

BRIEFING PAPER

SUBJECT: INTRODUCTION OF FEES FOR COUNCIL'S PUBLIC ELECTRIC VEHICLE CHARGERS

DATE: 13 OCTOBER 2022

RECIPIENT: OVERVIEW AND SCRUTINY MANAGEMENT COMMITTEE

THIS IS NOT A DECISION PAPER

SUMMARY:

- 1.1 Southampton City Council (SCC) has used government grant money to install 47 publicly accessible electric vehicle chargers (EVC's) in its car parks and highways. We have become the largest single provider in the city and since their introduction we have offered these on a free to use basis to encourage the uptake of electric vehicles (EV's) and the benefits they offer in terms of reducing carbon emissions and improving local air quality.
- 1.2 The EVC's are spread across 17 locations in the city and we now experiencing regular use as EV's are becoming more common place on our roads. It is understood that a free to use network is now not the main driver for EV uptake and SCC is now experiencing significant costs to maintain this service, driven by an increase in demand and rising energy costs. It is therefore proposed to introduce a competitive fee for usage that will cover our energy consumption costs and other overheads whilst ensuring the chargers offer an attractive option for EV users.

BACKGROUND and BRIEFING DETAILS:

- 2.1 When SCC first introduced EVC's in 2017, sales of Battery Electric Vehicles (BEV's) and Plug in Hybrid Vehicles (PHEV's) in the UK totalled 46,000 for the entire year, less than 2% of total new registrations. SCC introduced its chargers on a free to use basis to encourage the uptake of low emission plug in vehicles in the city and realise their benefits in terms of reduced emissions and an opportunity to improve local air quality.
- 2.2 In November 2020 the UK government announced that the sale of new petrol and diesel cars and vans will be banned by 2030 and all new cars and vans must be fully zero emission at the tailpipe from 2035. Between 2030 and 2035, new cars and vans can be sold if they have the capability to drive a significant distance with zero emissions (for example, plug-in hybrids or full hybrids). In response, manufacturers are now offering an increasing range of EV's that are becoming more affordable and offer better range.
- 2.3 The cost of new EV's still currently remains higher than traditional petrol and diesel vehicles but they are now likely to cost less to run over the course of ownership. It is estimated that electric cars and vans will be cheaper to produce than combustion vehicles by 2027.

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- 2.4 In 2021 electric cars made up 18.5% of all new cars registered. As of the end of June 2022, there were more than 910,000 plug-in cars with approximately 510,000 BEVs and 400,000 PHEVs registered. During the period up to 2010- 2015 the majority of the new registrations were PHEVs, but in 2020 with longer range and greater model choice available as BEVs, this reversed with pure EVs now leading on monthly sales and annual market share. The growth of the EV market is expected to accelerate in the coming years as the UK prepares itself for the 2030 ban on new petrol and diesel vehicle sales. By the end of 2022, it is projected that electric cars will outsell diesel and mild hybrid diesel. Petrol is set to remain the most popular fuel choice for used car buyers for the next few years, while diesel is expected to become a niche choice over time as drivers opt for cleaner and cheaper plug-in alternatives.
- 2.5 EV Chargers fall into four categories depending on their charging ability – Slow, Fast, Rapid and Ultra Rapid.
- The Slow chargers are generally home based and run directly of the 230V supply using the standard three pin plug at around 2.3kwh that would charge a car fully in 15- 20hrs or also specific home EV charges can be fitted that can offer around 3.6kwh and up to 7Kwh depending on supply and charger type – both will charge an EV a little quicker at about 12hrs for the 3.6kw and 8hrs with more power.
 - Fast Chargers are more commonly seen as the standard carpark / roadside chargers and are predominantly 7Kwh but can also be up to 22kwh – A 7kwh charger would charge a vehicle from empty in about 7 hrs but are ideal for “top up” charging whilst parking for a longer period.
 - Rapid Chargers are more powerful and would typically be DC 50kwh- 100kwh and offer a much quicker option. These tend to be more suited for a defined destination location as opposed to on street due to the cost of the unit and the infrastructure required. A rapid charger would typically charge a car from empty to full in about an hour or would top up as much as 80% in 20 minutes.
 - Ultra-Rapid Chargers are becoming a little more well-known and being generally available at “charging Hubs” and can give power up to 350kwh. These can charge bigger batteries and more powerful EV’s quickly. These could add range of 100 miles in only 10 minutes.
- 2.6 SCC presently provides 40 fast chargers in its car parks and 7 street (47 total). Two rapid chargers are also offered exclusively to taxi operators, as part of the Local NO2 Plan and efforts to reduce taxi related emissions.
- 2.7 Commercial EV Charging operators have a raft of pricing options based upon the type and power available usually broken down to the 4 main types above. In essence you pay more for the faster charge as these units cost more to instal and maintain. In addition, operators frequently include the following in their pricing strategies.
- Connection fees - Each time you connect to their network you pay a standing charge in addition to the energy you take.

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- Subscription – To gain access to a network of chargers that an individual operator has, they require you to pay a monthly subscription in addition to paying for the energy you take.

In all cases charging costs are in addition to any other parking charges.

- 2.8 SCC proposes that its charging fees will also be in addition to any standard parking fees (EV's, whether charging or otherwise have never been exempt from parking fees but a concessionary season ticket is available), and a single flat price is proposed regardless of charger type. This is possible because all capital and maintenance costs have been grant funded to date and energy costs represent the only significant cost. This offers our customers a simple and transparent pricing scheme.
- 2.9 Energy consumed by SCC's chargers is typically registered at a meter for a general site or area and their costs have been absorbed within the operating budget for these sites i.e., Parking Services and Highways, rather than any dedicated budget. However, energy consumption for individual chargers can be obtained from their operating systems and this suggests they are currently using approximately 37,500kwh of energy per month at an estimated cost of £7,500.
- 2.10 There has been a significant spike in use of SCC's chargers since the turn of the year - See Annex 1. This can be attributed in part due to the lifting of COVID restrictions and the increasing numbers of EV's on our roads. But it has become evident that our free to use model has become increasingly more attractive as the cost of home charging and commercial charging services has increased over this period. We are also aware that commercial fleet operators are now using our facilities, and this will also be contributing to the uplift.
- 2.11 Although the uptake in EV's by city businesses should be applauded, this commercial scale of use is not in the spirit of our original "free to use" offer and some car drivers have expressed their frustration of being blocked from chargers due to the presence of commercial vans. SCC Parking Services are in the process of initiating a consultation that would enable them to restrict commercial vehicles accessing our car parks as one way of managing the issue.
- 2.12 It is believed that in many cases the free to use offer is attracting a significant amount of opportunistic use and other, viable charging options (like home and workplace charging) are being overlooked in preference for our fully subsidised offer. It is anticipated that the introduction of fees is likely to normalise behaviours and could alleviate the more immediate problems caused by larger commercial vehicles. Operating models that offer chargers to commercial users for overnight charging only, are being considered as a longer-term solution.
- 2.13 The introduction of a fee-paying service for our facilities is not considered likely to otherwise impair the local uptake of electric vehicles in the city. Free to use services are becoming increasingly scarce. These are generally subsidised by major retailers with a view to gaining and maintaining customer loyalty and offer a limited charging opportunity due to time restrictions and charging speeds. It is anticipated that we may experience a short-term reduction in usage as behaviours are normalised and a switch to other charging options occurs. It is not expected the introduction of fees on SCC's network will have any significant impact on EV uptake. It is expected that the trend for

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EV's will continue to increase at pace and demand for our charging network to follow in the medium term.

IMPLEMENTATION and PRICING

- 3.1 Prior to introducing fees, Cabinet approval will be sought to overturn the previous decision to offer EV chargers on free to use basis. This is scheduled for 15th November 2022. Actual fees will be decided and updated in accordance with section 2.8 of the Officer Scheme of delegation, fees and charges (i.e. authorised by the relevant Executive Director in consultation with the relevant Cabinet Member). Although fees are proposed for all public chargers, two rapid chargers are dedicated for taxi use only and will be considered separately. It is recognised that these cannot be subsidised indefinitely but there may be some benefit in seeking delegated authority to introduce fees later, when the city's charging infrastructure is more supportive of this sector.
- 3.2 The technology within all the charger units supports payments already so no additional software or hardware is required to initiate the fee charging. The back-office functions can be easily set and managed to facilitate fee taking and the existing Charge Point Operator will be responsible for collecting all payments and returning to SCC, less an agreed commission.
- 3.3 A proportion of this income will be journaled internally to cover energy costs and ensure metered costs paid by specific service areas are accounted for. This will be managed by SCC's Energy Team.
- 3.4 SCC chargers use two back-office systems managed by MER and Shell Recharge. These are common operators across the UK's public EV charging network. Users gain access via an App, card or fob (depending on preference) and must open an account which involves registering a payment card. Where a fee for charging applies, the operators debit the user's account.
- 3.5 SCC will propose that fees will only be introduced after a period of at least 21 days' notice and will be supported by a communications campaign to ensure that all users are aware of the changes in use, including contact with Smart Cities Card Users and broader details across all our Social Channels, on-site signage (at all public carparks and on street locations with chargers) and visual messages on the chargers themselves.
- 3.6 We will be clear to explain the reasons why we are introducing the fees to include the following message:
 - Free EV Charger use was introduced as a limited trial to encourage early uptake of EV's.
 - SCC have introduced 47 public chargers across the city and are seeing a significant uplift in use as EV numbers increase.
 - Our Fees will reflect our current energy costs and be set at a typical market price and support future investment and on-going maintenance.
 - In addition to free to use chargers we have encouraged EV early adopters by offering free use of the Itchen toll and £10 season tickets for our car parks.

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- 3.7 Subject to Cabinet approval, it is recommended that fees will be introduced in January 2023, allowing sufficient time to complete an appropriate level of internal engagement, update fees in the Officer Scheme of delegation, prepare the back-office systems and complete a minimum 21-day communications plan to ensure all users are given due notice of the change.
- 3.8 Currently we are delivering circa 37,500kwh of energy to our charger network monthly, at a cost rate of £0.19 p/kwh and an estimated cost of approximately £7,500.
- 3.9 SCC is experiencing a large rise in the cost of energy, and this is set to rise further in next year. Below shows that our cost of energy will be rising from 15p per KWH last year to possibly 45pkwh next year.

Financial Year	£/kWh (mean for period)
2020-21	£0.15 – Actual
2021-22	£0.19 - Actual
2022-23	£0.37 – Forecast rate
2023-24	£0.45– Forecast rate

- 3.10 Meanwhile there is capacity within our charging network to accommodate further uptake and energy consumption. If the forecast unit energy costs of £0.45p per kwh were realised and use of our chargers increased to 50,000 kWh per month, the cost could reach circa £22,500 per month (£270,000 per annum) by 2023/24.

Fees

- 3.11 Whilst we are experiencing an unprecedented upsurge in energy costs, pricing of public chargers at present tends to reflect the price the supplier has current access to with their projected profit or margin added, so at present a representative cost of 30pkwh - 45pkwh is the norm but prices are rising daily and an expected 45pkwh - 50pkwh is becoming thought of as a competitive daily rate on 7kwh-22kwh (Fast) public chargers with a rate of £0.65-£0.75) for 50kwh- 100kwh Rapid chargers. Shell UK is the largest provider of public EV chargers and currently offers its fast chargers at 45p/kWh and its rapid chargers at up to 66p/kWh. SCC could match the lower rate (45p/kWh) for both its fast and rapid chargers whilst still recovering current and immediately foreseeable energy costs and management costs (including VAT and Charge Point Operator commission for collecting fees).
- 3.12 Based upon expected increase of use to circa 40,000kwh per month (some 480,000kwh per annum), a proposed fee of £0.45p/kwh would return a modest balance of circa £9,600 per annum after energy costs (against a cost to SCC of £177,600 if we remain offering it as free to use). It is proposed that any income generated after operator and energy costs be retained to accommodate any future increases in energy costs and support ongoing maintenance and development of the charging network.
- 3.13 Future Direction: SCC is currently exploring a concessions/partnership model to support a step change in the roll out of EVC's in its car parks, highways and estates. It is expected that such an arrangement could be in place in 2023 and would include another review of charging costs.

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3.14 For us to fully develop such an arrangement, we need to move from a “free to use” model, to a “fee paying” model as any partner would require a return in their investment.

EV CHARGING V PETROL AND DIESEL

4.1 There is a great deal of press coverage around at present regarding the costs of running an EV against a petrol or diesel equivalent and showing that the perceived gap is very close. These figures are generally based upon using the most expensive charger options (i.e., the Rapid and Ultra Rapid chargers) and not the Fast (7 – 22Kwh) chargers that SCC generally have. Rapid type chargers represent the most expensive part of the market and would typically be used to top-up vehicles on long journeys rather than being the primary means of charging for the majority of vehicles.

4.2 The cost per mile of an EV verses a similar sized and powered petrol or diesel remains attractive, even with higher energy costs.

Petrol	Diesel	Battery Electric – Using public rapid chargers on a non-subscription basis @	Battery Electric – Using fast chargers on a non-subscription basis @ 45p per kWh	Battery Electric – Using home charger @ 35p per kWh (energy price guarantee 1/10/2022)
19p	21p	18p	13p	10p
As reported by RAC Price Watch Sept 20022			Based on Shell UK tariff 1/8/2022 (the largest UK operator) and vehicle efficiency of 3.5 miles per kWh (as used by RAC Price Watch).	Based on energy price guarantee 1/10/2022 and vehicle efficiency of 3.5 miles per kWh (as used by RAC Price Watch)

4.3 On top of the pure “fuelling” cost difference is the reduction in service costs, reduction in RFL (Road Tax), Congestion Charges and the longer life expectancy of the drive train and components (with the reduction in moving wear parts). A typical modern petrol engine is made up of approximately 2,000 components an EV has 20, so significantly less to wear out or be replaced during its life.

RISK MANAGEMENT

5.1 If fees received do not cover our costs, SCC will continue to subsidise EV drivers who use it. Income and costs will be monitored and reviewed every quarter to ensure that fees are suitable and sufficient to cover costs. Actual fees can be decided and revised expediently in accordance with section 2.8 of the Officer Scheme of delegation, fees and charges. In consultation with the Cabinet Member the relevant Executive Director can authorise adjustments to the fees in response to market changes relatively promptly, ensuring they remain aligned with costs and other supplier’s tariffs. It is recognised that such adjustments can also be used to adjust fees where costs are reduced. If at any time a surplus income is received before any adjustments are made, that money can be retained to accommodate any future deficits that may occur (if costs increase before fees can be adjusted).

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- 5.2 The introduction of fees impairs the local uptake of EV's. It is anticipated that we will initially experience a reduction in use as consumers are currently taking full advantage of the free to use offer – which is particularly attractive whilst commercial charge point tariffs and home charging energy costs rise. It is expected that the trend for EV's will continue to increase at pace, driven by the UK ban on petrol and diesel vehicles and increasingly attractive options provided by manufacturers.
- 5.3 The introduction of fees triggers a reduction in use of chargers and anticipated incomes are not realised. To date capital costs for installing SCC's EV charging network and providing maintenance contracts have been covered by UK government grant funding. As such, fees need only recover our energy costs and a service charge for fee collection and any reduction in use would not affect our ability to cover costs.
- 5.4 In order to recover our costs, SCC fees becoming prohibitively expensive, and our network no longer offers a viable option for EV drivers. As the network does not need to recover capital or maintenance costs in the short to medium terms there is some confidence that we can maintain a competitive service. A concessions/partnership model is being assessed to support future investment and fees would naturally be aligned with the EV charging market.
- 5.5 Criticism for use of external grant funding to support delivery of the EV chargers then drawing a revenue income for their use. There is no obligation under any of the grant funding received to maintain a free to use model and although installations costs have been supported it is not financially viable for SCC to support ongoing costs indefinitely. This message will be included within the Communications Plan.
- 5.6 Criticism for having excessive fees. Unit costs will be benchmarked against other public EV charging providers to ensure they are competitive and will be reviewed regularly.
- 5.7 Accusation of profiteering. Costs and incomes will be reviewed regularly, and income will be used to recover the cost of energy use and for maintenance, management and development of the network for the benefit of customers.
- 5.8 Two rapid chargers were introduced as part of the council's Local NO2 Plan and grant funded for the dedicated use by taxi and private hire vehicles. The conditions of the grant funding did not require they are offered on a free to use basis, but they have been so far for consistency. Currently only 3 vehicles are registered to use the chargers and they will have become accustomed to the free use model and will see a step change in their running costs at a time when inflation is already significant. SCC will not be able to maintain a free to use service indefinitely and introducing fees across all its chargers would maintain the same consistent pricing strategy applied to date. But usage is currently very low and seeking to delay the introduction of fees, until the sector is supported by more charging options presents a viable compromise. When fees are introduced for these chargers, a communication plan can assist in ensuring users are aware of the change and reasoning. This can include the absence of a premium for use of rapid chargers (as is the norm elsewhere). SCC is not required to maintain the free to use model and considers the operating costs for EV's will remain commercially viable for the taxi and private hire trade. SCC can also demonstrate continued support for the sector and is anticipating that its Hants 2025 project can provide 6-8 additional dedicated chargers in the next 10 months and will

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offer a try before you buy scheme for leased EV's and free business cases – to demonstrate the viability of operating an EV. The latter identifying pay to use charging options.

LEGAL and FINANCIAL IMPLICATIONS

- 6.1 SCC has no obligation to offer a free to use EV charging service. Grants used to support delivery of the network or, the Local NO2 Plan and associated Ministerial Direction, do not include any conditions relating to the fees charged for their use.
- 6.2 The removal of the free to use service is considered a key decision and the proposal to introduce a fee-paying service has been published on the Forward Plan and is to be presented to Cabinet on 15th November 2022.
- 6.3 The introduction of fees will generate a revenue income significantly below £500k and as such fees can be set and reviewed in accordance with section 2.8 of the Officer Scheme of delegation, fees and charges. This will allow rates to reviewed and updated expediently to ensure they remain aligned with markets and offer an attractive option for drivers whilst recovering SCC's operational costs.
- 6.4 Financial implications and risk are covered above.

OPTIONS and TIMESCALES:

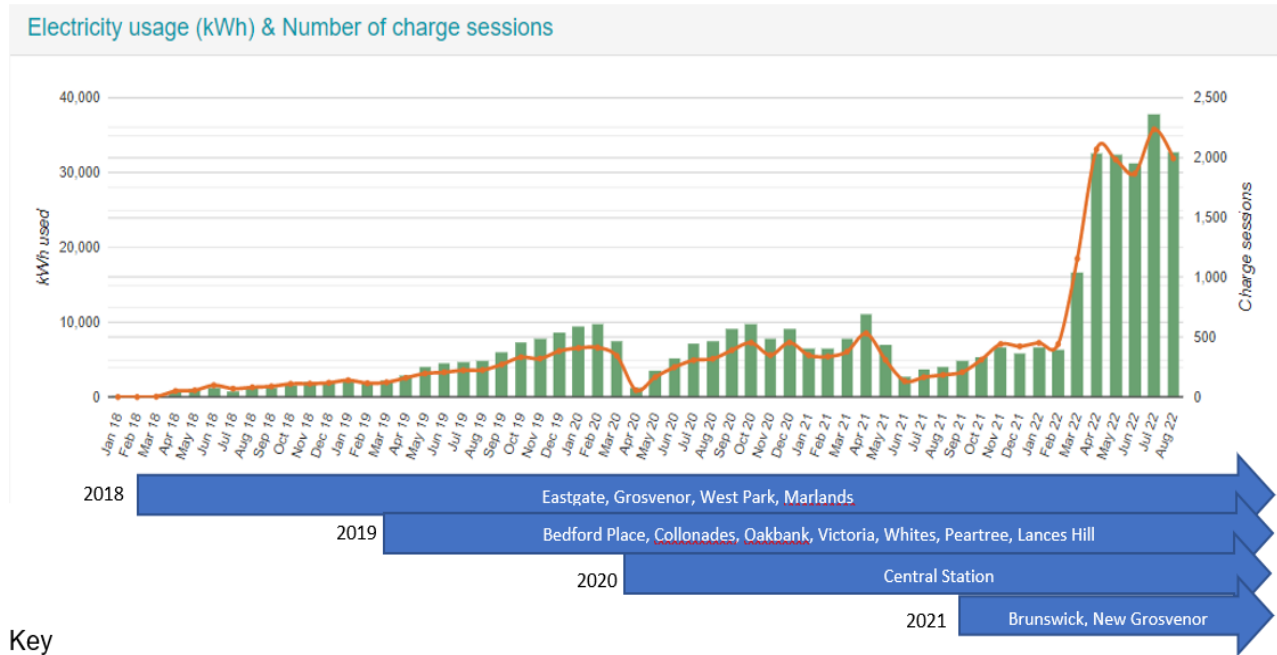
- 7.1 If approved by Cabinet on 15th November 2022, implementation of the proposals will commence in early January 2023, following a period of public engagement involving a targeted communications programme to ensure new and existing users are aware of the changes and given the opportunity to respond.

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Annex 1 – Usage of SCC Public EV Chargers

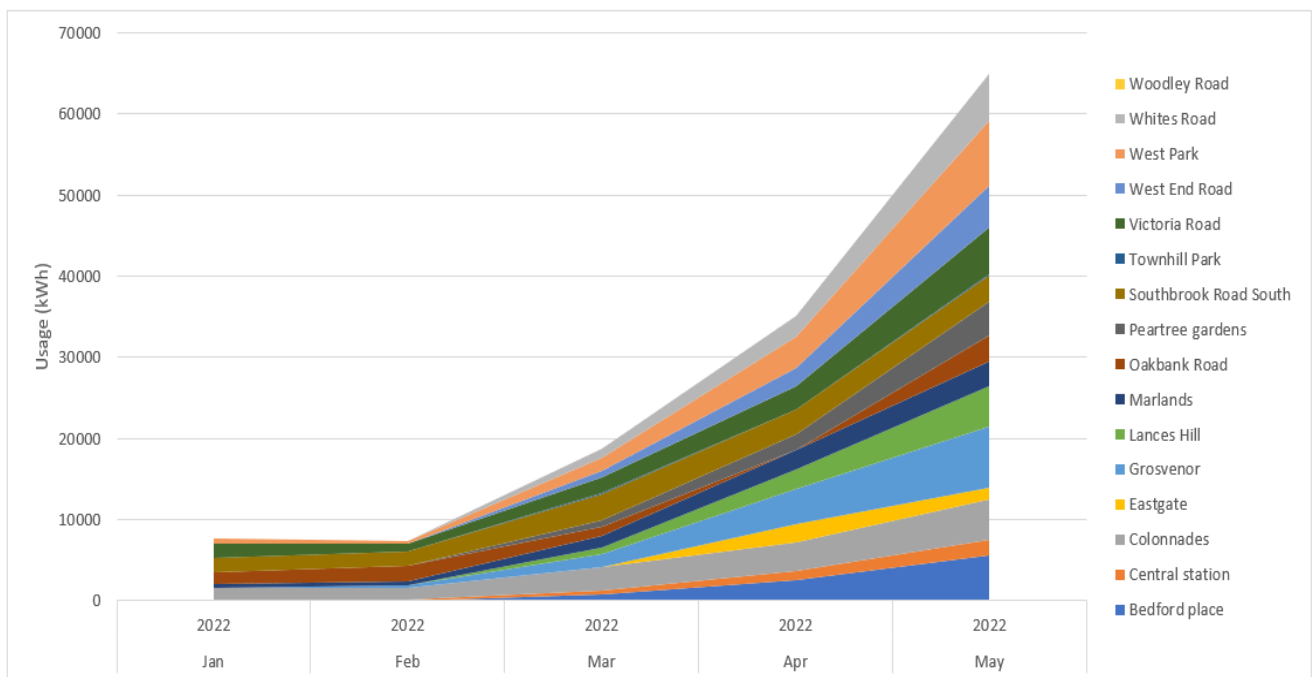
Figure 1: Usage by month since chargers installed



Key

- Green bars = kWh used
- Orange line = No. of charge sessions

Figure 2: Usage by location per month since January 2022



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Table 1 - Total usage per annum since chargers were installed

Year	Charge sessions	kWh used	CO₂ savings (kg)
2018	800	12,566.76	10,461.828
2019	3622	43,198.93	35,963.109
2020	5507	62,533.39	52,059.047
2021	4539	60,333.53	50,227.664
2022 (to date)	10731	170,635.077	142,053.702