551	Car Park	Destination	2	7
Bluebird Family Centre	PA16 7nH	225291	675947	Car Park	Destination	2	7
Branchton Community Centre	PA16 0XX	226157	675649	Car Park	Destination	2	7
Gibshill Children's Centre	PA15 2NH	230265	674796	Car Park	Destination	2	7
Hillend Children's Centre	PA15 2EF	229091	675148	Car Park	Destination	2	7
Larkfield Community Hall	PA16 0PG	223713	675757	On-street	Destination	2	7
Larkfield Family Centre	PA16 0XH	224869	675917	Car Park	Destination	2	7
Rainbow Family Centre	PA14 6DY	234457	672922	Car Park	Destination	2	7
St Ninians Primary School	PA19 1SL	226157	675649	Car Park	Destination	2	7
Wellpark Children's Centre	PA15 4BN	227714	675586	Car Park	Destination	2	7
Wemyss Bay Community Centre, Ardgowan Rd	PA18 6AT	219533	670120	Car Park	Destination	2	7
Greenock Health and Care Centre	PA15 4QB	227659	675737	Car Park	Destination	1	22
Moorfoot Primary School	PA19 1ES	223133	676564	Car Park	Destination	1	22
Bay Street Car Park, Port Glasgow (Additional)	PA14 5ED	232197	674484	Car Park	Journey	2	50
Boglestone Activity Centre, Port Glasgow	PA14 5UD	233787	673426	Car Park	Journey	2	50
Cathcart Street Car Park, Greenock	PA15 1BQ	228038	676109	Car Park	Journey	2	50
Fran Terrace Car Park, Inverkip	PA16 0DD	220645	672012	Car Park	Journey	2	50
Hastie Street Car Park, Greenock	PA15 1SR	227513	676385	Car Park	Journey	2	50
Kempock Street, Gourock	PA19 1NA	224097	677960	Car Park	Journey	2	50
Lady Octavia Sports Centre, Greenock	PA15 2JN	229425	674826	Car Park	Journey	2	50
Lochwinnoch Road Car Park, Kilmacolm	PA13 4AX	235813	669800	Car Park	Journey	2	50
Ravenscraig Activity Centre, Greenock	PA16 0JE	226157	675649	Car Park	Journey	2	50
Roxburgh Street Car Park, Greenock	PA15 4JU	227281	676103	Car Park	Journey	2	50

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Site	Post Code	х	Y	Placement	Sector	EVCP	Max kWh Output
Shore Road Car Park, Wemyss Bay	PA18 6AA	219533	670120	Car Park	Journey	2	50
Waterfront Leisure Complex, Greenock	PA15 1EG	227994	676397	Car Park	Journey	2	50
Birkmyre Park, Kilmacolm	PA13 4JT	235071	669798	On-street	Journey	1	50
Clydeview Academy	PA19 1UX	225233	676664	Car Park	Journey	1	50
Greenock Cut Visitor Centre	PA16 9LX	224709	672155	Car Park	Journey	1	50
Inverclyde Academy	PA16 0FB	226157	675649	Car Park	Journey	1	50
Kilmacolm Tennis/Bowling Club	PA13 4EL	235741	669648	Car Park	Journey	1	50
Lomond View School	PA15 4UQ	228492	675304	Car Park	Journey	1	50
Lunderston Bay Car Park	PA19 1BB	220456	674580	Car Park	Journey	1	50
McInroy's Point Ferry Terminal, Gourock	PA19 1BA	221936	676792	Car Park	Journey	1	50
Notre Dame High School	PA16 9BJ	226673	675566	Car Park	Journey	1	50
Port Glasgow Community Campus	PA14 6PP	236490	673540	Car Park	Journey	1	50
Rankin Park	PA16 9DJ	226157	675649	Car Park	Journey	1	50
Whinhill Golf Course	PA16 9LN	227472	674848	Car Park	Journey	1	50
Forsyth Street	PA16 8DY	226932	676901	On-Street	Residential	5	7
Dempster Street	PA15 4QD	227691	675671	On-Street	Residential	4	7
Mount Pleasant Street	PA15 4AQ	227151	675910	On-Street	Residential	4	7
	PA15 1TP	227442	676382	On-Street	Residential	3	7
Brougham Street	PA16 8AJ	227176	677144	On-Street	Residential	3	7
Broomberry Drive	PA19 1JZ	224182	677397	On-Street	Residential	3	7
Margaret Street	PA19 1UJ	224923	677160	On-Street	Residential	3	7
Dubbs Road	PA14 5XB	232681	673636	On-Street	Residential	3	7
Grant Street	PA15 2BP	229213	675412	On-Street	Residential	3	7
West Barmoss Avenue	PA14 6HL	233677	673134	On-Street	Residential	3	7
Albert Road	PA19 1NZ	223503	677322	On-Street	Residential	3	7

Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Madeira Street	PA16 7UJ	226680	677401	On-Street	Residential	3	7
Adamston Way	PA14 5DY	231166	675158	On-Street	Residential	3	7
Old Inverkip Road	PA16 7JY	225949	675624	On-Street	Residential	2	7
Harbourside	PA16 0BA	220176	672396	On-Street	Residential	2	7
Montrose Avenue	PA14 5YJ	233420	672892	On-Street	Residential	2	7
Tower Drive	PA19 1LG	223689	676909	On-Street	Residential	2	7
Kilcreggan View	PA15 3JA	229442	674674	On-Street	Residential	2	7
Tiree Avenue	PA14 6DX	234455	673155	On-Street	Residential	2	7
	PA14 5RJ	233184	674152	On-Street	Residential	1	7
Dunn Street	PA15 4JA	227139	675682	On-Street	Residential	1	7
James Watt Way	PA15 2AN	229353	675774	On-Street	Residential	1	7
Lilybank Road	PA14 5BW	231185	674653	On-Street	Residential	1	7
Tobago Street	PA15 1PB	227689	676161	On-Street	Residential	1	7
George Road	PA19 1YS	224416	676613	On-Street	Residential	1	7
Glen Douglas Road	PA16 9NR	226465	674927	On-Street	Residential	1	7
Canmore Crescent	PA16 7LX	225195	675888	On-Street	Residential	1	7
Burns Road	PA16 0PS	223936	676147	On-Street	Residential	1	7
Glenbrae Road	PA14 5TR	232917	673271	On-Street	Residential	1	7
Bannockburn Street	PA16 9DF	226436	675388	On-Street	Residential	1	7
Weir Street	PA15 2HW	229935	674973	On-Street	Residential	1	7
Cloch Road	PA19 1FG	221215	676358	On-Street	Residential	1	7
Poplar Street	PA14 5BA	230954	674476	On-Street	Residential	1	7
Crisswell Close	PA16 0XA	223436	674889	On-Street	Residential	1	7
	PA16 0WE	225205	675343	On-Street	Residential	1	7
Esplanade	PA167SE	225921	677925	On-Street	Residential	1	7

Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Marloch Avenue	PA14 6LJ	233931	672917	On-Street	Residential	1	7
Brougham Street	PA16 8JE	227408	676872	On-Street	Residential	1	7
Grieve Road	PA16 7DD	225597	676415	On-Street	Residential	1	7
School Wynd	PA11 3NL	236380	667068	On-Street	Residential	1	7
Cloch Road	PA19 1AX	221710	676619	On-Street	Residential	1	7
Glencairn Road	PA16 0NB	224182	675397	On-Street	Residential	1	7
Roxburgh Street	PA15 4AG	227921	675914	On-Street	Residential	1	7
Berwick Road	PA16 0EX	223432	675640	On-Street	Residential	1	7
Silverbirch Wynd	PA14 6QZ	234942	673658	On-Street	Residential	1	7
Manor Crescent	PA19 1UA	224683	677128	On-Street	Residential	1	7
Larkfield Road	PA19 1HW	224685	676150	On-Street	Residential	1	7
Inverhouse Gardens	PA16 0DY	220684	671901	On-Street	Residential	1	7
Pennyfern Road	PA16 9HD	225937	675173	On-Street	Residential	1	7
Brookfield Road	PA14 6BX	233665	673881	On-Street	Residential	1	7
	PA16 8RA	226699	676662	On-Street	Residential	1	7
Kirkwall Road	PA16 0XY	224933	675399	On-Street	Residential	1	7
North Road	PA14 5SZ	233440	673662	On-Street	Residential	1	7
Bow Road	PA16 7DY	225932	675904	On-Street	Residential	1	7
Undercliff Road	PA18 6AL	218951	669904	On-Street	Residential	1	7
Bawhirley Road	PA15 2LR	228938	675204	On-Street	Residential	1	7
Old Inverkip Road	PA16 9AG	226700	675891	On-Street	Residential	1	7
Albert Road	PA19 1NL	223763	677568	On-Street	Residential	1	7
Auchmountain Road	PA15 3AB	229663	674347	On-Street	Residential	1	7
Newark Street	PA16 7TP	225933	677629	On-Street	Residential	1	7
Tantallon Avenue	PA19 1HJ	221940	676396	On-Street	Residential	1	7

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Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Aberfoyle Road	PA15 3DD	228682	674657	On-Street	Residential	1	7
Glenhuntly Terrace	PA14 5QF	232186	674147	On-Street	Residential	1	7
Hillside Avenue	PA13 4QJ	235674	670392	On-Street	Residential	1	7
Finnart Street	PA16 8HA	227178	676394	On-Street	Residential	1	7
Cobham Street	PA15 2PD	230433	674645	On-Street	Residential	1	7
Cardross Avenue	PA14 5SE	233183	673894	On-Street	Residential	1	7
Eldon Street	PA16 7XP	226962	677426	On-Street	Residential	1	7
Banff Road	PA16 0EJ	223664	676132	On-Street	Residential	1	7
Castlehill Crescent	PA13 4HU	235143	669927	On-Street	Residential	1	7
Westmorland Road	PA16 0GL	224432	675647	On-Street	Residential	1	7
Northfield Avenue	PA14 6PW	234173	673626	On-Street	Residential	1	7
Dougliehill Place	PA14 5DH	232177	673882	On-Street	Residential	1	7
Pembroke Road	PA16 0JS	223925	675652	On-Street	Residential	1	7
Ashton Road	PA19 1AA	222949	677092	On-Street	Residential	1	7
Mallard Crescent	PA16 7AY	225432	676649	On-Street	Residential	1	7
Flatterton Road	PA16 0QN	223668	674967	On-Street	Residential	1	7
Belville Street	PA15 4UR	228921	675416	On-Street	Residential	1	7
Golf Road	PA19 1EE	223210	676910	On-Street	Residential	1	7
	PA11 3NJ	236658	666615	On-Street	Residential	1	7
Esplanade	PA16 7RY	226396	677823	On-Street	Residential	1	7
Killin Place	PA16 9LF	225432	675655	On-Street	Residential	1	7
Mcnab Place	PA15 2DW	229689	675150	On-Street	Residential	1	7
Killochend Drive	PA15 4EW	227418	675353	On-Street	Residential	1	7
The Glebe	PA16 0GS	221193	672157	On-Street	Residential	1	7
Reservoir Road	PA19 1YQ	224958	676731	On-Street	Residential	1	7

Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Bedford Street	PA16 8PE	226681	677151	On-Street	Residential	1	7
Glasgow Road	PA14 6SB	233933	674142	On-Street	Residential	1	7
Oakfield Terrace	PA15 2BX	229254	675652	On-Street	Residential	1	7
Davey Street	PA16 7ER	225954	676114	On-Street	Residential	1	7
Oronsay Avenue	PA14 6AX	234667	672934	On-Street	Residential	1	7
Glenbrae Road	PA15 3LD	228681	674904	On-Street	Residential	1	7
Tower Drive	PA19 1SG	224177	676920	On-Street	Residential	1	7
	PA14 5HA	231943	674396	On-Street	Residential	1	7
Alderbank Road	PA14 5LN	231431	674376	On-Street	Residential	1	7
Glasgow Road	PA14 5NF	232696	674400	On-Street	Residential	1	7
Luss Avenue	PA15 3EP	228953	674266	On-Street	Residential	1	7
Muirdykes Avenue	PA14 5XY	232683	673420	On-Street	Residential	1	7
Stanton Square	PA14 6AQ	234189	673396	On-Street	Residential	1	7
Crosshill Road	PA14 5UN	233407	673350	On-Street	Residential	1	7
Carruth Drive	PA13 4HR	235428	669904	On-Street	Residential	1	7
Arran Avenue	PA14 6DJ	234175	673176	On-Street	Residential	1	7
Wemyss Bay Road	PA18 6AD	219195	669420	On-Street	Residential	1	7
Battery Park Avenue	PA16 7UA	225708	677861	On-Street	Residential	1	7
Gael Street	PA16 7JJ	226189	675897	On-Street	Residential	1	7
Barrhill Road	PA19 1JX	223939	677645	On-Street	Residential	1	7
Roxburgh Avenue	PA15 4LB	227445	675932	On-Street	Residential	1	7
Forfar Road	PA16 0YL	224521	674985	On-Street	Residential	1	7
Glamis Drive	PA16 7NA	225256	676109	On-Street	Residential	1	7
Kirn Drive	PA19 1SS	223680	676630	On-Street	Residential	1	7
Florence Drive	PA13 4JL	234956	669881	On-Street	Residential	1	7

Site	Post Code	Х	Y	Placement	Sector	EVCP	Max kWh Output
Sinclair Street	PA15 2JX	229699	674917	On-Street	Residential	1	7
Harbourside	PA16 0BF	220519	672446	On-Street	Residential	1	7
Arran Avenue	PA14 6AE	234679	673391	On-Street	Residential	1	7
Inverkip Road	PA16 0FB	224697	675377	On-Street	Residential	1	7
Mid Avenue	PA14 6PH	233930	673642	On-Street	Residential	1	7
	PA13 4RA	235934	670891	On-Street	Residential	1	7
	PA16 0WP	225418	675202	On-Street	Residential	1	7
Minto Street	PA16 9BN	226683	675656	On-Street	Residential	1	7
	PA14 6JD	233683	672902	On-Street	Residential	1	7
Lithgow Way	PA14 5DU	231365	675039	On-Street	Residential	1	7
Gleneagles Drive	PA19 1HZ	222415	676633	On-Street	Residential	1	7
	PA18 6AU	219542	669926	On-Street	Residential	1	7
Cove Road	PA19 1RZ	224933	677380	On-Street	Residential	1	7
	PA15 2TP	229638	675360	On-Street	Residential	1	7
Porterfield Road	PA13 4AY	235933	669394	On-Street	Residential	1	7
Dellingburn Street	PA15 4TW	228180	675656	On-Street	Residential	1	7
Kilmacolm Road	PA15 3DH	228926	674638	On-Street	Residential	1	7
St Lawrence Street	PA15 4SB	228698	675433	On-Street	Residential	1	7
Maxwellton Road	PA14 6LX	233950	672657	On-Street	Residential	1	7
Welbeck Street	PA167RW	226430	677645	On-Street	Residential	1	7
Octavia Terrace	PA16 7QA	225668	677665	On-Street	Residential	1	7
Newark Street	PA16 7UR	226446	677425	On-Street	Residential	1	7
Berwick Road	PA14 5QN	232432	674145	On-Street	Residential	1	7
Beith Rd	PA16 9LN	227425	674844	On-Street	Residential	1	7
Auchenbothie Gardens	PA13 4SQ	234996	670953	On-Street	Residential	1	7

Figure 0.1: Future EVCI Network in Inverclyde



EV_Model | GCR EV Infrastructure | 31 Mar 2023

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B. Alignment with the agreed vision

Figure B.2: Public EVCI within a 10-minute driving catchment



EV_Model | GCR 10min Drive Catchment | 24 Mar 2023

Source: Mott MacDonald

Figure B.3: Public EVCI and Scottish Index of Multiple Deprivation







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Figure B.4: Transport Hubs with EVCI and National Cycle Network



EV_Model | GCR Transport Hubs | 30 Mar 2023

Source: Mott MacDonald

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C. Ultra-rapid Charging Analysis

Figure C.5: Ultra-rapid Charging Analysis Output



Source: Mott MacDonald

Mott MacDonald | Inverclyde Council Public Electric Vehicle Charging Strategy and Expansion Plan



mottmac.com