

# Sizewell C: Electric Vehicle Charging

Technical Note

May 2024

## NOT PROTECTIVELY MARKED

### 1 Introduction

#### 1.1 Context

- 1.1.1 This Technical Note sets out Sizewell C Limited (SZC Co.) electric vehicle (EV) charging proposals to comply with the requirements of the Development Consent Order (DCO) for Sizewell C during the construction phase. This should be considered separate to the requirements applicable for the operational phase of the nuclear power facility.
- 1.1.2 The sites that SZC Co. is considering provision of EV spaces for relate to those identified in the Consolidated Transport Assessment (TA) and Construction Worker Travel Plan (CWTP). These are referred to as the 'sites' in this Note, and include the:
- Main development site, which is made up of the main construction area (MCA), temporary construction area (TCA) and ancillary construction area (ACA);
  - Northern park and ride facility;
  - Southern park and ride facility; and
  - Accommodation campus.
- 1.1.3 A meeting was held with East Suffolk Council (ESC) and Suffolk County Council (SCC) in February 2024 to discuss EV charging provision for Sizewell C. This Note follows up on that discussion and addresses the following queries that were raised at the meeting:
- What has been the experience at Hinkley Point C with regards to EV charging;
  - What charging speeds would be deployed at each site, and justification of this needed to both forecast construction worker dwell times and workforce numbers at each site?
  - Do SZC Co. need or wish to provide EV spaces for visitors?
  - How would the 80% EV parking bay utilisation trigger be monitored?
  - Does SZC Co. have a strategy in place at this stage should the EV parking provision reach 100% utilisation during the construction period?

#### 1.2 Purpose and Structure of Note

- 1.2.1 The purpose of this note is to provide sufficient information for the Transport Review Group (TRG) to approve the EV charging strategy for Sizewell C.
- 1.2.2 The remainder of this note is structured as follows:
- **Section 2:** Summary of the policy context with regards to EV charging parking provision;
  - **Section 3:** Summary of the DCO requirements for EV parking provision;
  - **Section 4:** Summary of the proposed EV charging provision;
  - **Section 5:** Response to queries raised at the meeting in February 2024 with ESC and SCC; and
  - **Section 6:** Conclusions.

## 2 EV Charging Policy Context

2.1.1 This section summarises the policy context with regards to EV charging.

### 2.1 National Planning Policy Framework (2023)

2.1.1 The National Planning Policy Framework (NPPF) contains specific guidance in respect of parking in paragraph 111 stating that local parking standards for residential and non-residential development policies should consider *“the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.”*

2.1.2 Hence, the EV charging strategy at SZC must align with the NPPF such that there is adequate provision for EV charging.

### 2.2 Suffolk County Council (2023)

2.2.1 SCC’s ‘Suffolk Guidance for Parking (Fourth Edition, October 2023) includes parking guidance on EV charging spaces. The guidance states that Suffolk aims to be carbon neutral by 2030 and that sufficient provision of electric vehicle charging infrastructure must be made to help meet the government’s ambition of all cars and vans being zero emission by the year 2050.

2.2.2 Also contained within the guidance is the requirement that any new commercial developments must provide suitable charging systems for several parking spaces, with ducting and infrastructure in place to install additional charging systems when future demand dictates.

2.2.3 In addition, the guidance states that all charging related equipment must be fully compliant with Building Regulations and certified with the relevant British Standards.

### 3 Summary of DCO Electric Vehicle Charging Provision

3.1.1 This section summarises the EV charging provision set out within the documents that supported the Sizewell C DCO.

#### 3.2 Sizewell C DCO EV Charging Provision

3.2.1 The proposed EV charging provision for the main development site and the northern and southern park and ride facilities are summarised in the Construction Worker Travel Plan (CWTP) as follows:

*“During the construction phase, temporary car parking on the main development site, the northern park and ride and the southern park and ride sites will have capacity for up to 40% of electric vehicle charging spaces to be provided, with an initial 5% active spaces provided on first occupation and the remaining 35% being passive.”* (paragraph 4.7.18 of the CWTP).

3.2.2 The EV charging provision for the accommodation campus is not referenced in the CWTP but is referenced in the Consolidated Transport Assessment (TA) as follows:

- Accommodation campus: 5% would have electric vehicle charging points and 5% would have passive electric vehicle provision (paragraph 5.2.4 of the Consolidated TA).

3.2.3 Table 3.1 summarises the parking provision for each of the sites and the active and passive parking provision.

*Table 3.1 – DCO Car Parking and EV Parking Spaces*

Site	Total Parking spaces	% Initial Active EV charging spaces	Number Initial Active EV charging spaces	% Initial Passive EV charging spaces	Number Initial Passive EV charging spaces	Max % Active charging spaces	Max Number of Active EV charging spaces
Temporary construction area (TCA)	1,000	5%	50	35%	300	40%	350
Accommodation campus	1,660	5%	83	5%	83	10%	83
Northern park and ride	1,250	5%	63	35%	437	40%	500
Southern park and ride	1,250	5%	63	35%	437	40%	500
<b>Total</b>	<b>5,472</b>		<b>259</b>		<b>1,257</b>		<b>1,433</b>

3.2.4 With regards to converting passive to active EV spaces, the CWTP states at paragraph 4.7.19 that:

3.2.5 *“The demand for the electric vehicle parking spaces must be monitored by SZC Co. and passive spaces converted to active spaces when there is 80% utilisation of the active spaces.”*

## 4 Sizewell C Co. EV Charging Proposals

4.1.1 This section summarises the proposed approach to EV charging provision for the Sizewell C project.

### 4.2 Existing EV Charging Provision

4.2.1 It is important to understand the existing EV charging provision in the Suffolk area when considering the appropriate temporary provision at the SZC sites during the construction phase.

4.2.2 Shown below in Figures 4.1 and 4.2 is the distribution of EV chargers in the areas surrounding Sizewell. This is provided from the website 'Zap-Map.com' which displays charge point locations across the UK. The colour of the icon on the map denotes the power supply to that charger. This is such that a yellow icon is for slow chargers from 3kW to 6kW and a blue icon is for fast chargers from 7kW to 22kW. Pink markers indicate rapid chargers with power supply greater than 22kW.

Figure 4.1 – Existing Public EV Charging in the vicinity of Sizewell C

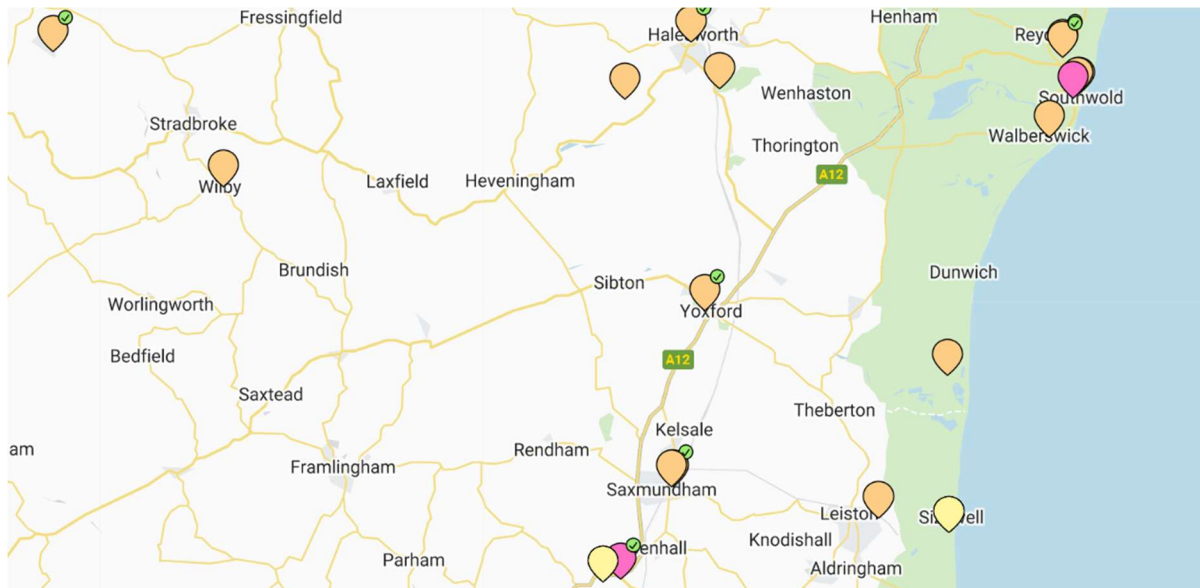
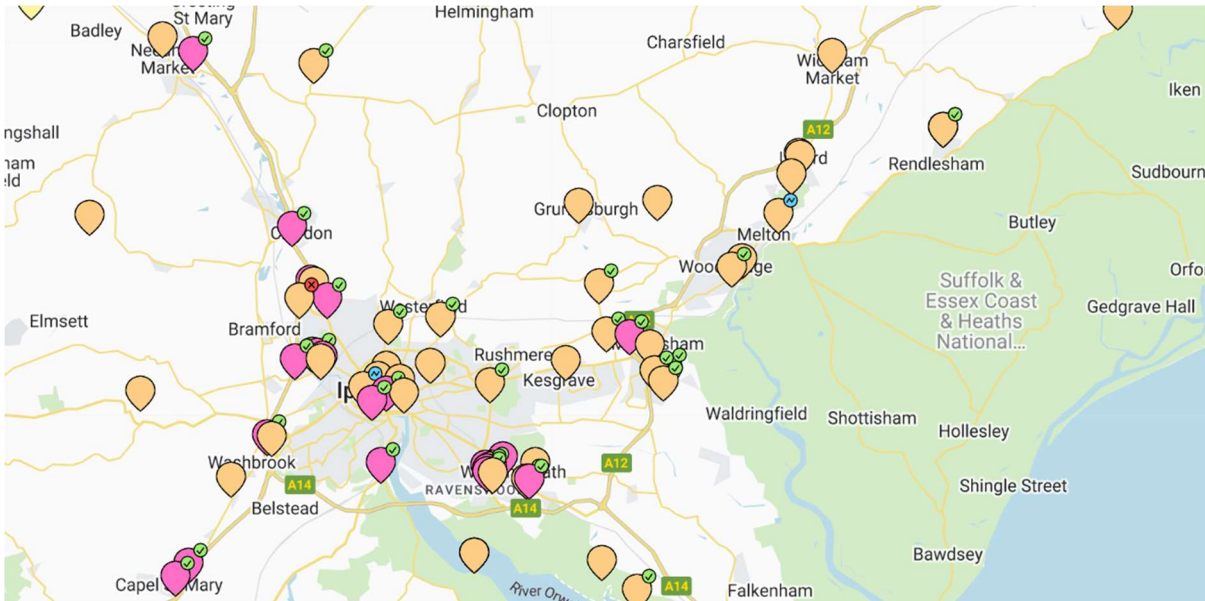


Figure 4.2 – Existing Public EV Charging in the vicinity of Ipswich



4.2.3 It can be seen from the figures above that there are a number of publicly available EV charging stations in the local area that could be utilised by SZC workers.

### 4.3 Charging Time

4.3.1 When developing an EV charging strategy, an important consideration is the vehicles that are most likely to be using them as charging speeds can vary between vehicles. Shown below in **Table 4.1** is a summary showing statistics for the top 10 selling cars in the UK in 2021 (Source: Pod Point 2022). It should be noted that it is advised to operate an EV car between 20-80% battery charge to promote battery longevity.

Table 4.1 – Typical EV charging speeds for the top 10 selling EV cars in the UK

Car Make and Model	Number sold in 2021	% of EV cars sold	Range	Charging Speed from 20%-80% for 3.6 kW Charger	Charging Speed from 20%-80% for 7 kW Charger	Charging Speed from 20%-80% for 22 kW Charger
Tesla Model 3	34,783	33%	360	9 hr	5 hr	2 hr
Kia e-Niro	12,271	12%	283	12 hr	6 hr	2 hr
VW ID3	11,032	10%	263	8 hr	4 hr	2 hr
Nissan Leaf	9,052	9%	168	7 hr	4 hr	1 hr
Audi e-Tron	7,396	7%	249	17 hr	9 hr	3 hr
Hyundai Kona	7,199	7%	300	7 hr	4 hr	1 hr
Mini Electric	6,615	6%	145	9 hr	5 hr	3 hr
Renault Zoe	5,778	5%	245	8 hr	4 hr	1 hr
Vauxhall Corsa E	5,605	5%	209	9 hr	5 hr	3 hr
MG ZS EV	5,380	5%	163	12 hr	4 hr	4 hr

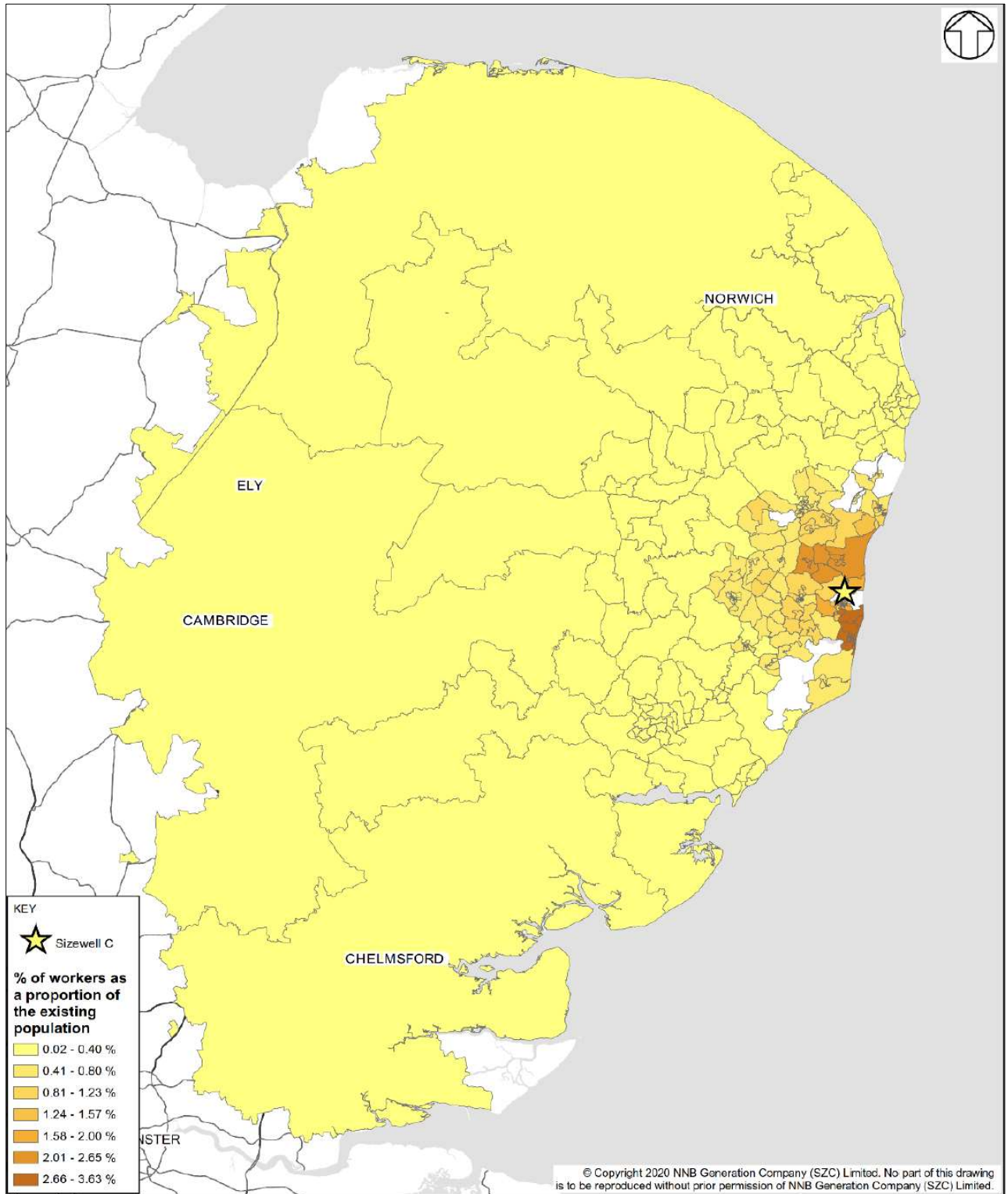
4.3.2 It can be seen from **Table 4.1** that:

- 76% of EV cars would take 7-9 hours to charge using a 3.6 kW charger. The remainder would take 12-17 hours to charge.
- 93% of EV cars would take 4-6 hours to charge using a 7 kW charger with the remaining 7% taking 9 hours.
- It would take 1 to 4 hours to charge an EV car using a 22 kW charger.

#### 4.4 Travelling Range

4.4.1 The Consolidated TA set out the forecast distribution of the Sizewell C workers. The vast majority of workers will not travel more than 90 minutes to work. The workforce catchment is illustrated in **Figure 4.3** below. Based on the EV car ranges in Table 4.1 and the catchment of workers in Figure 4.3, SZC workers with an EV car would be able to travel to and from work on a single charge and would therefore not require to charge their car at one of the SZC car parks.

Figure 4.3 - Consolidated TA Forecast Distribution of SZC Workers





## 4.5 User Groups

4.5.1 As well as charging speeds and existing availability of EV charging within the locality, consideration has also been given to the type of users of the EV charging facilities at the Sizewell C car parks.

### a) Daily – parked for 8-10 hours

4.5.2 Daily users are likely to be SZC Co. workers either parking at the park and ride facilities or the TCA car park:

- Parked all day at the car park, travelling to / from the site but returning to their place of origin and not staying overnight; and
- Dwell time = around 10 hours per day based on being parked between 0800–1800.

4.5.3 Based on Table 4.1, a 3.6kW power output is considered to be an appropriate EV charging speed for these types of users.

### b) Weekly – parked for 5 days

4.5.4 Weekly users are likely to be SZC Co. workers:

- Parked at the accommodation campus all week from Monday to Friday and staying overnight, likely arriving on a Monday morning and returning on Friday evening; and
- Dwell time = all week, albeit some limited off-site trips during the week likely to nearby leisure or amenities. The campus accommodation management team would be required to manage the use of the EV parking spaces to ensure that workers did not occupy the spaces once charging is complete.

4.5.5 Based on Table 4.1, a 3.6kW power output is considered to be an appropriate EV charging speed for these types of users.

### c) Visiting – parked for 2-3 hours

4.5.6 Visiting users are likely to be people who visit Sizewell C for only a few hours on any given day. This user type is envisaged to be very small in number. The system will be a private EV charging system not visible to the general public and will require users to register with SZC to enable EV charging. Therefore, one-off visitors to SZC will not be able to charge their EV vehicle. However, regular visitors would be able to be registered on the SZC EV system and charge their vehicle when they visit Sizewell C.

## 4.6 Growth in EV cars

4.6.1 Current UK electric and hybrid EV ownership levels were estimated at the end of December 2023 to account for 2-3% of all cars in the UK (Source: heycar). It is forecast that by 2026 electric cars will account for 4% of all UK cars.<sup>1</sup>

4.6.2 UK government plans to end all petrol and diesel car sales by 2035 which will likely fall into the end of the Sizewell C construction period. Whilst it is recognised that there will continue to be an increase in EV cars, based on the current and forecast proportion of EV cars, the rate of growth during the construction phase of Sizewell C will not justify 40% active EV charging provision set out in the CWTP. The CWTP stipulates that the active EV provision is “up to” 40% rather than requiring 40%. As such, based on the factors considered in this section of the note, it is proposed for the maximum active provision to be 8-15%. This is set out in more detail below.

<sup>1</sup> <https://obr.uk/box/the-transition-to-electric-vehicles/>

#### 4.7 SZC Co. EV charging proposals

4.7.1 Based on the considerations set out in this note, SZC Co. has considered the DCO EV charging provision and is proposing the provision set out in **Table 4.2**.

*Table 4.2 – SZC Co. Proposed Active / Passive EV spaces*

Site	Total Parking spaces	% Initial Active EV charging spaces	Number Initial Active EV charging spaces	% Initial Passive EV charging spaces	Number Initial Passive EV charging spaces	Max % Active charging spaces	Max Number of Passive EV charging spaces
Temporary construction area (TCA)	1,000	5%	50	10%	100	15%	150
Accommodation campus	1,660	1%	18	7%	118	8%	136
Northern park and ride	1,250	5%	63	10%	125	15%	188
Southern park and ride	1,250	5%	63	10%	125	15%	188
<b>Total</b>	<b>5,160</b>		<b>290</b>		<b>468</b>		<b>662</b>

4.7.2 With regards to the accommodation campus, all of the EV charging points are proposed to be in the surface car park rather than in the multi-storey car park. The reason for this is twofold; first is to keep the electrical load closer to the substation and therefore not require large cables routed to the north and secondly to remove the fire risk from the MSCP and not provide the more stringent fire standards needed to EV charging in a MSCP. The active and passive provision is less than for the other car parks to reflect the weekly rather than daily use of SZC workers staying at the accommodation campus. The management team at the accommodation campus would manage the use of the EV charging spaces to ensure that cars are moved once charged.

#### 4.8 Monitoring and Enforcement

4.8.1 The DCO includes a requirement for passive spaces to be converted to active when the following level of EV bay utilisation is observed, as per paragraph 4.7.19 of the CWTP:

*“The demand for the electric vehicle parking spaces must be monitored by SZC Co. and passive spaces converted to active spaces when there is 80% utilisation of the active spaces.”*

4.8.2 A proposed methodology for addressing this is set out below:

- SZC Co.’s Site Operations team will monitor all EV car parking spaces at each site on a monthly basis, with updates from each exercise provided within ongoing transport monitoring reports to the Transport Review Group; and
- Monitoring will consist of spot-checks of utilisation of the EV bays;
- Should this reach 80%, a report will be provided to the Transport Coordinator to update the TRG at its next meeting. This will seek the TRG’s views on how much of the remaining passive provision – as defined in **Table 4.2** above – should be converted to active provision and timescales.

#### 4.9 Planning ahead beyond maximum active EV car parking spaces

4.9.1 For all of the reasons set out in this note, it is not envisaged that the EV charging spaces will ever be fully utilised at 15% provision (or 8% for the accommodation campus). However, if in the unlikely event that they are, the following steps are proposed to be taken:

- At 80% utilisation of the maximum active provision, SZC Co. would liaise with UKPN to verify available capacity in the local distribution network and seek to secure further power. It is expected that SZC Co. would be able to secure the additional loads required within a period of approximately 6 months.
- Renewable power sources would also be explored with the use of solar and battery storage facilities.
- A report would be submitted to the TRG setting out the proposed approach to providing additional charging facilities.

## 5 Response to ESC / SCC queries

5.1.1 Further review is now undertaken of the queries raised by ESC and SCC at the meeting on 28<sup>th</sup> February 2024. The clarifications against each query are provided in **Table 5.1**.

*Table 5.1 – ESC / SCC queries at meeting with SZC Co.*

ESC / SCC Queries	SZC Co. Response
<b>Lessons learned from HPC:</b>	
<i>Q1 – How often do they monitor bay utilisation / how many EV spaces do they provide per site and what has take-up been like?</i>	EDF Energy's HPC site does not currently (as of March 2024) provide any EV charging spaces nor is there a requirement within the DCO to do so. There is no information therefore to feedback on this query.
<i>Q2 – How do they enforce use of the EV bays e.g. permits?</i>	As above, there is no information therefore to feedback on this query.
<i>Q3 – Do they provide for visitors or workforce only?</i>	As above, there is no information therefore to feedback on this query.
<i>Q4 – What charging speeds do they provide per site?</i>	As above, there is no information therefore to feedback on this query.
<b>Further information on SZC Co.'s proposals:</b>	
<i>Q5 – How often would the 80% EV parking bay utilisation trigger be monitored?</i>	Quarterly, monitored by SZC Site Operations and reported to the Transport Coordinator.
<i>Q6 – What charging speeds would be deployed at each site, and justification of this needed to both forecast construction worker dwell times and workforce numbers at each site?</i>	3.6kw as set out in Section 4 of this note.
<i>Q7 – Does SZC Co. need or wish to provide EV spaces for visitors?</i>	No for one-off visitors but for regular visitors they would be able to register with the SZC EV charging scheme as set out in Section 4 of this note.
<i>Q8 – Can SZC Co. demonstrate that it has incorporated for any lessons learned at HPC?</i>	No lessons currently at HPC as no EV provision.
<i>Q9 – Should SZC Co. have a strategy in place at this stage to consider the feasibility of securing additional capacity in the UKPN + ducting to cover the eventuality whereby the 15% maximum active spaces proposed is exceeded?</i>	This is set out in Section 4.

## 6 Summary and Conclusions

- 6.1.1 This Technical Note has demonstrated that SZC Co.'s Electric Vehicle charging strategy will:
- Ensure adequate provision of active and passive EV charging infrastructure is provided for SZC Co. workers based on likely construction worker User Groups and EV charging speeds;
  - Be responsive to future worker travel trends through ongoing monitoring of the use of the EV parking spaces, which will be reported to the TRG.
- 6.1.2 On this basis it is concluded that the provision set out in this Note is reasonable for reaching agreement with the TRG.