



# HOW CAN CROSS-INDUSTRY COLLABORATION ACCELERATE EMOBILITY? | COP26

## VIDEO TRANSCRIPT

[Music]

let's go you lead the way  
where are we headed  
towards a net zero future of course  
cleaner water more electricity a sustainable  
society  
that's the destination we've set  
ourselves this we know  
yes we know exactly where we're going  
but we need to get there quicker  
so  
let's build on the progress we've  
already made by working and walking  
together  
with the right partners tools and ideas  
we'll become an unstoppable force  
this we know  
right now there are businesses who are  
putting technology and sustainability at  
the heart of everything they do  
brave leaders turning maybes into  
realities and building something better  
for everyone  
now is the time to look to the future  
and reinvent ourselves today empowering  
others to do the same tomorrow  
yes we know what the future holds  
and we know how to get there so let's  
take charge of the journey today  
hello and welcome to glasgow  
and welcome to the art of convergence in  
in emobility uh my name is andrew smart  
i'm a senior managing director at

accenture  
and i'm i was about to say a select but  
i think actually a self-selected  
industry executive who  
with a number of my colleagues a while  
back stacked hands  
with a view to bringing our industry  
capabilities together with a view to  
helping  
with the energy transition  
so it's uh no coincidence uh that today  
you know we're going to spend the next  
hour  
thinking about  
how convergence you know can really lend  
itself to maximizing the benefits uh of  
the huge potential and the very exciting  
potential that emobility has to offer  
and very specifically to think about  
right at that point of of convergence  
between supply and demand to create a  
charging manifesto that we'll  
we'll look at through the lens of the  
customer through the infrastructure roll  
out through the attraction of investment  
and also for the balancing of the end to  
end system  
so i'm delighted to have with me today

an amazing panel  
it's been actually very humbling to to  
not only realize you know quite who it  
is who's leading the innovation across



the sector today but also the amazing longevity and expertise that is at the helm of our industry and so uh i as as has become the way we have a hybrid panel uh so on online here uh today with us we have ariane vanek uh the ceo of uh energy e-mobility we also have reggie corteau the ceo of free to move and here in glasgow we have uh fiona howarth the ceo of octopus electric vehicles roy williamson a senior advisor to the industry and our very own uh sander tueslick who leads connected energy for accenture so as is the way with these things i think it's you know it's crucially important when we think about you know these different dimensions that we always come back to the to the primary topic which is the customer and the customer experience so sandra maybe you could help us by by kicking off with you know maybe the best and the worst uh that's out there and and maybe what our aspiration should ultimately be for the charging experience thank you billy and it's a real honor to be here with those industry experts in this panel and what a great question to start with the customer right so let me start with the good have you ever driven an electric vehicle indeed i mean it's an amazing experience right and so this is what every ev driver will tell you right and also it's so quiet so there is this noise cancellation another major benefit of switching to electric mobility is the convenience of being able to charge when you're parked right and especially for those infrequent short distance travel like work home commute i simply need to charge when i'm parked either at home or at work or while doing shopping at my local supermarket so that burden of actually having to go to a fuel station to refuel my car is completely gone and of course you're at cop right so i mean electrifying cars and vans and buses is obviously good for the planet i

mean just in europe more than 20 percent of co2 emissions are coming from road transportation and this is also why european union has set aims to have at least 30 million zero emission vehicles on the road by 2030 combined with 3.5 million of public charging infrastructure installed and we see the similar level of ambition also in the united states with the biden administration so but just to put things into perspective right today in europe we only have 3.1 million electric vehicles on the road and less than 300 000 public charging stations installed so this is a 10-fold increase both the number of electric vehicles on the road as well as the charging infrastructure to be installed in just eight years to deliver on these ambitious targets so this is really what's at stake when it comes to you know getting to net zero with e-mobility but it's not because the government says it's good for the planet and says these ambitious targets that people will adopt electric vehicles at scale because today it's just asking them too much effort the adoption barriers are too high especially when it comes to public charging experience because today the reality is that the public charging experience is not reliable is fragmented and it's complex and yeah it's just asking too much sacrifice for me as an ev driver so if you want to mainstream evs quickly we need to really solve for these uh adoption barriers i mean today one out of six charging sessions goes wrong problem that virtually never happens at the fuel station another burden that ev drivers experience today is this fragmentation of experience right so it's very difficult to ease to find and pay for a charging session and you know and people



need to go through dozens of apps just to be able to start a session and finally also there is just simply not enough charging points that need to be installed where we most need it for instance in germany today there are around currently 17 electric vehicles per charging point whereas 10 is considered an optimum and as a consequence you need to be lucky enough to find an available charging stations in city centers and even along the motorways so the acceptance of electric mobility really largely depends on this charging experience if we are really to kind of mainstream that uh and reach the targets that the government has said before but because if difficult charging experience will really undermine people trust and put people off electric mobility and this is why also this cross industry collaboration is so important because no single company even industry or country has the scale and the ability to do this on their own ultimately what we want to achieve is that we have a charging experience actually ultimately what we want to achieve is to make the eev driving experience better than i see one right and this is all about making this charging experience convenient simple and reliable so that in two years from now two years from now i should be able to go from amsterdam in the netherlands to bordeaux in france in the same amount of time as i would do with an icv vehicle because this is what's needed to mainstream uh char i mean electric mobility with this charging experience fantastic well i think you've set out the challenge uh very nicely there sander which is you know the essence of cops so that's good we get we like a challenge so fiona i know you've been you've been passionate about

this sector for many years but you're pushing the boundaries now so you know i know that also that its convenience i think was the touchstone of what you described to me in terms of what you've been focused on for octopus how does that respond to some of sanders challenges yeah absolutely so i mean for those of you that aren't familiar with octopus ev we try and make it as well we do make it as easy as possible to switch to evs as we can so from choosing your car so you've got independent impartial experts can help you select from 35 electric cars now different bottles that's pretty exciting in itself uh through to getting a charge point at home maybe an ev tariff where you can charge up in the middle of the night for a fraction of the cost probably about 10 of what you might pay for the petrol diesel equivalent and actually we do have a charging card which integrates across about 10 different networks now in the uk and it gives you access to 100 000 charge points across europe where you can tap and go and it all goes on a single bill and so part of the challenges that we're seeing for example with public charging is uh you might have a number of different cards you might have a number of different apps maybe you have to top them up you don't really know what you spent you know i forgot my card i forgot my electric juice network card and i did a road trip up to cop and i was i was living this life without the card and i was like oh no and i still don't know really what i spent where in terms of topping up my ev to get here so it is a bit complicated but the change the pace of change is so fast now so i think the number of locations in which you can publicly charge your car is about double the number of petrol stations now in the uk which is pretty exciting and that's before you take into account that you can charge at home and charge at work which many of us can and then in addition to that it's that's kind of doubled in the last two years so



that pace of change is hugely very fast and the other thing is that there's lots of different business models emerging so it might be that classic when you're driving your petrol diesel car and you kind of imagine this world of evs it's very natural for you to imagine that you're going to go and fill up your battery somewhere but to your point the reality is you can charge your car where it's stationary it's like it's a total mind shift it's like where's the dwell time i hate the word dwell time i need to find a new word but where's the dwell time for for you and your car and like is that a home is it at work is that the gym so one of the places i charged up on the way out was an insta vault at a valentine's gym and actually i wish i bought my stuff to go and use the gym i was like if i if i lived near here i'd be here every weekend it was gorgeous like you just go and like you know top up your car if you didn't have a have a driveway i literally i i might even go there anyway just to have a break but there's lots of different places in which you're going to stop and relax and and actually then there's another business model that's emerging as well where the airbnb of uh charge points where you can actually borrow your neighbor's driveway your neighbor's charge point to fill up your car and actually that neighbor might be renting that driveway out that charge point to different people and then they start to make money off the back of like using their asset their charge point and their their driveway to help other people charge up their cars so actually maybe you won't be filling up at the banner times if you're kind of passing through york maybe you'll be plugging in at your friend's house that you're staying at you'll be charging up or maybe you'll be plugging up another you know local resident when you get to your your hotel later that evening if the hotel doesn't actually already have

a charge point which many do so is this just this proliferation of charge points in lots of different places and the difference with kind of petrol or diesel where you know you can't actually access that in lots of places electricity you can it's a completely different world i mean it's beautiful the way you you you know you depict you know that range of innovation that's still really just burgeoning yeah and you know it may be a great opportunity bridging for you to comment i think you know you've obviously brought partners together industries together in many ways to break open some innovation maybe you know your your reaction to fiona's comments there yeah so hi everybody i'm very glad to be it's a question of ecosystem uh but first of all i would like to highlight what sanders said we know that uh driving a needy car is so wow okay wow i have to change on the on-the-go for the customer when the guys remember to send i want to go from paris to amsterdam huh i've heard you uh so we need to change this pattern we will not do it alone it's a question of ecosystem partnership if we talk about the charging station and we need to have this one card one app being able to recharge with all the different cpu so being uh proposing a solution a seamless solution to the customer we also need to provide some kind of packages to the customer in order to use green energy when he because it's also a question of mindset when we drive an ev car it's also because we are part of the world we want to change the world and we need to be able with partners to provide with green energy our customers and you know this is really a question of if we want to deploy if you want to have a fast charge strong fast charge network



we also need to do it not only with energy provider but also with partner being able to settle in some place people investors who have the money and so on so if we want to provide the best customer experience tomorrow in order to change this evie world we have to partner fantastic and and i do think you know it's very interesting the theme between the customer experience and the linkage to the infrastructure requirement you know clearly you know a a significant amount of work you know still to be done and many parties you know needing to be involved regime so you know roy maybe you know from your vantage point you're working with many players you know who are you know looking to find their way in you know what are your reflections on the rollout it's very interesting hearing the different perspectives so i've led bp's entry into this space over the last couple of years and then more recently now advised across the value chain really from battery companies through to charging operators and private equity investment in this space and i guess a couple of thoughts one is you we're trying to get a fair system and an efficient system really and the fair system has to be policy driven so the government does have a role here and cop is is a great forum for various different governments coming together to get aligned on what is what's the right level of regulation in this in this space and that can be very basic stuff like plugs and access it can also be education and communication because i think you've just heard that you know people's percep people's perspective of the electric vehicle experience is often very different from the reality so one of the things we need to do is educate people around how easy it relative it is relative to to their existing experience but also i think government has a role to incentivize

innovation in this space and keep the the ball rolling and octopus energy are a classic example of how you know people are really pushing the pushing the boundaries of of what's possible in this space but i also think the uh it's important that the government doesn't get in the way of intervening where they shouldn't be intervening and certainly the operators in the marketplace are looking for a competitive market there's a recognition that to get the fairness you need you need to consider this a public good therefore you need to be able to help subsidize those areas where the market is not working and often that's rural areas sometimes that's areas where there just is not an economic case for a charge point so finding the right model for that um getting us a hybrid solution between letting the market operate and also providing the the black spots in the market if you like with solutions i think is part of the way that we can collaborate for success in this space yeah i mean i think you know that balance between you know if you like the the premium and the access for all you know in order that we get a broad-based roll out i think uh you know supremely important point uh and you spoke there about the role of government and i guess government operates at many in many stratas roy and i know uh ariane when when we spoke you know you for all your focus and drive for innovation i know you know you hit some very you've hit some very practical barriers in terms of alignment of of the parties maybe you could speak about how you see that and how you see that we could make progress on that basis yes thank you william one regards from from germany um the regulatory framework if you want to scale quickly is is of course very important and and what we see





the industry can do a lot of itself roy already spoke about plugs and communication protocols and all those things i think the industry is perfectly capable of standardizing themselves and making sure we get international roaming in place etc um what the governments can do to stimulate better is align what their goals are we see for instance in germany if you want to put a simple box like this on your wall and you want to charge it with more than 11 kilowatt per hours you need an approval from the local grid operator that doesn't always work if in germany you want to as a charge point operator you want to put charging poles in the ground you need the permits from the city you need the approval of the grid operator again that takes an awful lot of time and the central government says we need to roll out infrastructure quickly the local government says well we need to think about whether we give you a permit yes or no and i know that a lot of investors in big cities in germany have already pulled back because it takes too much time and so here there is still a lot of alignment work to do i think uh within countries itself and and and thinking about the role of the government that they want to play and making that alignment across the local and central government yeah fantastic i mean i do see you know the complexities start to emerge when you you know we start to realize you know how many uh parties are you know genuinely involved you know in this rollout component and fiona i think when we spoke you you also highlighted therefore you know the potential benefits of of more data transparency so that we could see more of what was coming maybe predict more what was needed and when in order that this rollout is you know is efficient yeah i'd probably claim this is my point actually this came out of a conversation with one of our other panelists but in

terms of like you know when when um when people are thinking about in investing in charge points and where they're going to put them actually the business case is based often around utilization right we don't have some kind of uh revenue guarantee at this point in time so there you need confidence that cars are coming so we actually looked at these business cases a few years ago and this was well before 2030 targets well before their mandates were on the table and it's like are the cars coming like a rapid charger had on average one charge a day that's like 10 pounds or something if that depending on how much they're charging i mean it's not a lot of money and if you're putting in place a 50 grand rapid charger probably a lot more now because they're much much higher rated so you know 350 kilowatt charging well over 100 grand to put that in place 10 pounds a day is not going to get you very far so what you want to know is like where are the cars coming how fast are they coming are there going to be a hundred thousand of them this year are going to be a million are they going to be 2 million and where are they going to be sold right and so actually if they're being made in europe they come into the uk they're going to different countries and of course tesla ruled out their charging network they were in such a special position because they were selling the cars as well so they could see where the cars were going to be sold and they they knew where the charging had to be whereas actually the the charging companies at the minute don't know that but the car manufacturers need the charge point companies the child porn companies need to know that from the car manufacturers perhaps we could collaborate we could make that work indeed and i and i do think it's interesting to compare and contrast your first mover like tesla that has so much you know if you like had to to solve for itself if you like and therefore it



extended its business model in order to do that and now we're thinking how does the ecosystem achieve those same goals yeah and then they've got a lot of advantages in their time in their dashboard as well essentially their screen if you haven't seen it they don't have a dashboard they have a ipad essentially where and it can you say i want to go london to glasgow and it will tell you where to stop and how long it will start and half an hour before you get there pre-condition the battery and all that kind of stuff so it's really very clever and us being able to bring some of that tech more into the other manufacturers is good but of course the good news is that they are they will be opening up that public charging network as well so that will become available to non-test drivers so that's open access i think crucially important i think we need to you know create that you know that accessibility you know across the network and maybe regime you know from a from a free to move standpoint you maybe have again you know more components or access to more components within your ecosystem how do you see you know some of those challenges that fiona just talked about being sold through the collaboration and the partnerships you've developed yeah the uh andrew the question of the data is is not an issue as soon as we treat the customer and we say experience we we probably need the the data from the customer in order to put the fast charge at the right place now uh but we also know where we need the fast charger we need it on the highway on the undergo uh we need it on the parking places when you go for the shopping and so on and so forth so so the question of the sharing data is not an issue uh of course it's super clear now we need you know as we said at the beginning we need to do it uh we need to deploy we need to

accelerate because everything will accelerate uh so i agree on the fact that we it's not an issue to share it's more a question of investment acceleration bringing the right experience the transparency on the pricing and so on and being able at the end of the day to find the right balance between the stakeholders because we need it but of course sharing data is is key uh deploying is even more key absolutely so if maybe then you know if data is is one element or the of the lifeblood if you like of this uh you know fast and an efficient rollout uh clearly investment is going to be a an equally crucial component and you've lived in or you're in the middle of a transition between different funding models if i could if i could call it that uh maybe your reflections on how we you know from most uh two vantage points how we attract you know more investment into into the sector and in order that we affect the the acceleration that bridges spoke of well the there question is how are the the value chain partners going to develop where is the capital going to come from we used to be part of a of an energy company energy companies are players in this game the oil companies are are coming and the the the owner already said see the cpos and the car companies need each other car companies have funded cpos as well so there is a large uh group of parties that is bringing capital to make investments and the question is who are in there for the long run and and that's uh that's not an easy game for some of them and what what we see now is for us as a simple technology company now we deliver the software and the hardware and we see our group of customers changing at the moment and i think it's a very interesting game in europe at the moment who is going to have the longest breath and



develop the strongest network  
it's amazing what tesla did with with  
their rollout  
now  
companies like ionity fastnet they're  
growing very fast they have the capital  
behind it to do it and  
it's going to be a very interesting  
development  
who's going to develop the highest speed  
and for us as we used to be a company an  
energy company has different  
shareholders  
and can they invest as much as  
as is needed by other companies that  
have external capital and are fully  
focused on infrastructure  
maybe fiona has an opinion  
yeah i mean it's fascinating as things  
open up the number of balance sheets  
that are now coming into play and  
obviously uh you know tesla's alone you  
know it's an intriguing one roy as  
you're talking to you know potential  
investors or even existing investors  
what's their mindset towards  
i think we've reached a really  
interesting point in this market when  
it's evolved from being a kind of  
wild west venture capital  
high risk high technology risk high  
utilization risk  
um punt sort of market from the early  
days with some great startups many of  
whom have now been bought up by people  
like bp and shell by the way and some of  
the energy companies  
and it's evolving to become  
really because of the scale of the  
investment we're now talking about  
needing billions of dollars of  
investment not tens of millions or even  
millions in the early days  
it's not hundreds of millions anymore  
it's billions of dollars and in order to  
get that sort of finance  
yeah it's not going to come in my view  
from the corporates  
it's going to come from private equity  
it's going to come from the big funds  
maybe even the pension funds need to  
start backing this sort of activity and  
for them to back it  
the technology risk has to disappear

because they're not interested in  
anything that involves any technology  
risk and that's pretty much happened  
um they need to have some sort of  
secure demand profile to fiona's point  
earlier  
you know if you don't know that these  
charge points are going to be utilized  
any more than five percent of their life  
then frankly there isn't an investment  
case  
so getting to the point where we can  
find model business models that work  
and that  
needn't necessarily have to rely just on  
charging so we talked about revenue  
stacking we talked about energy  
management and the work that some of the  
other panelists are doing in providing  
energy management solutions to support a  
business case for putting down a child  
and by energy management i mean  
providing  
vehicle to grid um energy provides  
storing solutions to help the grid  
management process so i think there are  
a bunch of different ways that one can  
get to the answer but if we are going to  
get the billions of dollars we need  
invested in this space we're going to  
have to  
have this market grow up in in many  
senses and not become the wild west and  
become a much more predictable rateable  
uh environment for the big investors to  
come in  
i mean it's uh it's intriguing when you  
you know we've already talked through  
you know many components of you know we  
we focused hard in on charging and we've  
already you know shown the you know the  
the  
degree of integration and collaboration  
and connectivity that's required and you  
think of that then you know within the  
wider power system and how you know that  
operates maybe sander it would be useful  
to comment on you know what is the  
potential there for you know in terms of  
system optimization you know how do we  
keep that balanced and make sure that  
you know again that it that you know  
that it works you know on behalf of the  
customer but also on behalf of the





system

um yes indeed so i mean the characteristics of the electricity system that you need to keep it in balance at all times so the electricity supply and demand need to be managed and kept in balance and so traditionally

uh this is what we call kind of the flexibility so the ability to regulate the supply and demand

so that the system is in balance and actually traditionally these flexibility needs were quite

predictable and limited

but with the increasing share of renewables that are coming into the electricity supply

it's becoming

more unpred more volatile actually because obviously the sun doesn't always shine when we want it and the wind doesn't always blow

and this is creating new flexibility needs for the energy system on the other hand on the demand side the demand patterns are changing i mean we have electrification of transport and heating but also some consumers are starting to produce their own energy and so this is as well

making the demand patterns more volatile and unpredictable and so if you combine those shifts you know in the way we produce and consume electricity

um then there's a new fla farm we did a study actually of six european markets where we that shows that actually the flexibility needs for the energy system will increase by 30 to 45 percent by 2030 because of these shifts and this corresponds to let's say

up to 90 gigawatts of

flexible new additional flexible capacity that needs to be put into the system in order to manage those situations where you have abundance of renewable energy but not enough energy supply or where you have actually demand peaks but not enough that needs to be fulfilled

and so here comes the beauty of electric mobility and electric vehicles because

they are batteries on wheels and so there is this huge potential that they can actually

um

offer to the energy system because they will naturally add additional flexible capacity right

and in a way that they can you know we can manage the batteries that take the speed or the or the time of charging through smart charging which is actually already commercially viable or as roy said as roy said the emerging vehicle-to-grid technologies which would allow the actual vehicles to put energy back to the grid when it's needed but actually here is the trick this will only work if the ev drivers opt in at scale

right so i mean otherwise imagine if we would have all these 30 million zero emission vehicles i talked about before providing flexibility to the system when needed and imagine if you can actually tell to those ev drivers up you can drive for free as long as we can use your batteries

while you're plugged in when parked but all of this will only work if ev drivers opt in at scale so the question is how do we

show them the value

that they can bring to the energy system so they are going to be plugged in at all time i don't know fiona did you have any experience with that working with your customers funny our standard uh so we have yeah

um at octopus as well as supplying energy to like three billion homes in the uk we have the tech platform that supports that so it's a billing our crm platform which enables time of use pricing and i came across outside response in 2010 and the idea of vehicles grid so i heard about this tech platform i was like oh yeah this is like a playground for me

so we uh we've launched uh an ev tariff where you can charge up in the middle of the night for like four hours at a third of the cost compared to your daytime uh usage and as we've had loads of people opt into that and that is typically a



kind of entry-level ev tariff i would say and then we have this next level tariff which is the agile tariff which follows the wholesale market price so actually uh it changes every day and it's half hourly slots throughout the day you get the pricing about four o'clock the day before and it's typically relatively cheap overnight there's a peak around about breakfast it's cheap again and then between four and seven it's really high because that's our peak consumption in the uk and then it's cheap again now it obviously varies depending on when the wind is blowing when the sun's shining and all that kind of stuff and it will increasingly become so and uh we've got we made the pricing apis available and we've had uh smart charging companies integrate with those apis and actually other companies and battery tech and heat pumps and they optimize for it so my ev for example is optimized every day on this tariff and so it it just says i just say i want 80 by 7 am and it just fills me up when it's cheapest and in fact it sometimes goes negative right so sometimes we're paying wind turbines subsidies not to generate because we need to balance the grid right no don't do that don't pay these wind turbines to turn off pay our ev drivers to charge up so last year during a bank holiday weekend we uh we it went negative the pricing went negative and one guy actually charged up enough to go like london to newcastle and back and he got paid five pounds of pleasure so it's like here's your free fuel and here's your donut and coffee to go with you in fact it was during lockdown though so i i understand that he actually seeing that for everybody i don't know to be fair though it also works the other way around at the minute right so obviously the pricing has been hugely high recently at points as we know and so that tariff has also had peaks so it's got the ups and the downs and um some people say switch back to octopus go during this period where it's that kind of more predictable one what's what

i find interesting is because we speak to a lot of people thinking about making that switch to evs we the octopus go which is the kind of set 5p per kilo hour for the four hours that's very predictable so therefore you can say okay if i drive uh you know four four miles per kilo hour you can start to work out it's between one and two people per mile right and so this is really exciting and people start to like work out these numbers and they can start to see how much they're saving versus their petrol diesel versus the agile one is less predictable so it's it's not as tangible in that way so i quite i quite like the go for the kind of mass market in a minute but the other thing is we've we've gone a step further and we also do vehicle to grid so we've got 135 drivers now with nissan leafs and uh market leading vehicle-to-grid charges so bi-directional charges at their homes and so we've done a very very simple proposition in the first place where they lease the car the charger and everything and if they plug in i think that's 12 times a month overnight we give them back 30 pounds on their lease very simple you make your asset available so that we can use it to help balance the grid we'll get you charged by the time you want and we'll just we'll give you a credit essentially on your your lease to say thank you for letting us do that but they don't take any of the risk around the battery or anything like that that's all with us because it's a lease and you make it more affordable for them right so yeah it's much more affordable for them and actually we find they love it because there's so many more people engaged in you know the the net zero challenge ahead of us there's a real community in this this group of people that feel like they're helping us forge the path and for me it's less around the consumer challenge now there's actually some regulatory pieces where



um that pricing that we're talking about that's blurred at the minute because actually we've got other things on top of that which are smeared across the time of use charging so there's network operating costs and so dna costs are smeared across every hour of the day and then also essentially the tax from some of the net zero subsidies that we're we're contributing to so things like um the this the contract for difference um electricity market reform type uh mechanisms that then essentially get charged back to us through our energy bills that's also just smeared across every time of day so the actual differences between the cost throughout the day isn't as reflective as it should be so we need to kind of start to think about this we can quickly see you know as we come back to the customer yeah you know i don't think you just you know as soon as you're into contracts for differences i think your average customer probably yeah we need to description right for them yeah make it super easy yeah so and i think you know philly you spoke about you know the you know the you know the early adopters who love all the data and love to calculate you know you know some of those uh time of use uh value propositions that you described but then you're you're now moving to that more ubiquitous simpler model that brings others in is that is that how you see it well i i feel like there's there's different levels because what we've found is that people the kind of uh people like to get the simple option and then they learn about some of the other stuff and they kind of upgrade themselves so it's a bit like when you yeah there's a pathway that's the same as tech right when you first got your mobile phone actually it wasn't nearly as sophisticated as it is now but then you kind of upgrade yourself i remember the first guy that told me i should get internet on my phone and i was like really

i mean i don't know why do i need that but like oh clearly you can't can't do without it now so it's a kind of pathway i see that and and i i can definitely you know those uh customer business models you know really interesting to see how they're evolving uh maybe at times that we forget you know the b2b side of this and brigitte it would be great to get your thoughts i know that you know again that you know within your construct you see opportunities for the fleet if i can call it that and maybe uh would be good to get your view how that same early adopter into mass adoption switch would happen there as well yeah on our side we consider that b2b will be the first main move in fact because you are able for a fleet to really help your customer to reduce its cost it's really exciting to see that with our cars we will be able to i would say help the question of the energy today because the main question as asana said at the beginning of the energy is the question of the storage if tomorrow we are able to storage the energy will be able to reduce the cost and to put the right need at the right time so when you take it from a fleet manager point of view from a corporate company or company when they have 100 cars 500 cars 500 db cars when you understand that they can be part of what we need in terms of environment changing this world but also be able to reduce its cost because when you talk to a fleet manager i will not say the only thing that matters but the main thing that matters is to be able to reduce its cost so you put the fleet while the feed heat is not used you are able to put it as a storage and to give the energy to the energy provider and when the i would say the fleet manager need the car he programs the car he said at



this moment of this day at this hour i  
will need it it will be  
needed to be fully charged  
and i can manage my feet on the right  
way and at the same time being able to  
to reduce my goals so what we are doing  
today is to start we already started on  
our side in our plant in italy and we  
will also  
starting with b2b customers because we  
will learn i will not say that this is  
uh  
we have found everything in terms of  
business model but we want to start  
because we consider with the b2b is the  
probably i will not say simplest but i  
can put it into brackets simplest way  
to learn to see how our customer needs  
how they are able is it uh for instance  
plus  
all kinds of customers or some typical  
kind of customers uh  
during the night uh  
and so on so we really need to learn and  
to start from now because it will be key  
in 2025 when the number of eevee cars in  
the i would say on  
the the energy grid will be so high that  
we will have an issue if you don't do it  
so i would say the positive side is that  
wow cars now start to become a real  
advantage on this on this part but not  
only  
all the fast charge  
storage will be able to put i would say  
battery as storage  
uh enabling  
the management of the uh energy grader  
yeah and and brigitte i was fascinated  
to hear even you know how you were using  
your inventory if i could call it that  
you know your your your fleet  
uh to all also as as virtual storage  
could you comment on that also  
yes of course we already do it we start  
that with uh italy with 500  
fiat 500e  
so  
i will say uh  
the the car is produced  
the car is stopped in a parking place  
where you have all this system the v2g  
system  
uh so if there is no customer in front

of that the car can stay one week two  
days depending three weeks two weeks and  
during this period  
it's a kind of storage  
and as soon as they we say we have a  
customer  
the fleet manager this new fleet manager  
i would say program the fact that this  
car will need to have this level of  
charging  
uh for this date at this hour because it  
will go to a customer so this is really  
interesting to do it  
one of the things we have to manage is  
the fact that  
uh  
during the  
during the summer  
we do not produce 102 weeks for it  
depending on  
on the year or on the plant  
so we need to manage this because as  
soon as we have this contract with the  
energy provider he cannot we say support  
the fact that  
we don't have  
uh those car produced during the uh the  
summer so those concrete kind of things  
we have to manage them but we are doing  
the we are doing the job today  
yes it's fascinating you know  
almost unbeknownst you you know you  
become a power you know a power player  
you know you become a you know a  
critical component of the of the  
end-to-end system and you know different  
risk profiles  
and different commercial possibilities  
as well and maybe aryan you know just in  
closing you know out on that vehicle to  
grid conversation obviously at the heart  
of that is  
is the customer's concern about the the  
life of the battery the performance of  
the battery and you know how do you  
ensure that you you know you're a good  
you know the the your uh whoever you're  
partnering with as a customer  
is looking after your battery in your  
best interest your  
thoughts in terms of how technology  
can enable that  
well a lot is already possible and i  
think that the example that brigitte is



giving is a good one and we see the same with the large uh fleet operators for the last mile delivery for the fedex the amazons and the deutsche posts of this world are developing now this technology as well and and they're creating on-site charging uh with own production of pv with batteries creating a total solution that manages that exactly what what brigitte despite and uh what is also the key of their business case is basically the the electrical vents that are coming out at the moment have a far longer lifetime than than the ice vents that they use at the moment and that is a very big part of their business case is this longer lifetime and less maintenance cost that the electrical vans have in combination in comparison to the ice fans and i think this is a factor therefore the the lifetime of the battery uh is probably the most important part of the car to manage because the rest of the car can can take much longer than an ice car so it's uh it's really interesting to make sure that this lifetime is maximum because the difference between two years with the car or five years with the car is huge for for a fedex or on amazon and they they are exactly as we said totally focused on getting the total cost of ownership down i mean it's been fantastic to hear if you if you if we pray see our discussion here you know the the possibilities that we've just opened up in in in so many ways you know many of the if you like the holy grails i think you know for for the industry in terms of you know providing that customer experience and the value proposition that draws you know customers and consumers into the industry you know a technology that actually has a positive business case and a positive environmental case you know associated with it and an investment case that's going to draw

finance you know towards us and the possibility to have uh the market open up in a way that does balance access and fairness you know in equal measure and i guess you know finally and crucially you know the possibility to help balance the system to actually therefore enable us to bring more renewables in more storage in and create a much you know more carbon efficient end-to-end system the energy markets have been doing this for years um on you know when the end of the game or half time in the game is everybody goes and puts that kettle on yeah that sort of predictability so why can't they just join up with the 500 you know fiat 500 ease and all the other data that they can get access to to provide a holistic system-wide balanced solution it's got it can't be that far away i think so yeah the balancing mechanism makes that all work our vehicle to grid cars in the uk will be the first evs yeah to participate so it's happening it's all happening which which is which is hugely heartening because i think fiona as we were about to walk on stage i think you said actually we've got we're we're in hundreds of work days not thousands of work days yeah to make this scale you know possible and you know we're probably talking about the sector that's most ready for prime time yeah so if anyone's going to do it it better be us it's happening i think we've laid out the challenge beautifully i can't thank all of my panelists enough for their contributions i think our manifesto for charging you know is well shaped you know in that regard and and i think you know the the friendly faces here in glasgow in the audience for being with us here today and i hope those of you online have enjoyed the discussion also i i do think it's a you know we look we're looking for pathways for success and i think we've we've painted a you know a beautiful yellow brick road here today so thank you all for joining enjoy





the rest of cop and uh  
and you know keep keep driving  
[Applause]  
[Music] you

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