ev\_charging\_tech\_2parts\_smdia → base

16.10.2021, 12:55

# Page 01

01

A survey on charging technologies for Electric Vehicles (EVs)

AA01

We set up an online survey on **smart charging** and **vehicle-to-grid (V2G)** charging technologies for EVs. We'll give you some information on these technologies in the next pages.

Estimated survey time: 15-20 minutes.

You can click "Pause the survey" at the bottom of the page to come back to it later, or end the survey at any time.

# Page 02

intro2

AA02

#### **Prize draw**

There will be a prize draw for  $10 \times £50$  Amazon gift cards (or alternative currency).

You can indicate at the end of the survey if you'd like to participate in the draw and your email address will be saved separately from your answers to ensure that your participation is **anonymous**.

The anonymised dataset might be shared with Newcastle University's collaborators supporting the analysis (e.g. countries comparison).

## Let's start!



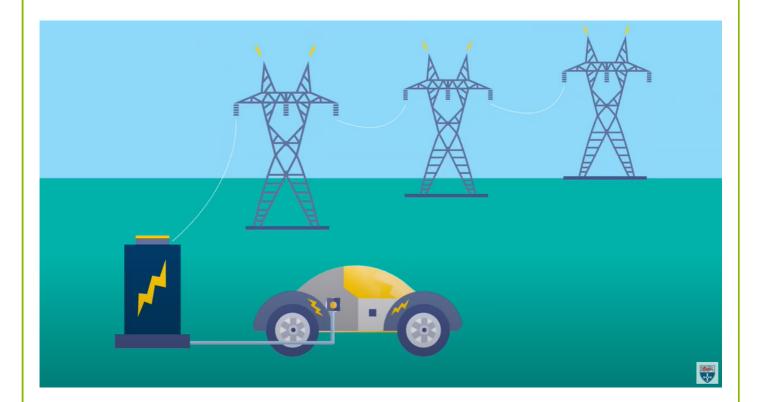
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0	0 0	) ()	0
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			[IQ19 🗉
			,
			//
	hida tha	m)	
_	4, 5, 6	<b>4, 5, 6</b> otherwise hide the	4, 5, 6

	Page 04
Herri lang have you had a sharper installed at here?	VG03 🗓
. How long have you had a charger installed at home?	
Up to 3 months	
4 to 12 months	
>1 to 2 years	
>2 to 3 years	
Other, please specify:	
) I don't know	
. What is the power rating of your home charge point, in kilowatts (kW)?	VG02 □
3.6 kW	
)	
Other, please specify:	

Page 05
6. How did you usually travel to work prior to the Covid-19 pandemic (for example, in January 2020)?
By my own car or a car from a car sharing pool
O By public transport (Train, bus)
○ By cycling
O By walking
O Did not commute to work (e.g. because I work from home, retired)
Other, please specify:
7. Does your household have any of the following? (Select all that are appropriate)
☐ Solar panels
☐ Solar water heaters
☐ Home Battery (e.g. Powerwall)
Green Energy tariffs (e.g. Tesla Energy Plan)
EV specific tariffs (e.g. EV Everywhere)
<ul><li>None of the above</li><li>☐ I don't know</li></ul>
Page 06
IN1
(INO5
In the following pages, we are providing some <b>information</b> on charging technologies.
(INO5
In the following pages, we are providing some <b>information</b> on charging technologies.
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IN06

Charging millions of EV batteries needs to be managed to prevent overloading the electricity grid and minimise costly upgrades, ultimately paid for by the consumers.



[IN01

(Un)managed chargers?

There are two main categories of chargers:

- 1) With **unmanaged chargers**, the battery of the EV will be charged as soon as it is connected to the charging station.
- 2) **Managed chargers** such as **smart chargers** and **vehicle to grid (V2G) chargers** connect an EV to the grid using a charging device which includes a data connection.

These managed chargers may help manage electricity demand across a green electricity system and reduce costs for the consumer.

More on **smart chargers** and **V2G chargers** next.





Managed Charging Devices OVO/Kaluza-Indra charger (Top) Octopus EV- Wallbox charger (Bottom)

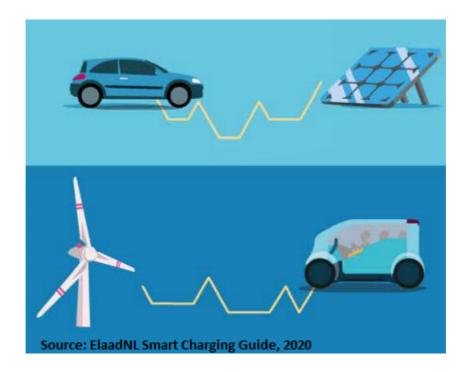
What's a Smart Charger?

IN07

**Smart chargers** can manage the **time of charging** and the **speed of charging** (i.e. power rate).

For example, charging can start a couple of hours after the EV is plugged and it doesn't need to happen at full power.

Smart charging can minimise grid congestion by avoiding charging at peak times (7-9am and 4-7pm in the UK) and/or make use of excess electricity generated by solar panels or grid electricity imported during cheaper periods.



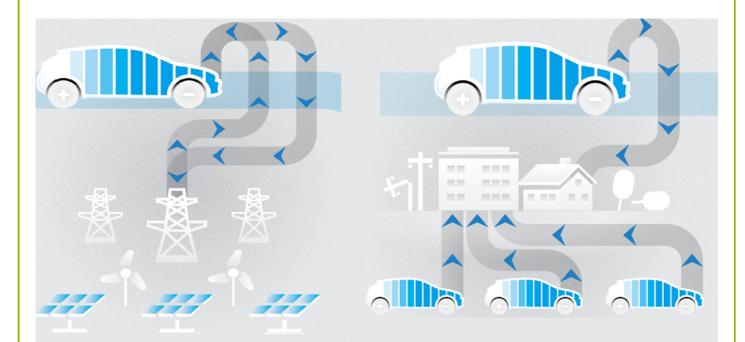
Page 10 IN5

IN03

## What's a V2G charger?

A **vehicle-to-grid (V2G)** charger is similar to a smart charger in that it can also manage the **time** and **speed** at which charging takes place.

In addition, a V2G charger allows **switching the direction of charging** by allowing EVs to sell energy back to the grid when it is most needed, or most expensive, such as at times of peak demand.



## Charging and Discharging

**Charging** when there is surplus energy. **Discharging** back to the grid when it is most needed.

# Discharging mode

**Discharging** during an emergency, for example, to power the home/building.

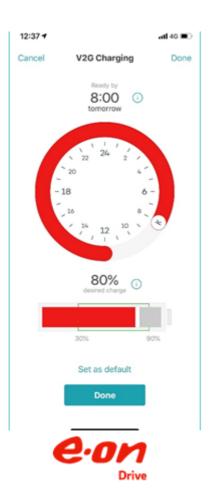
Source: http://nissaninsider.co.uk/nissan-to-create-electric-vehicle-ecosystem/

# Page 11 IN6

IN02

#### The user is in control

Both smart chargers and V2G ensure that the vehicle is charged to meet driving requirements which the user can set, usually through a customer App. A screenshot from an example App is shown below.



# Page 12 Check

(IN04 D	
At this point we like to know if we provided enough information on charging technologies.	
What can be managed with a smart charger? (Select all that are appropriate)	
☐ Time of charging	
Power rate (i.e. speed of charging)	

∏ I d	on't l	know
-------	--------	------

Page :	13
--------	----

GI01 •

GΙ

To what extent do you agree or disagree with each of the following statements?

To answer these questions if you don't have an EV, imagine that you'll have one in the future.

I don't need to receive a financial reward for	ny contribution to a s	stable electricity network.
--	------------------------	-----------------------------

Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't know					
I am comfortable starting a regular trip with 70% charge on my EV battery.										
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't know					
I am concerned ab										

I am concerned about third parties managing my EV charging, even if my car is always ready to go when I need it.

Strongly disagre	e Disagree	Neither	Agree	Strongly agree		I don't know
------------------	------------	---------	-------	----------------	--	-----------------

In case of an emergency, I allow an operator to stop my charger for up to 1 hour to prevent serious electric grid issues. I always retain the ability to override the command.

Strongly disagree	Disagree	Neither	Agree	Strongly agree		I don't know
-------------------	----------	---------	-------	----------------	--	-----------------

A financial reward makes it more attractive for me to make my EV available for charge management.

Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't know
-------------------	----------	---------	-------	----------------	-----------------

I would pay an extra cost to be able to charge my EV regularly at peak times (7-9am and 4-7pm).

Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't
					кпои

					<b>Page 14</b>
How important	are the following	statements to y	ou?		GC02 ·
Having a guarante	ee that my EV's bat	tery will never fall	below a specific	ed charge level.	
Not at all important (0)	1	2	3	Very important (4)	I don't know
Having full control	as to when chargi	ng happens.			
Not at all important (0)	1	2	3	Very important (4)	I don't know
	ee that my EV will b	pe charged by a sp	ecified time.		
Not at all important (0)	1	2	3	Very important (4)	I don't know
laving full control	over the charge le	evel of my EV's bat	tery.		
Not at all important (0)	1	2	3	Very important (4)	I don't know
Please tick option	"I don't know" suc	h that we know tha	at you read this	text.	
Not at all important (0)	1	2	3	Very important (4)	I don't know
	ngagement with the ith the ith the system afte		(e.g. I set my	preferences once and l	don't
Not at all important (0)	1	2	3	Very important (4)	I don't know
Adopting new tech	nnology as soon as	it becomes availab	ole.		
Not at all important (0)	1	2	3	Very important (4)	I don't know
				Very important (4)	

					Page 15
The following se	ction is specific	to V2G chargers	s.		[IN08 □
Compared to a sm	art charger, what	is <b>unique</b> about	a <b>V2G charger</b> ?	?	
_	•		g and dischargin	g of the EV battery).	
	ging the time of o		charging		
It allows manag	ying the speed (i	.e. power rate) of	charging.		
☐ I don't know					
					Page 16
			llowing statem	nents describing ye	our (AT01 •
attitudes toward	s vehicle-to-gri	id (V2G)?			
/2G is as reliable a	s other charging	technologies.			
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't
					know
Charging my EV wi	th V2G would be	cheaper compared	d with unmanage	ed charging.	
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't
					know
believe using V2G	is very easy.				
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't
3, 3	J		J	3, 3	know
would be prepare	d to pay more fo	r a V2G charger th	nan for a smart c	harger.	
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't
	2.043.00	110.0.0	1.9.00	ot.ong.y ag. cc	know
holiovo V2C can o	ovtand the EV bat	tory life			
believe V2G can e		·			
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't know

_				_	_
D	2	a	Δ	1	7

CN01 •

To what extent do you agree with each of the following statements describing your potential concerns about vehicle-to-grid (V2G) technology?

"With V2G"...

I fear the battery is not sufficiently charged when I want to start a trip.

Strongly disagree	Disagree	Neither	Agree	Strongly agree		I don't know
-------------------	----------	---------	-------	----------------	--	-----------------

I'm afraid the battery life could be shortened by the frequent charging and discharging.

Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't
					know

I would need to adapt my driving patterns.

Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don't know
					KIIOW

D.	-	٠,	•	1	Q
Pi	ac	36	•	L	ď

How important are the following statements to you when assessing if you would use your electric vehicle (EV) for vehicle-to-grid (V2G).

V2G contributes to a stable electricity network for all.

Not at all	1	2	3	Very important	I don't
important (0)				(4)	know

V2G helps me integrate my EV with my solar PV system.

Not at all	1	2	3	Very important	I don't
important (0)				(4)	know

Please tick option "Very important" such that we know that you read this text.

Not at all	1	2	3	Very important	I don't
important (0)				(4)	know

V2G allows me to use my EV for back-up power for my home.

Not at all important (0)	1	2	3	Very important (4)	I don't know
-----------------------------	---	---	---	-----------------------	-----------------

V2G helps reduce my carbon emissions.

Not at all 1 2 important (0)	3	Very important (4)		I don't know
------------------------------	---	-----------------------	--	-----------------

IC03 🗉

I would use my car for V2G if I receive energy bill savings of:

#### 5% energy bill savings

Strongly disagree	Disagree	Neither	Agree	Strongly agree		I don't know
-------------------	----------	---------	-------	----------------	--	-----------------

# 10% energy bill savings

Strongly disagree	Disagree	Neither	Agree	Strongly agree		I don't know
-------------------	----------	---------	-------	----------------	--	-----------------

## No energy bill savings

Strongly disagree	Disagree	Neither	Agree	Strongly agree		I don't know
-------------------	----------	---------	-------	----------------	--	-----------------

					Page 19
	-	charging an elec			FI01 •
		ether you would us me and direction o			
I would definitely not use it	nage the rate, t	The drid direction o	charging.	I would definitely use it	I don't know
mart charging l	Manage the rate	and time of chargi	ıg.		
I would definitely not use it				I would definitely use it	I don't know
our car to the ele	ging The batter ctricity grid.	y or your electric v		I would definitely	I don't
our car to the ele  I would definitely not use it	ctricity grid.				I don't know
our car to the ele I would definitely not use it  Vhat do you thi	ctricity grid.			I would definitely use it	I don't know
our car to the ele  I would definitely not use it  Vhat do you thi use it?	ctricity grid.	t attractive featu	res of V2G tha	I would definitely use it	I don't know

	Page 20
Some information about you	PI11
We ask these questions as they might help us identify trends about various d	lemographic groups.
8. In which country do you live?	(PI12 ·
○ United Kingdom	
○ Germany	
○ Netherlands	
○ Denmark	
○ United States	
○ Canada	
○ Australia	
Other, please specify:	
<ul><li>Prefer not to answer</li></ul>	
	PI13 •
9. Can you indicate your county, province, or state?	(F113 <u>u</u>
☐ Prefer not to answer	
10. How would you describe your residential lesstion?	PI14 •
10. How would you describe your residential location?	
○ Urban	
Other places are sift.	
Other, please specify:	
11 How old are you?	PI15 •
11. How old are you?	
[Please choose]	
	PI16 •
12. What is your gender?	
[Please choose]	
	PI18 <b>•</b>

10/2021, 11:56	Galley-proof base (ev_charging_tech_2parts_smdia) 16.10.2021, 12:55	
13. What is your total l National Insurance, etc	household income per year before deductions for income tax c.?	X,
[Please choose] 🔻		
		PI17 •
	st educational qualification?	
[Please choose]		
15. How many licensed	drivers are there in your household? (including yourself)	PI19 •
[[]		
_	you use in your household? that you have access to but do not own.	PI20 •
O 1		
<b>○</b> 2		
○ 3		
Other, please specify:		
○ I don't currently have		
	3 Active Filter(s)	
	Filter PI20/F1 If any of the following options is selected: 1 Then hide the questionnaire page(s) V2Q-V3EV (otherwise display the Filter PI20/F2 If any of the following options is selected: -1 Then jump to page %page% after the next button was clicked Filter PI20/F3 If any of the following options is selected: 2 Then hide the questionnaire page(s) V3Q-V3EV (otherwise display the	

		Page 21
	Almost Done!	V101
	me last few questions on the vehicles you drive. Then there is an option	al section
about data p		a information
	ted that you have more than one vehicle, you'll get the option to includ all of your vehicles.	e information
17. What is t	he ownership type of this vehicle?	<b>V107</b> □
○ Owned		
On lease		
Company c	ar	
Other, pleas	se specify:	
10 What is t	he Duand Medal and Very of verichanties of this vehicle?	V108 🗉
	he Brand, Model and Year of registration of this vehicle? san LEAF 2020; Nissan Qashqai 2019)	
Brand	☐ Prefer not to answer	
Model	☐ Prefer not to answer	
Year	☐ Prefer not to answer	
rear		
19. For how l	ong have you been using this vehicle?	V109 🗉
O Up to 3 mo		
○ 4 to 12 mo		
○ 1+ to 2 yea	ars	
○ 2+ to 4 yea	ars	
○ 4+ to 6 yea	ars	
Other, pleas	se indicate:	
20 11		V110 🗉
_	uently did you use this vehicle, pre-Covid lockdown?	
<ul><li>Daily</li><li>Soveral time</li></ul>	nos a wook	
<ul><li>Several tim</li><li>Few times a</li></ul>		
_	once a month	
<ul><li>☐ Less than o</li><li>☐ I don't know</li></ul>		
O I don't kno	••	

/10/2021, 11:56	Galley-proof base (ev_charging_tech_2parts_smdia) 16.10.2021, 12:55	
21. Where do you mostly p	ark this vehicle overnight?	V111 🗉
○ Residential off-street parki	ng (driveway or garage)	
○ Residential on-street parki	ng (e.g. kerbside)	
O Public car park		
○ At work		
Other, please indicate:		
22 What was your annual	mileage in the past year, pre-Covid?	V112
Info recorded on MOT or prov		
·	the vehicle for less than a year)	
Appual Mileage		
Annual Mileage		V116 •
○ Miles (mi)		
○ Kilometres (Km)		
○ I don't know		
22 What's the type of you	v vohislo?	V106 🗉
23. What's the type of your		
<ul><li>Internal combustion engine</li><li>Hybrid electric vehicle (HE</li></ul>		
<ul><li>Plug-in Hybrid Electric veh</li></ul>		
Battery electric vehicle (BE)		
○ I don't know	- • )	
O I don't know		
	1 Active Filter(s)	
	Filter V106/F1	
	If any of the following options is selected: <b>3, 4</b> Then display the questionnaire page(s) <b>V1EV</b> (otherwise hide them)	
	, , , , , , , , , , , , , , , , , , ,	

	Page 22 V1EV
24. Where do you mostly charge this electric vehicle?	V113 ·
<ul> <li>At home, using a private charger (e.g. installed on a driveway or garage)</li> </ul>	
<ul><li>At home, using a public charger (e.g. installed at kerbside, or in car park)</li></ul>	
○ At work	
At home and at work	
○ In public parking spaces (e.g. shopping centres, supermarkets, etc.)	
<ul> <li>At filling stations or hubs of fast chargers (e.g. 50kW)</li> </ul>	
Other, please indicate:	
	V114 •
25. How often do you plug this EV to the charger?	(*11 <del>4</del>
<ul> <li>Almost after every trip when there is a charger available</li> </ul>	
<ul><li>Once a day (e.g. at home or at work)</li></ul>	
<ul><li>Twice a day (e.g. at home and at work)</li></ul>	
$\bigcirc$ I don't plug my EV every day (e.g. I charge it 2-3 times a week)	
○ I don't know	
26. What is the capacity of the EV battery (i.e. traction battery)?  For example, 30kWh  kWh I don't know	V115 ·
	Page 23
Would you like to enter the details of your second vehicle?  It would be useful for our work to get the details for all vehicles that you use in your how one of the second vehicles.	<b>V202</b> □ Dusehold.
○ No, I'm done!	
2 Active Filter(s)	
Filter V202/F1  If any of the following options is selected: 1  Then display the questionnaire page(s) V2 (otherwise hide them)	
Then display the questionnaire page(s) <b>V2</b> (otherwise hide them) <b>Filter V202/F2</b>	
If any of the following options is selected: <b>2</b> Then jump to page <b>%page%</b> after the next button was clicked	
Then Jump to page 70 page 70 arter the flext button was theken	

		Page 24
		V205 ·
27. What is the o	wnership type of this vehicle?	(1202
Owned		
On lease		
<ul><li>Company car</li></ul>		
Other, please sp	ecify:	
	rand, Model and Year of registration of this vehicle? EAF 2020; Nissan Qashqai 2019)	V206 I
Brand	☐ Prefer not to answer	
Model	☐ Prefer not to answer	
Year	☐ Prefer not to answer	
<ul><li>Up to 3 months</li><li>4 to 12 months</li><li>1+ to 2 years</li><li>2+ to 4 years</li></ul>		
○ 4+ to 6 years		
Other, please in	dicate:	
30. How frequent	ly did you use this vehicle, pre-Covid lockdown?	V208 ·
○ Daily		
○ Several times a	week	
○ Few times a mo	nth	
○ Less than once	a month	
○ I don't know		
		<b>V209</b> □

/10/2021, 11:56	Galley-proof base (ev_charging_tech_2parts_smdia) 16.10.2021, 12:55
31. Where do you most	y park this vehicle overnight?
Residential off-street page	arking (driveway or garage)
<ul> <li>Residential on-street pa</li> </ul>	arking (e.g. kerbside)
O Public car park	
○ At work	
Other, please indicate:	
	V210
	rovided to insurance provider. (or mileage so far if you had the vehicle for
less than a year)	Tovided to insurance providen (or inneage so far in you had the veinere for
Annual Mileage	
	(V214 □
○ Miles (mi)	
○ Kilometres (Km)	
∫ I don't know	
O I don't know	
33. What's the type of y	vour vehicle?
○ Internal combustion en	
Hybrid electric vehicle	
O Plug-in Hybrid Electric	vehicle (PHEV)
Battery electric vehicle	(BEV)
○ I don't know	
	1 Active Filter(s)
	Filter V204/F1
	If any of the following options is selected: <b>3, 4</b> Then display the questionnaire page(s) <b>V2EV</b> (otherwise hide them)

		Page 25 V2EV
34. Where do you mostly o	harge this electric vehicle?	<b>V211</b> □
	charger (e.g. installed on a driveway or garage)	
	narger (e.g. installed at kerbside, or in car park)	
○ At work		
<ul> <li>At home and at work</li> </ul>		
○ In public parking spaces (	e.g. shopping centres, supermarkets, etc.)	
At filling stations or hubs of	of fast chargers (e.g. 50kW)	
Other, please indicate:		
		V212 •
35. How often do you plug	this EV to the charger?	(VZIZ L
<ul> <li>Almost after every trip wh</li> </ul>	en there is a charger available	
$\bigcirc$ Once a day (e.g. at home	or at work)	
<ul><li>Twice a day (e.g. at home</li></ul>	and at work)	
○ I don't plug my EV every o	day (e.g. I charge it 2-3 times a week)	
○ I don't know		
36. What is the capacity of For example, 30kWh	the EV battery (i.e. traction battery)? know	V213 🖪
		Page 26
_	e details of your third vehicle? The to get the details for all vehicles that you use in your hou	<b>V309</b> □ sehold.
	2 Active Filter(s)  Filter V309/F1  If any of the following options is selected: 2  Then jump to page %page% after the next button was clicked  Filter V309/F2  If any of the following options is selected: 1  Then display the questionnaire page(s) V3 (otherwise hide them)	

		Page 27
		V3
37. What is the ow	nership type of this vehicle?	(V301 ·
○ Owned		
○ On lease		
○ Company car		
Other, please spe	cify:	
20 What is the D		V303 •
	and, Model and Year of registration of this vehicle?  AF 2020; Nissan Qashqai 2019)	
Brand	☐ Prefer not to answer	
Model	☐ Prefer not to answer	
Year	☐ Prefer not to answer	
39. For how long h	ave you been using this vehicle?	<b>V304</b> □
Oup to 3 months		
○ 4 to 12 months		
○ 1+ to 2 years		
○ 2+ to 4 years		
○ 4+ to 6 years		
Other, please indi	cate:	
40. How frequently	y did you use this vehicle, pre-Covid lockdown?	V305 ·
Daily	, and you doe died territory pro-central territorial	
<ul><li>Several times a v</li></ul>	veek	
<ul><li>Few times a mon</li></ul>		
<ul><li>Less than once a</li></ul>	month	
○ I don't know		
		(1724 7
		<b>V306</b> □

10/2021, 11:56	Galley-proof base (ev_charging_tech_2parts_smdia) 16.10.2021, 12:55	
41. Where do you mostly p	park this vehicle overnight?	
○ Residential off-street park	ring (driveway or garage)	
<ul> <li>Residential on-street park</li> </ul>	ing (e.g. kerbside)	
O Public car park		
○ At work		
Other, please indicate:		
		V307
<b>42. What was your annual</b> Info recorded on MOT or prov	mileage in the past year, pre-Covid?	
·	the vehicle for less than a year)	
(or inneage so far if you had	The vernere for less than a year)	
Annual Mileage		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
○ Miles (mi)		V315 🗉
○ Kilometres (Km)		
○ I don't know		
43. What's the type of you	ır vehicle?	V302 □
○ Internal combustion engir	ne vehicle (ICE)	
O Hybrid electric vehicle (HE	EV)	
O Plug-in Hybrid Electric veh	nicle (PHEV)	
O Battery electric vehicle (B	EV)	
○ I don't know		
	1 Active Filter(s)	
	Filter V302/F1	
	If any of the following options is selected: <b>3, 4</b> Then display the questionnaire page(s) <b>V3EV</b> (otherwise hide them)	

	Page 28 v3EV
14. Where do you mostly charge this electric vehicle?	V312 🛚
At home, using a private charger (e.g. installed on a driveway or garage)	
At home, using a public charger (e.g. installed at kerbside, or in car park)	
At work	
At home and at work	
<ul><li>In public parking spaces (e.g. shopping centres, supermarkets, etc.)</li></ul>	
At filling stations or hubs of fast chargers (e.g. 50kW)	
Other, please indicate:	
O Carrelly presses manager	
15. How often do you plug this EV to the charger?	(V313 □
Almost after every trip when there is a charger available	
Once a day (e.g. at home or at work)	
○ Twice a day (e.g. at home and at work)	
○ I don't plug my EV every day (e.g. I charge it 2-3 times a week)	
○ I don't know	
	<b>V314</b> □
46. What is the capacity of the EV battery (i.e. traction battery)?	(4314.2
For example, 30kWh	
kWh 🗌 I don't know	

Pag	e	29	
	i.	ımn1	

EQ03

# **Optional section on personal information**

We would like to understand your privacy requirements over your data.

This is an optional section with **5 questions** that should take 5 to 10 minutes to complete.

Would you like to continue?

**EQ02** □

YesNo

# 2 Active Filter(s)

#### Filter EQ02/F1

If any of the following options is selected: 1

Then display the questionnaire page(s) **SA** (otherwise hide them)

## Filter EQ02/F2

If any of the following options is selected: 2

Then jump to page %page% after the next button was clicked

Oo you have a smart thermostat installed in your home?  Yes  No I don't know		Page 30
Always Frequently Sometimes Rarely Never I'm not sure  O you have a smart thermostat installed in your home?  Yes No I don't know  EQ07 ©  EQ08 ©  EQ08 ©  Fequently  Sometimes Rarely Never  I'm not sure  EQ07 ©  EQ08 ©  EQ08 ©  Fequently  EQ07 ©  EQ08 ©  Fequently  Sometimes Rarely Never  I'm not sure  EQ07 ©  EQ08 ©  Fequently  EQ08 ©	Topposionally disable may amount hone/a location comics	<b>EQ06</b> □
Frequently Sometimes Rarely Never I'm not sure  I don't have a smartphone  EQ07 ©  Yes No I don't know  EQ08 ©  EQ08 ©  EQ08 ©  Yes No		
Sometimes Rarely Never I'm not sure  I don't have a smart phone  EQ07 ©  Yes No I don't know  EQ08 ©  EQ08 ©  FQ08 ©  No Yes No		
Rarely  Never  I'm not sure  Do you have a smart thermostat installed in your home?  Yes  No  I don't know  EQ07 ©  EQ08 ©  FQ08 ©		
Never I'm not sure  I don't have a smartphone  O you have a smart thermostat installed in your home?  Yes No I don't know  Do you have a smart home personal assistant installed in your home?  FQ08 ©  Yes No Yes No		
I'm not sure  I don't have a smartphone  LEQ07 :  Yes  No  I don't know  LEQ08 :  LE		
I don't have a smart thermostat installed in your home?  Yes  No  I don't know  Do you have a smart home personal assistant installed in your home?  For example, Amazon Echo or Apple HomePod  Yes  No		
Do you have a smart thermostat installed in your home?  Yes  No  I don't know  Po you have a smart home personal assistant installed in your home?  Fequence or example, Amazon Echo or Apple HomePod  Yes  No	○ I'm not sure	
O you have a smart thermostat installed in your home?  Yes  No  I don't know  Oo you have a smart home personal assistant installed in your home?  For example, Amazon Echo or Apple HomePod  Yes  No	○ I don't have a smartphone	
O you have a smart thermostat installed in your home?  Yes  No  I don't know  Oo you have a smart home personal assistant installed in your home?  For example, Amazon Echo or Apple HomePod  Yes  No		F007 •
No I don't know  Oo you have a smart home personal assistant installed in your home?  For example, Amazon Echo or Apple HomePod  Yes  No	Do you have a smart thermostat installed in your home?	
I don't know  Oo you have a smart home personal assistant installed in your home?  For example, Amazon Echo or Apple HomePod  Yes  No	○ Yes	
Do you have a smart home personal assistant installed in your home? For example, Amazon Echo or Apple HomePod Yes No	○ No	
Oo you have a smart home personal assistant installed in your home?  For example, Amazon Echo or Apple HomePod  O Yes  O No	O I don't know	
Yes No	Do you have a smart home personal assistant installed in your home?	<b>EQ08</b> □
○ No		
	O I don't know	

ΙP

In the following you will see different personal information that you could provide to your vehicle-to-grid (V2G) provider and their business partners to improve service quality.

Please indicate for each information whether you are willing to share the information with the V2G provider, with the V2G provider and their business partners, or to none of them.

	V2G provider	V2G provider and business partners	Not willing to provide this information
Expected time of departure/arrival	$\circ$	0	0
Charging locations (e.g. home, work, etc.)	$\circ$	$\circ$	0
State of charge of the EV battery	$\circ$	$\circ$	0
Real-time location information of your vehicle	$\circ$	$\circ$	0
Daily mileage	$\circ$	$\circ$	0
Real-time location information of your mobile phone	0	0	0

					Page 3
To what extent do	o you agree witl	າ each of the foll	owing stateme	ents?	EQ10 •
he exchange of per	rsonal information	ı online is essentia	I for the functior	ning of society.	
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don'i know
consent to share n	ny personal inforr	nation via the inte	rnet in return of	a personalised serv	ice.
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don' know
consent to share n			rnet if I have be	tter control over wh	at data is
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don know
s a result of using	V2G I feel that in	formation about m	e is out there th	at could invade my	privacy.
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don know
ease tick option "S	Strongly disagree'	such that we kno	w that you read	this text.	
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don know
consent to share n	ny personal inforr	nation via the inte	rnet in return of	a financial reward.	
Strongly disagree	Disagree	Neither	Agree	Strongly agree	I don know
					Page 3
				from the answers ddress will not be pa	
	provide my email	address to enter th	ne prize draw.		

**Last Page** 

**Done!** We appreciate the time you've taken to answer this survey.

Your contribution will help shape future EV charging technologies.

The study results are expected to be published by the end of 2021.

For more information about the latest smart charging work, check our <u>Supergen Smart Charging Webinar Series</u>

**Contact Information**