DÁIL ÉIREANN

AN COMHCHOISTE UM CHOMHSHAOL AGUS GHNÍOMHÚ AR SON NA HAERÁIDE

JOINT COMMITTEE ON ENVIRONMENT AND CLIMATE ACTION

Dé Máirt, 30 Samhain 2021

Tuesday, 30 November 2021

Tháinig an Comhchoiste le chéile ag 3 p.m.

The Joint Committee met at 3 p.m.

Comhaltaí a bhí i láthair / Members present:

Teachtaí Dála / Deputies	Seanadóirí / Senators
Réada Cronin,	Lynn Boylan,
Cormac Devlin,	Timmy Dooley,
Alan Farrell,	John McGahon.
Darren O'Rourke,	
Christopher O'Sullivan,	
Bríd Smith,	
Jennifer Whitmore.	

Teachta / Deputy Brian Leddin sa Chathaoir / in the Chair.

Business of Joint Committee

Chairman: Good afternoon. Apologies have been received from Deputy Richard Bruton.

Electric Vehicles: Discussion

Chairman: I would like to welcome to the meeting Mr. Brian Cooke, director for the Society for the Motor Industry; Ms Marguerite Sayers, executive director of customer solutions at the ESB; and Mr. John Byrne, the general manager of the ESB, e-cars. Also with us are Dr. Damien O'Tuama, the national side cycling co-ordinator with *cyclists.ie*; and Dr. Colm Byrne, of Irish Doctors for the Environment. On behalf of the committee, I welcome the witnesses to today's meeting and I thank them for coming before us to share their expertise. The purpose of this meeting is to have a discussion on electric vehicles in the broad sense, the implications of electric vehicles, the challenges surrounding electric vehicles and electric vehicle infrastructure.

Before we begin I have a note on privilege. I remind witnesses of the long-standing parliamentary practice that they should not criticise or make charges against any person or entity by name or in such a way as to make him, her or it identifiable, or otherwise engage in speech that might be regarded as damaging to the good name of the person or entity. If the witnesses' statements are potentially defamatory in relation to an identifiable person or entity, I will direct them to discontinue the remarks. It is imperative that they would comply with any such direction. For witnesses attending remotely outside the Leinster House campus today there are some limitations to parliamentary privilege. As such, they may not benefit from the same level of immunity from legal proceedings as a witness who is physically present on the Leinster House campus.

Members of this committee are reminded of the long-standing parliamentary practice to the effect that they should not comment on criticise or make charges against a person outside of the Houses, or an official by name or in such ways to make him or her identifiable. I remind members that they are only allowed to participate in this meeting if they are physically located in the Leinster House complex. In this regard, I ask all members that prior to making a contribution they will confirm that they are indeed on the Leinster House campus.

Mr. Brian Cooke: Good afternoon Chairman, and thank you for the invitation to speak with the committee today.

The project to electrify the national vehicle fleet is a pillar in the climate action plan. It is also the fundamental strategic issue for the motor industry. There is a huge appetite across our industry to deliver on this project. We have already seen massive investments in new vehicles at vehicle manufacturer level. Local retailers are also investing heavily in premises, equipment and employee training in preparation for the rapid increase of electric vehicles, EVs, on Irish roads. The industry can, and will deliver EVs in large numbers, but the extent of this delivery is not just in the hands of the industry and it needs the State's continued assistance to help build the conditions that will allow motorists confidently move to an EV at the earliest possible stage. In addition, the continued roll-out of a national charging infrastructure is crucial, particularly in rural parts of Ireland where charging is not commercially viable.

The committee has identified the used EV market as being of critical importance and this is something we in Society of Motor Industry Ireland, SIMI agree with. Motorists typically buy

used cars chiefly down to affordability reasons. However, the new and used car markets are inextricably linked. Currently, we clearly do not have an adequate supply of EVs in the national fleet to create a viable used EV market. This will change but the question is how quickly this can happen. A strong used EV market will be key to reaching the ambitious targets in the climate action plan, and also provides the opportunity to replace the oldest highest emitting cars on the road.

In Ireland the used car market is typically created in two ways, by new cars being registered in Ireland becoming used car stock once the original owner has moved it on and by the used import market which can plug the gap when there is a shortage of used cars. The used import dynamic, however, has changed. Brexit and the resulting tax changes on UK imports, along with the shortage of used cars in the UK, means this market is not as attractive as it had been in recent years. Over the coming years, EVs on Irish roads will overwhelmingly be those first registered new in Ireland and a vibrant used EV market will only evolve on the back of a strong Irish new car market.

The Irish new and used car markets have underperformed since 2008 due to a number of factors, including the recession, Brexit, the pandemic and high local taxation levels. The benefits of supporting a stronger new car market can help us get much closer to the climate action targets, while at the same time replace the oldest high-emitting cars on Irish roads with electric vehicles or lower-emitting cars. In this regard, we need the State to continue its investment in supporting electric vehicles. The industry accepts that supports cannot last forever and appreciates that the State has been generous to date. However, we have seen a gradual erosion in recent years of these supports and we believe it is too early in the EV project to start this withdrawal. It is vital that the Sustainable Energy Authority of Ireland, SEAI, grant, vehicle registration tax, VRT, relief and other supports currently available are maintained out to 2025, at which time they can be reviewed. By doing this, we can provide consumers with confidence in the EV project and create an active used EV market at the earliest possible stage, thus widening the potential constituency of EV buyers. In addition, Ireland is also competing with other EU countries for the supply of new EVs, and to ensure it can optimise its share of this supply, incentives must remain.

In order to boost used EV availability, a particular focus should be made on the business fleet and company car sector. The nature of this market means that the cars are typically released to the used car market when they are two to four years old. Two key measures can encourage the business fleet: first, extend the current 0% benefit in kind, BIK, ceiling out to 2025, and second, the reinstatement of the SEAI company car grant for a period of time. The extension of the home charging grant for second-hand buyers is also crucial. In addition, with the Government commitment to electrifying its own fleets, a requirement that these EVs be traded every two years could also increase supply to the used car market.

In order to drive down emissions, we must eliminate the worst polluters from the national fleet. In the past, targeted scrappage schemes have assisted in this regard and could be considered and limited to EVs. It also has to be highlighted, however, that many of those driving older cars do not have the financial capacity to trade up to a new or used EV, with the likely cost of trying to change to an EV from an old petrol or diesel car being unachievable for many consumers. Their EV journey will take significantly longer and in the meantime, they will be trapped and subject to increasing fuel prices, as well as increased carbon and potentially other taxes, from which they do not have the potential to escape. These car owners, some of whom do not have other transport alternatives, will need to be supported. The retention of some equity

value in their current car will be important to allow them to trade up to a more fuel-efficient car, thus reducing their running costs and reducing their emissions.

The industry and the State need to work together to help consumers make the transition to EVs a successful one. Over the period ahead, we want to engage consistently and regularly. We last presented to this committee four years ago and much has changed in the meantime. SIMI will issue our own more detailed report on how to reduce transport emissions early in the new year and I will forward a copy to the Chairman and members. SIMI would welcome the opportunity to meet this committee and other State agencies to discuss this research in detail.

The industry is committed to driving down emissions and will continue to provide solutions for motorists. EVs are set to become commonplace on Irish roads. SIMI members will sell and service hundreds of thousands of EVs by the end of the decade. However, it will be the economic, business, taxation and retail environment that will determine how close we can get to the climate action plan targets.

Chairman: I thank Mr. Cook for his opening statement. I invite Ms Sayers of the ESB to make her opening statement.

Ms Marguerite Sayers: I thank the Chair and members for the opportunity to appear before the committee this afternoon. I will be sharing some information on the ESB's ecars endeavours. The ESB established ESB ecars in 2010, and the reason for that was because we noted that transportation is responsible for approximately 20% of all carbon emissions in Ireland. We saw that electromobility could play a key role in helping to decarbonise our society. We were also cognisant of the fact that as our industry decarbonised electricity generation, it would be a major win for wider society if we could use our progressively decarbonising electricity system to also decarbonise transport. We believed that we could do this by seeding, developing and supporting the transition to electromobility and recognised the charging infrastructure and support services would be needed to be in place in order to give citizens confidence to purchase an electric vehicle. I should say that there was not an onus on the ESB to provide the infrastructure. Actually, in most other countries, electrical utilities do not do so. However, it was a role we took on given our commercial semi-State status and our interest in supporting Ireland's low carbon targets.

We therefore established ESB ecars with three aims. The first aim is to design and build a public charging infrastructure for EVs across Ireland, thereby reducing the range anxiety that was an issue for early EVs drivers where ranges were typically about 100 km. We also wanted to support the adoption of EVs in Ireland for early adopters and subsequently to continue to stimulate the demand for electric vehicles nationally. In recent years, the demand for EVs has increased dramatically. In addition, the issue of range anxiety has somewhat been addressed by the latest generation of EVs that have significantly increased ranges. Very often new cars now have range in excess of 350 km or 400 km.

Installing EV infrastructure is expensive. While Ireland's EV fleet is growing significantly, given the major investments already made by ESB ecars in establishing our national charging network ahead of the expected increase in EV uptake, it will take some time before our ecars business recovers the money spent.

Since ecars was established, we have expanded the network to provide an ultra reliable and fully interoperable EV charging network of over 1,350 public charge points for our customers across the Republic of Ireland and Northern Ireland. Our EV chargers are widely available and

are found across the country in on-street locations and fuel stations, motorway service stations, shopping centres and in retail parks, etc. The network complements the home-based or work-based charging that most EV drivers use in their daily lives.

I will give the committee some information on the nature of the ecars network. There are currently three types of chargers on the ESB public charging network. The smallest charger we have is 22 kW, which is our standard charger. They are the most widely available chargers on our network and they are geographically located such that an EV driver is always within 35 km of the nearest charger. These alternating current, AC, chargers will fully charge an EV in one to six hours, depending on the size of the battery. The next biggest charger is a 50 kW charger and there are approximately 150 of these fast chargers on our network. These are direct current, DC, chargers and are substantially faster than the standard chargers. For example, an 80% charge will typically take about 45 minutes. Finally, we have high-powered chargers which are in excess of 150 kW and these chargers are all located in hubs. They are capable of charging two vehicles simultaneously and the units can give an EV driver who has a battery that is effectively empty about 100 km of range in six minutes.

ESB ecars is currently undertaking a €20 million investment programme to further expand and enhance the charging network across Ireland. ESB qualified for €10 million in funding under the climate action fund and ESB is matching that funding with a further €10 million. This comprehensive investment programme is expanding and enhancing the public charging network across Ireland to help meet the expected growth of EVs in the coming years.

There are three different elements to the current investment programme. The first element is the replacement of 264 legacy 22 kW chargers and this element of the programme is effectively complete. The second element is the upgrade of 52 locations that provide the fast 50 kW chargers. This element is about three quarters complete at this time and the remainder of it will be completed in the first quarter of next year. We are also developing 56 charging high powered capacity hubs throughout Ireland which can charge multiple vehicles simultaneously. This is a substantial component of the upgrade and will see 56 high power charging, HPC, hubs being constructed as we negotiate access to both motorway and national road sites. Ten of the hubs are complete at present, with a further seven currently in construction with a completion date in January 2022. We are on schedule to complete the remaining programme by the end of 2023.

Our assessment process for deciding the locations of new charger sites is heavily data based and is determined by a range of factors. These factors include the current charge point usage, available space on site for expansion, proximity to user populations, traffic volumes nearby in passing, accessibility to the site, amenities on the site, available capacity on the electricity grid and, very importantly, landowner consent. The results of these data-driven analytics studies help us to identify and locate the most suitable sites for our chargers. The works we are undertaking at present will significantly modernise and strengthen the charging network by upgrading all charging points to cater for all EVs and in strategically important locations, adding next generation charging hubs to the network. We are committed to ensuring that our public charging network is reliable and that EV drivers have confidence in it. The reliability rate, or how many of our chargers are available for use at any one point in time across the network, was 84% before the investment programme commenced. We are proud to report that this figure has now risen to an average of 98% in 2021. All new charge sites developed under the climate action fund will adhere, where feasible, to a universal access model where all new parking bays and chargers will be fully accessible. In designing these new charge sites, design guidance was taken from the Irish Wheelchair Association's best practice access guidelines and the building

regulations of 2010. For legacy sites where improvement works are being undertaken we will , where feasible, seek to improve accessibility to these chargers.

ESB e-cars firmly believes that the transition to zero carbon transport will require a whole-of-system approach. We need to see much more active travel including walking and cycling and the increased use of public transport. However, there will likely be a strong residual desire for private car ownership given the particular demographics of Ireland. Where this is the case, there are huge advantages in terms of both air quality and emissions from those cars being electrically powered. In addition to private transport, significant volumes of both light and heavy freight will continue and will need to decarbonise. Electricity will play an ever-increasing role here as battery performance improves and larger vehicles can be electrified. Therefore, in time, more charging infrastructure will be required in supporting Ireland to reach its required EV uptake.

The first round of climate action funding has been instrumental in delivering additional charging locations, improved reliability, faster charging times for drivers and a substantial reduction in carbon emissions. The number of charging sessions on our system has tripled since the beginning of 2021 and is now typically reaching 70,000 sessions per month.

In summary, ESB has made a significant commitment over the past decade to support and encourage the transition to zero carbon transport and EVs on a universal basis, irrespective of the make of car. With some funding from both the European Union and the Commission for Regulation of Utilities, CRU, in the early years, we have spent more than €80 million on installing and operating the infrastructure to date. This includes designing and building our national charging infrastructure which, as I have outlined, is now in the process of being comprehensively rejuvenated and expanded with the assistance of climate action funding of €10 million. We are also developing back-office oversight procedures and supports, one of which is the provision of a 24-7, year-round contact centre and support service for all drivers. We also provide digital EV user platforms, such as our website and our app, which allow all drivers to locate their nearest charge point and identify if it is available in real time, to start and stop a charging session and to top up their account balances. We are also engaged in the provision of maintenance processes and personnel. ESB ecars is wholly committed to the long-term electrification of transport in Ireland. We will continue to collaborate with stakeholders, the motoring community and EV drivers to provide charging infrastructure that enables the acceleration of our collective transition to cleaner, zero carbon transport.

My colleague, Mr. John Byrne, who is the manager of ESB ecars, and I will be happy to address any questions members may have.

Chairman: Thank you very much for that very comprehensive statement. I now invite Dr. Ó Tuama to make his opening statement.

Dr. Damien Ó Tuama: Good afternoon Chairman and members of the committee. My name is Damien Ó Tuama. I am the national cycling co-ordinator with Cyclist.ie, the Irish cycling advocacy network and with An Taisce, the National Trust for Ireland. Cyclist.ie is part of the European Cyclists Federation, which advocates at a European level.

The discourse around e-mobility and electric vehicles in Ireland has been largely, if not exclusively, been dominated by e-cars. What we hear much less about is the role of e-bikes, e-trikes and e-cycling in decarbonising transport. This mirrors what has been happening internationally. At COP26 in Glasgow a few weeks ago, there was a near-exclusive focus on electric

cars and a total absence of debate on electric bicycles. However, in the end the following text was included in the declaration signed by the Irish Government:

> We recognise that alongside the shift to zero emission vehicles, a sustainable future for road transport will require wider system transformation, including support for active travel, public and shared transport, as well as addressing the full value chain impacts from vehicle production, use and disposal.

In thinking about mobility in Ireland, it is important to note that the highest proportion of trips nationally are between 1 km and 3 km, according to the most recent National Transport Authority, NTA, household travel survey. In that context, I want to talk about how e-bikes can broaden the use of active travel. E-bikes or electric assist bikes work by assisting the cyclist through a compact, onboard electric motor that enables them to cover longer distances than they would otherwise cycle. This is particularly useful in countries where there are high-quality cycle routes like cycle superhighways. E-bikes also make life much easier in hillier towns and cities. Anyone who has cycled in Cork city, Kinsale, Enniskerry, Drogheda or other towns in Ireland will know that they make getting around much easier. They have huge potential for parents bringing young children around. In Copenhagen, there are approximately 40,000 cargo bikes, which are a much better use of finite city space than parents using cars, particularly bigger models of car. In terms of cycle logistics in town and city centres, recent research by the European Commission shows that 25% of all goods and 50% of all light deliveries in urban settings could be serviced by cargo bikes. There is enormous potential in this area and we are beginning to see the use of such vehicles by DHL in Dublin and other cities. For the mobility impaired, electric assist cycles open up and even transform their independent mobility opportunities. It can be difficult for some people to walk but easier for them to cycle, especially with electric assist.

E-bikes are not just about decarbonising transport. They are very much at the heart of de-congesting Irish towns, cities and villages, making them more economically vibrant. They improve the liveability of towns because more space is opened up for businesses and public space. Crucially, they improve public health through being active travel vehicles. The user only gets the kick from the electric power when he or she pedals. E-bikes use minimal resources compared to electric cars, which are certainly not zero carbon. We need to think about and acknowledge the mining of the raw materials and rare earth elements in geopolitically turbulent parts of the world and the energy used in the manufacturing and disposal of electric cars.

In terms of policy interventions which will assist in the transition we are seeking, the most important is the development of safe cycle routes in urban and rural areas. This means dedicated cycle infrastructure and lower, safer speed limits. As we do not expect people to cycle for 20 km or 30 km, for longer trips combining public transport with cycling or e-cycling has the greatest potential to help us to decarbonise transport in Ireland. This raises questions around high quality, high capacity, safe and secure bicycle parking at every single public transport stop in the country. We will also need e-charging points for e-bikes at all public buildings, in new apartment blocks and so on.

The SEAI currently issues grants for e-cars but we would like to see subsidies for e-bikes on a par with e-cars to support this transition. There is a particularly interesting scheme in France under which old cars are scrapped and a grant is provided for the purchase of an e-bike, an e-cargo bike or public transport tickets. There is great potential for such a scheme in Ireland. In conclusion, worldwide, the transport sector is responsible for 24% of direct CO2 emissions from fuel combustion. The vast majority of this is coming from cars, and these numbers are not

decreasing. We simply cannot afford to wait decades for fossil fuel cars and trucks to be fully replaced by EVs. In any case, that solution that will not help solve other problems, such as traffic congestion and sedentary lifestyles. I will finish with a quote from Frans Timmermanns, the executive Vice-President of the European Commission with special responsibility for leading the Commission's work on the European Green Deal. At the Velo-city 2021 conference in Lisbon in September 2021, he stated that: "The Bicycle is the most important instrument in meeting climate change targets." I would extend his quotation be referring to the potential for e-bikes. Our policies need to reflect that truth.

Chairman: I thank Dr. Ó Tuama and invite Dr. Byrne to make his opening statement.

Dr. Colm Byrne: I thank members for the opportunity to address the committee on this important issue. I am a consultant geriatrician and general physician working with the frailty intervention team in the Mater Misericordiae University Hospital. I am here today representing Irish Doctors for Environment. Irish Doctors for Environment is a non-governmental agency and registered charity comprising doctors, medical students and allied healthcare professionals in Ireland who aim to create awareness, interest, and implement action around environment health and the impact it has on our patients' health.

The climate crisis is a human health crisis and our future health as a species is inextricably linked to our planet's health. We need to choose the best solutions that reduce emissions and improve our quality of life. Electric cars and other vehicles are going to be an important part of the transition from internal combustion engines. In the short term, many trips will, by necessity, have to be done by car and EVs will be important for these. However, not every trip needs to be taken by car. Just as someone would not use a combine harvester to pick the kids up from school, driving 1 km to the shop for milk is not the best use of a car when one could walk or cycle. There are long-term health benefits to reducing greenhouse gas emissions through reductions in climate change effects, such as heatwaves, extreme weather, flooding and so on. There are other shorter-term simultaneous benefits to reducing greenhouse gases. The most obvious is a reduction in air pollution through a reduction in internal combustion engine vehicles. Research that I have conducted into air pollution and stroke incidence in Ireland has demonstrated a correlation between traffic-produced air pollution and stroke admissions in this country. Other researchers in Ireland have demonstrated similar effects on respiratory and cardiovascular diseases. These findings are in line with international studies that have demonstrated that there is no such thing as a safe level of air pollution. Recent changes to WHO guidelines have reflected this reality.

Cars have other effects on human health aside from just tailpipe emissions. All cars, including electric-propelled cars, produce particulate matter from other sources such as tyre wear, brake pads and through dust agitation, for example. Noise pollution is increasingly being recognised as a major health issue, with cardiovascular disease, stroke and dementia, among others, associated with it. Any noise above 55 dB can impact on human health, and all cars travelling at speed produce noise pollution through tyres rolling on roads. There is little difference between internal combustion engine vehicles and EVs at speeds above 50 km/h.

Another environmental health impact that is being increasingly recognised is the importance of green spaces, from impacts on activity and obesity to mental health benefits and stress reduction. Trees and green spaces also help us to adapt to the effects of climate change by reducing flooding during periods of heavy rain and urban temperatures during heatwaves. Car infrastructure obviously has a large impact on the available space in our cities and towns for green space. Again, the use of electric cars does not reducing this impact. Electric cars tend

to be heavier than their equivalent internal combustion engine vehicles. This has implications when it comes to road safety. Heavier vehicles will have a greater impact in collisions, especially with vulnerable road users such as cyclists and pedestrians, and will lead to lower survival rates in accidents. Perhaps the largest impact of cars and other mechanically propelled vehicles is the impact on physical activity. A study recently published by *The Lancet* countdown on health and climate change calculated that by prioritising health in our climate plans, we have the opportunity to save 1.6 million lives due to cleaner air, and 2.1 million lives due to increased physical activity every year. That is why climate change is such a pressing issue.

Additionally, Ireland has an increasingly ageing population. As a geriatrician, I know that while this can be perceived as being associated with an increase in frailty and physical dependence, it is not necessarily an inevitability. Physical activity, in combination with a healthy diet, can help to reduce the likelihood of frailty and physical dependence in older age. The benefits start accruing at a young age and can persist throughout life. Therefore, the younger that people start being physically active, the better. We know that physical activity that is integrated into our daily lives is more sustainable and persistent than having to set time aside in the day for physical activity. With an ageing population, we will have a more robust population if we can integrate physical activity into our daily lives. However, for multiple reasons, we live in a world that is hostile to this. Many of us live in one-off homes with no footpaths or cycle lanes that are accessible to us. In our towns and cities, the car is king. Pedestrians and cyclists are afterthoughts in design, in contradiction to national design manuals and best practice. Cars are frequently parked on footpaths. Our footpaths are in a poor state of repair and are often a trip hazard. Many of our public benches have been removed, despite the fact that many older people need to stop regularly to rest. These multiple microaggressions create an environment that is unappealing to be in for pedestrians or cyclists, especially if they are disabled.

Cycling is great for our health. One study from Denmark demonstrated a 40% reduction in mortality over 12 years in people who commuted by bike, as opposed to those who commuted on public transport. Similarly, another Danish study has demonstrated an 8% increase in the concentration levels of children who cycle to school versus those that are driven. Sometimes electric bikes can be seen as cheating. However, studies have demonstrated that people will cycle further on e-bikes and often end up exerting themselves just as much as on a regular pedal bike, as they travel further and more frequently.

When we talk about EVs, we need to have a more open mind than electric cars, trucks or vans. We need not just to replace internal combustion engine vehicles with EVs, but to reduce the number of cars on the road overall. In 1990, there were 900,000 cars on the road; today there are 2.3 million. Indeed, 1 million EVs alone will not, by themselves, bring us in line with our 2030 transport emission targets. There needs to be a shift to alternative means of transport. Electric bikes, trikes and cargo bikes will have a big impact on our transition away from internal combustion engine vehicles. Electric bikes can extend the cycling range of people, reduce the effort required to get up hills or carry heavy loads and extend the range of people who can cycle. As a family, we have recently gone from a two- to one-car household. I was already cycling to Sallins station to get a train into Dublin for work. Therefore, we found that my car was sitting on the driveway for most of the week. We bought an electric cargo bike that has been revolutionary for our family. We now use it to cycle to most places in Naas, to visit my wife's family, to go to the supermarket, the playground and so on. My wife, who was not previously a regular cyclist, finds it easy to take out the bike and continues to cycle it, even though she is now in her third trimester with our second child. Electric bikes increase the ability of people to cycle. Additionally, in my work I have observed an increase in older patients who report

cycling on e-bikes, even into their 80s. For those with reduced mobility, there are e-trikes and even e-cargo trikes that can improve people's mobility more than walking alone.

It is just a case of using the right tool for the job. Someone would not cycle from south Kerry to Dublin for work on just an e-bike. However, if he or she can combine cycling with bus or train transport, whole areas of the country become accessible without having to resort to driving. Safe cycling routes not just in our towns and cities, but in our rural villages and countryside, are essential to enabling this vision. Appropriate speed limits, quietways and greenways that link villages and towns are key infrastructure points. For instance, despite being a confident cyclist, I would be hesitant to cycle out to my parents' house in a rural part of county Kildare, with my son in tow. Roads need to be made safer for cyclists and pedestrians to enable a move back away from car transport. There also needs to be safe, well-lit cycle parking at bus stops and train stations to ensure the infrastructure is both safe and seen to be safe to encourage people to use it.

Electric cars are part of the solution. However, we have an opportunity to build back better as we try to get ourselves out of the many issues our society faces. Climate change is an important issue that we face and addressing it can have co-benefits by reducing noise pollution, air pollution and physical inactivity, and can create a healthier and more resilient society. It would be a shame to miss the boat and continue to embed the harmful effects of driving on our society.

Chairman: I thank Dr. Byrne for his opening statement. The meeting is confined to a maximum of three hours and I propose each member be given two minutes to ask their questions so that we can ensure all members get an opportunity to do so. I am keen that we cover this topic as effectively as we can. I hope we can have a second and third round of questions if there is time.

Senator Timmy Dooley: I welcome our guests and thank them for their thought-provoking presentations. I thank Dr. Byrne and Dr. Ó Tuama for the work they do in advocating for a more active approach to travel. With a growing population, we all recognise that for the current and coming generations we need to start steering people in a different direction. The reality is that we need to move away more quickly and cannot leave it to future generations. We need to move away from fossil-fuel-powered cars and towards EVs and bicycles.

I thank Mr. Cooke for his presentation. He talked about the target of having 1 million EVs by 2030. Is that possible based on where manufacturers are at? Is it possible in light of the supply difficulty with second-hand vehicles? If the situation with the UK is to continue, should we consider a means-tested grant to make EVs more affordable based on people's income? Buying a new electric vehicle is not feasible for families in certain income brackets who normally, either through life choices or lack of resources, would buy a second-hand car. Should we provide a greater level of support to those families for a limited time to increase supply? Mr. Cooke spoke about the benefit-in-kind which is helpful. Should consideration be given to removing some of the increased cost for second-hand imports from the UK for a period until supply increases? He spoke about extending the grants. Are they adequate to reach that target?

I thank Ms Sayers for her presentation. The ESB is a wonderful company that has done so much in the development of infrastructure. However, it has shown a lack of ambition in recent years. I believe we should be much further on. The ESB should have taken the bull by the horns much earlier. I acknowledge she mentioned the €10 million from the climate fund. The reality is that the ESB is a very profitable company. It is a semi-State company with a different charter from other private electricity supply companies. She mentioned having invested €80

million to date. I am shocked at that; it should be ten times that.

We need to get people to adapt to the technology that is coming. It is a chicken and egg situation. Range anxiety is waning somewhat based on the cars. However, I receive regular complaints from people who say the chargers are not working or not enough of them are available. I would have liked to have seen the ESB go in heavy at the beginning.

When it comes to decarbonisation, the ESB has lacked ambition. It is a separate area from where Ms Sayers is involved, but the ESB expects it to take ten years before moving out into the Atlantic Ocean for floating offshore wind energy when other countries are dealing with that right now. I do not hear the company demanding changes in State policy to make that happen. I may be putting too much on Ms Sayers's shoulders. Based on how charging points are being rolled out, the ESB's ambition is considerably short of where it needs to be. There may be very good reasons for that and I am sure she will highlight them for me. This committee meeting offers her an opportunity to share with us why the ESB has not been able to do that. If there are impediments from the State's side, I ask her to share those with us.

Mr. Brian Cooke: The target for 2030 represents a massive challenge. The Senator asked if it is possible. I would say it is not impossible, but it is unlikely based on the current level of new car sales, which averages less than 120,000 a year, compared with 165,000 a year between 2001 and 2008. We would need to see a significant increase in the new car market. If we can create a new car market through incentives and through taxation systems that support an overall stronger new car market, we would have a much better chance of getting there. We could also generate more revenue for the State.

We talk about the 1 million vehicles for 2030. However, there are also 1 million vehicles that are over ten years old. Those 1 million vehicles are only half the job; we have the other 1 million older vehicles. We do not want to get to 2030 and find we have 1 million vehicles that are 16 or 17 years old. It is only part of the job. The target will be very challenging. The more important target is the level of emissions we can take out. As some of the other speakers have highlighted, we cannot put all our eggs in the EV basket. Other elements such as cycling and e-bikes will also be important, as will public transport. The target will be very difficult to achieve.

The overwhelming source of EVs in Ireland over the next five or six years will be the new car market. A typical used import is between five and eight years old. That supply of vehicles cannot be met from the UK or the other potential used car import markets. That supply of vehicles will probably only arrive in any significant numbers towards the end of the decade. If we were looking to free up the used car import market by putting in some sort of support, now is not the time. It is something that could be reviewed further down the line.

The Senator mentioned means-tested grants. We need to get as many new EVs as possible on the road now. The more we can do today, the less we will need to do in 2028, 2029 and 2030. We need to create that active used car market. The people we want to get into EVs now are people who may have a three- or four-year-old car and are changing. The €5,000 grant provides that bridge and makes the decision for them.

Senator Timmy Dooley: I was not proposing to reduce the current grant but was asking if we should means test and give a higher rate of grant to those who might be more financially challenged and who typically would never think of buying a new car.

Mr. Brian Cooke: We would certainly be in favour of that. However, we need to be real-

istic. Someone who is driving a ten-year-old car does not have very much equity to trade in and so the level of that support would need to be very significant. As with all supports, there is a limited pool of money to support the purchase of EVs. The pool of money in the short term should be aimed at getting as many new EVs on the road now as possible. That means that in three years, more people who buy three- or four-year-old cars will have a bigger selection, and in six years, people who buy six-year-old cars will have a bigger selection and so on. In an ideal world, we would be very supportive of that. The most important thing is to help the people who are about to buy a new car, on the back of having equity in a used car, to make a better decision. In the context of the cost of change, €5,000 is a lot of money. Even if an EV costs €40,000, the cost of changing in that context might be €16,000 or €17,000. That is a lot of money and that can be a real game changer.

The other important thing I must underline about incentives is that we are competing for a supply of cars. There is a shortage of not only used cars in Ireland now but also of new cars. There is a shortage of EVs overall and every market is competing for them. We cannot get enough of them now, so the better the incentive package we have, the better will be the chance that Ireland will get more than its fair share of EVs in the short term. Again, the more of these vehicles we can get today, the faster we can create that used car market in EVs.

Chairman: I thank Mr. Cooke. We have limited time, and I ask the members to stick to their allotted two minutes to ask questions and that witnesses be as succinct as they can when responding. In addition, if a question is not directed specifically to some witnesses but they may still have something interesting to say on a topic, I ask them to please raise their hands and I will bring them in. I call Ms Sayers.

Ms Marguerite Sayers: To address the Senator's questions, I will begin with expenditure. I did, and do, consider €80 million to be a significant amount of expenditure. As will be appreciated, however, within the ESB, as within any company, there is competition for resources. In addition, the ESB is playing a role right across the decarbonisation agenda. That includes e-heat, where we have just started a retrofitting joint venture. More particularly, our networks business connects all the renewable projects in the country that are helping to decarbonise our generation of energy. We are also the owners of generating plants and that area also requires significant investment.

Speaking to profitability, then, typically it would be announced in a good year that the ESB had earned profits somewhere between €400 million and €600 million. Equally, however, much of our annual investment goes on decarbonisation projects. As I have outlined, we are spending €1 billion in that area. Therefore, I think a company spending that amount has a significant level of ambition. We are trying to play our role right across all those emissions areas. That includes 20% in transport, 20% in the electricity generation and 20% in heat. When a company like ours is trying to play a role across all those areas and trying to do all the heavy lifting with the e-car infrastructure as well, as we have been doing for the past decade, that means we have limited resources and we must deploy them in a sensible way.

Turning to the e-cars network, we have been doing that and trying to keep pace with demand. The Senator is not wrong to suggest that up to approximately two years ago we had many faulty chargers. We were not then in a position to be able to replace or fix some of them because several of the original manufacturers had gone out of business and we could not get spare parts. We are pleased now that we have been able to replace all those faulty chargers and increase the level of reliability. Hopefully, that will mean that the Senator will not have the same volume of people coming into his office with complaints in future now that we have 98%

reliability. It is, though, something we will continue to monitor and to work on. We are keen to continue to play our role in respect of helping the country to decarbonise in the various ways I mentioned.

Chairman: I thank Senator Dooley and Ms Sayers. I call Deputy O'Rourke.

Deputy Darren O'Rourke: I thank the witnesses for being here. We are about to move into December. What does Mr. Cooke think next year might look like in respect of the electric vehicle market? I ask him to speak to some of the supply issues and what the situation might look like from January to July next year regarding advanced purchases and orders. Does he have an opinion concerning how the uptake of EVs in areas of high car dependency might be increased? I presume many sales of EVs occur in the Dublin and greater Dublin area and many other urban areas around the country. We have, though, and will continue to have, much higher car dependency in more rural areas as well, where we tend to see less of an uptake of EVs. Are there particular measures that Mr. Cooke would see as being beneficial in addressing that situation? In addition, could he elaborate on his point concerning the role of the State in the context of the EV fleet? The State has been poor in its own purchasing of EVs. I ask Mr. Cooke to expand on the point he made in his opening statement in that regard. I also ask him to reflect on the second-hand market. Is the case that he thinks it may be the back end of the decade before we see a real second-hand market for EVs?

Turning to Ms Sayers, what is the target for EV infrastructure? Approximately 1,800 charging points are in place now. I am not sure if they are all the ESB's. Is the target approximately 30,000? I think I heard that figure mentioned previously. Does Ms Sayers have a sense of the breakdown in that regard between home and public chargers? From her presentation, it seemed to be the case that the ESB is reacting to demand as opposed to installing an infrastructure to induce demand. Does she have an opinion regarding the role of the State in oversight? In addition, does she have a timeline for the roll-out of infrastructure over the months and years to come?

Chairman: I am sorry, but I ask the Deputy to be quick.

Deputy Darren O'Rourke: I ask Dr. O'Tuama and Dr. Byrne to comment on the supports available for e-bikes and e-cargo bikes. I do not think there is subsidy support for cargo bikes. Is there a sense that the support subsidies are sufficient in that regard, or should they be extended to other types of bikes?

Chairman: There are a lot of questions there.

Deputy Darren O'Rourke: Well, if we need to come back to these questions the second time around, I will not mind. I leave it to the Chair to decide.

Chairman: We will see how we go, Deputy. I call Mr. Cooke.

Mr. Brian Cooke: We will see an increase in EV sales next year. The economic outlook is good and suggests that it could support a new car market of close to 130,000 vehicles. It will probably be less than 120,000 because of the supply issues, however. The share of EVs will increase. Regarding pure EVs, we might expect that segment of the market to account for between 13% and 15% of the market, which suggests that 15,000 EVs will be sold next year. The semiconductor issue, however, may mean that we will have strong sales of cars with 222 number plates from July to December 2022.

Regarding the question of the second-hand market, if we succeed, and next year will be a challenge, then 2023, 2024 and 2025 will probably determine when we have an active second-hand market for EVs. If we can do well in those years, then we can bring forward the date for the advent of an active second-hand market by several years. I assume the other part of the Deputy's question referred to people in rural areas who have to travel longer distances, and whose major issue is range anxiety. In that regard, newer EVs clearly have improved range. Again, however, the other facet of range anxiety is the ability to charge. In the context of charging in Ireland, though, I point out that not every country has the home charger grant support. It is to the credit of the Government and the SEAI that we have that measure in place. It is vital that support remains in place. Regarding our sales figures, just under 50% this year have been in Dublin and the rest were around the country. We have, though, sold EVs in every county this year.

Chairman: There was also a question on the role of the State and its electric fleet.

Mr. Brian Cooke: Yes. The State has committed on its next renewal to replace its car fleet with electric-only vehicles. If the State instituted a policy of renewing those vehicles every two years, then two-year-old quality EVs would be available and would have a value in the second-hand market. If that could be done in the context of local authorities that have EVs as well, and if they could also be replaced every two years, then that would help to bring forward the date when we will have an active second-hand market. Every little bit helps in that regard.

Chairman: I thank Mr. Cooke. I call Ms Sayers.

Ms Marguerite Sayers: On the first question concerning the 30,000 chargers, my understanding is that includes workplace and home charging, as well as the number of chargers on the system. Regarding our programme, as I said, the range of vehicles has changed greatly. Typically, it was possible to achieve approximately 100 km per charge, but that has now increased to 300 km or 400 km per charge. We are changing the nature of our charging infrastructure to reflect the fact that people will want charging support when they are going on much longer journeys. Some 80% of charging happens at home. We are providing a network that provides a charging boost when people need it on longer journeys around the country.

With regard to reacting to demand, we had the first national network anywhere in the world. It was certainly the first that was provided by an electrical utility, so that was unprecedented at the time. We are continuing to work to try to stay ahead of and encourage people to take up electric vehicle ownership. If they are going to buy a car, accepting all the points that the other witnesses gave about walking and cycling, we hope that they will buy an EV and we want to give them the confidence to do that. When we are finished with the roll-out of our current programme, which includes those high-powered charging hubs, then that network, based on our analytics, will be capable of supporting 400,000 EVs, which is a significant increase above the 50,000 EVs in the country at the moment.

Chairman: Do Dr. O'Tuama or Dr. Byrne want to address the support for e-bikes and cargo bikes?

Dr. Damien Ó Tuama: The cycle to work scheme provides for up to €1,500 of the value of an e-bike. For a high quality e-cargo bike, a figure of double that would be more realistic. I refer again to the scrappage scheme in France, where drivers are encouraged to scrap a car and get a grant towards the purchase of an e-cargo bike.

Dr. Colm Byrne: People on social welfare do not get to benefit from the cycle to work scheme because it is an employer's scheme. There needs to be some sort of change to get those people into the net. Lower earners do not get to benefit to the full extent because they only get a 30% rebate instead of a 50% rebate. If we are serious about trying to transition away from the internal combustion engine, we need to look at the obvious supports. On the State electric fleet, there is an opportunity in our cities to use e-bikes or cargo bikes. A number of teams in the UK that do home visits for healthcare use e-bikes to get around, and they often get around much more quickly. In our area in north inner city Dublin, it would make sense, instead of being stuck in traffic, to be able to get around. There is no one-size-fits-all approach and there are different solutions for everything. We have to be more open in our though processes.

Chairman: When I was in London recently, I was struck by the number of tradespeople who were moving about on e-cargo bikes. I expect that it is something that we could emulate here. I thank the witnesses for their answers and I thank Deputy O'Rourke.

Deputy Alan Farrell: I thank the witnesses. I want to focus on cost and infrastructure, and a little on alternatives. The first point, which others have made, is the disparity between the cost of an internal combustion engine vehicle at the starting point in the market and the entry level electric vehicle. It is €11,000 or €12,000 for the cheapest internal combustion engine car, which is a Dacia. It is probably not a good example because most of them are approximately €15,000. The starting price for an electric vehicle is approximately €28,000, which includes the €5,000 grant. This is coupled with the fact that there is not a big enough second-hand market. This question is directed at Mr. Cooke, unfortunately. While the State is doing a fair bit of the lifting with regard to the provision of grants, the motor sector also needs to work on reducing prices, especially at entry level. Some of the vehicles that I have referred to are small cars. We are talking about the supermini class, or whatever it is called in the trade. There is something that can be done to reduce overall costs. For instance, in France, Germany and Austria, an EV can be bought for just over €20,000. I know that the witnesses will say that is due to taxation or such, but there are other measures relating to the costs being higher in this jurisdiction.

It is important to recognise what is being done by ESB for infrastructure, notwithstanding what Senator Dooley had to say, with which I kind of agree. There are positive aspects to it. The SEAI grant for home charging is welcome. One area that we are still deficient in is the fact that our building regulations do not mandate new properties to have electric charging infrastructure included when the homes are sold. That is an important part of the puzzle to support what Ms Sayers said with regard to 80% of charging taking place at home, with the network being provided really only being for a charging boost on the journey. My questions are about what we can do to reduce the cost. Is it purely taxation and do we need to look at that? Would the industry support the building regulations being changed? In recognition of the alternative means of travel, with the investment in public transport and personal light EVs, PLEVs, which are now being changed to personal powered transporters, PPTs, should the grants be extended to include the likes of cargo bikes? It is an obvious deficiency in the existing State supports for bikes.

Mr. Brian Cooke: I have to be very careful when I talk about price because I could get into trouble. Taxation only plays a small part with the lowest-cost vehicles, but we are a smaller market, which affects costs of distribution, and manufacturers have their own costs. EVs are more expensive to manufacture at the moment. Much research and development has gone into them. Most research and development expenditure in the industry goes into that. I think they will come down in price. I think that internal combustion engines will go up in price with the next EU regulations. There are vehicles that are good value. Many vehicle manufacturers offer

low interest deals. People can get into an EV at a relatively low monthly cost, especially if they go on a personal contract plan or some sort of finance deal. I am constrained in talking about price for competition reasons.

Ms Marguerite Sayers: I have a comment on the issue of cost and price. This is based on information that we have from Bloomberg. Our understanding is that from 2024 onwards, and certainly from 2025 onwards, the price of an internal combustion engine car should be similar to an EV. That is based on external advice to us. I endorse what was said about infrastructure. It is very important that in the future homes would have an e-car charger or at least the wiring in the house to allow that to happen very easily. That would be a worthwhile step because it saves a lot of work afterwards if it is already mandated that such work would happen. What we are finding is a lot of builders are also taking the initiative themselves because it is a point of sale. Having an EV home charger makes a huge difference to the experience for an EV driver. While most of the commentary tends to be around urban drivers owning EVs, the rural population has a big advantage because they have the wherewithal within their homes in most cases to be able to install the infrastructure quite easily.

Chairman: I thank Ms Sayers. I will allow Deputy Farrell back in when Dr. Ó Tuama returns if he wants to put his question to him again. In the meantime I will go to Deputy Whitmore.

Deputy Jennifer Whitmore: My first question is to Mr. Cooke and, unfortunately, I do not think he is going to be able to answer it. He referred to the cost and how it was a sensitive issue. I am looking at it from the perspective of his membership, who are all business people. They have three types of car on their forecourts: diesel, petrol and EVs. If someone comes in and says they want a new car, I imagine it would be more profitable for Mr. Cooke's members to say they have a diesel or petrol car rather than promoting the electric vehicle models. As Ms Sayers says, if it is 2024 to 2025 before the situation rebalances, what can be done in the meantime? I imagine his membership would find it very difficult to act against their own financial interests and to promote electric vehicles if they are going to see an ultimate reduction in their profit margins. I would be interested in a comment on that.

The next question is probably open to everyone. If we are trying to convince people to move to electric vehicles and e-bikes, which are an important part of the discussion and we have not focused enough on them, the majority of people have had no experience of electric vehicles or e-bikes, so how do we give them that experience? Would it be beneficial for the Government to take the lead on this and to have a touring test centre going around the country so that people could hop into a car or onto an e-bike and test it out for themselves and get a feel for it to see what it is like to drive?

Mr. Brian Cooke: I do not agree with Deputy Whitmore's statement about retailers selling electric vehicles. The problem is they cannot get enough of them at the moment. If they have an electric vehicle, they will have a customer for it like that. They want more electric vehicles than they can get at the moment. If an electric vehicle is available for a customer, they will sell it to them.

It is very hard to know what can be done to bridge the gap. At the moment there is Government support and that helps to bridge the gap. There is a message for consumers, which is to look at the total cost of ownership. The electricity costs much less than the fuel costs and the servicing costs are less for electric cars. We need to get that message out on the total costs of ownership because there is a focus on the upfront price, the metal price of two comparable

cars, whereas the running costs are less for EVs. The SEAI does quite a good job on that at the moment. Over the lifetime of the vehicle, the equation between the total cost of ownership between the two cars is starting to narrow. For some people the upfront costs are the biggest challenge of all, so if you do not have the financial wherewithal to buy, you will not be able to benefit from the longer term savings.

Our members cannot get enough electric vehicles, both new and used, at the moment. They have no issue with selling them. If you look at the amount of investment that the industry has put in at a local level, some retailers have put substations in their premises for cars they do not even have yet because they are investing in the future. Even in the independent sector, we provide a level of training and upskilling to get them ready for cars they are not servicing yet. There is a big investment in the industry. There is a huge interest and there is a substantial appetite for electric vehicles.

Ms Marguerite Sayers: There is definitely something in terms of customers experiencing EVs because when somebody in a housing estate buys an EV, many of the neighbours get interested as well.

Ten years ago we had a fleet of EVs we gave to ambassadors and asked them to talk about their experience. We also brought EVs to the national ploughing competition and ESB Networks has a number of cars involved in energy trials in Dingle. It is something we have found works. I do not disagree with the Deputy. When something is made accessible to customers, they respond to it.

Dr. Damien Ó Tuama: I apologise as I had to pop out for a moment but I caught the end of Deputy Whitmore's question. There is currently the cycle right curriculum, but it does not explicitly cover cargo bikes or e-bikes. In countries with deeper cycling cultures there is cycle training available for those wishing to use cargo bikes or e-bikes, so I would recommend that we have something similar here.

Chairman: Does Deputy Farrell wish to put his question to Dr. Ó Tuama again?

Deputy Alan Farrell: Yes, it is just a general question about what more we can do to support the cycling sector, especially electric bikes and cargo bikes. I think the latter is a fascinating sector that we perhaps missed in the support scheme that was announced as part of the climate action plan. I would welcome a general comment on that.

Dr. Damien Ó Tuama: The biggest intervention is the creation of safe cycle networks in urban and rural areas for people using bikes, be they ordinary bikes, e-bikes or cargo bikes. That is the number one thing. It is safety and the perception of safety that puts most people off cycling. The other is distance. That is where e-bikes come in. They make things much handier. It can make an enormous difference, in particular if you can combine bus or train trips with e-bikes.

The SEAI should have a role regarding e-bikes in the way it covers e-cars. I would like to see it introduce grants for the purchase of the bigger e-cargo bikes. As Dr. Byrne said, it is important to bring in those groupings that are currently excluded from the bike-to-work scheme – the unemployed, the low paid, and perhaps students and other groups. They are the biggest interventions. I like the scrappage scheme in France, which I think has significant potential.

Deputy Alan Farrell: Dr. Ó Tuama mentioned that one. It will be an interesting piece of research for the committee to conduct.

Chairman: We must have a chat with the Minister for Finance, Deputy Donohoe, about that one.

Dr. Colm Byrne: To return to Deputy Whitmore's point, there are some rental options at the moment for cargo bikes in Dublin city and in Dún Laoghaire-Rathdown. There are some rental opportunities for businesses to try out cargo bikes to see if it would fit them. That has been popular. That is another option for trialling it - using some of the private companies that already rent out bikes.

Deputy Bríd Smith: I thank the witnesses very much for their presentations. I have a couple of questions for the ESB. The first one is about the notion of installation points and the quite expensive nature of the infrastructure. Reference was made in the presentation to the size of the investment programme the ESB had to put in to predict the growth in EV. There is also a mention of the available capacity on the electricity grid. What do the witnesses think of the ambition of the climate plan to have 1 million EVs on the road, as against 1,500 electric buses? What is their opinion of both the availability of the capacity on the grid and the expense of it? Should we not have an ambition in the reverse - more buses than privately owned EVs? In that regard, has ESB had any contact with the State transport bodies, such as the National Transport Authority or Transport for Ireland, on electrifying the bus fleet and what that might mean to the national grid in terms of efficiency?

Ms Marguerite Sayers: This infrastructure is expensive. We work on providing it ahead of the anticipated need. As I mentioned, it is hoped our current programme, particularly those high-powered chargers, will facilitate 400,000 cars on the roads. If we need to get to 1 million, we will need more infrastructure. That might be provided by us. It might be provided by others. We will certainly react to demand as it develops.

The Deputy asked about the capacity on the grid. It is something our colleagues in ESB Networks are working on. They are carrying out those trials in Dingle to make sure they can understand the impact of many people in one location charging EVs. What will be important for all of us is that the signals are given to users - I am one - that we charge at night when there is effectively spare renewable generation that otherwise might be constrained off and might not be used. That can be used now and helps to decarbonise. It is, in effect, a way of storing renewable energy. To give signals to people, especially if we have 1 million cars on the network, that they use night-time primarily to charge their cars and that they do so through home charging would be beneficial in terms of emissions within the country. The ESB is already planning for the additional requirements for charging in various locations and it probably will require a level of network reinforcement. It will be less reinforcement if that charging happens at night for all those good reasons because other loads will not be there at night in locations. They are doing a lot of work and planning for that as it stands.

From our point of view, having the signals to move to night-time charging is beneficial in terms of emissions. The rest of the time we will be providing the infrastructure to allow people to charge as they travel around the country outside of that night-time charging.

Deputy Bríd Smith: I am sorry I asked a second question. It is obviously Ms Sayers who takes it. I asked if there has been any contact with the National Transport Authority or Transport for Ireland on electrifying the bus fleet and how that compares on balance in terms of the pressure it puts on the national grid? Has the ESB looked at that? Might the proliferation of public transport be much easier on the national grid and a much more efficient way, both for the climate and probably even financially, for us to plan forward for our ambitions for transport for

the future?

Ms Marguerite Sayers: Apologies; I had forgotten the second question. ESB eCars has not had contact with the national transport infrastructure companies but a different part of our organisation, which is Smart Energy Services, has. We are helping both Bus Éireann and Dublin Bus. We are tendering to provide some infrastructure. They are certainly looking at having a level of their fleet operating as electric buses and trying to make additional use of various types of low-carbon infrastructure, including hydrogen. There is some interaction but it is not the focus of the ESB eCars business. We are focused on providing charging for cars.

We would also support the use of additional public transport. It is a significant part of the solution. In China, there is a very significant adoption of electric buses. It is possible. It has not happened in many places outside of China but they do have many electric buses in China. It is something we could look at over time. Something we also have to bear in mind, as I said, are the demographics of Ireland. With 37% of the population living in rural areas., it may not be possible to provide that level of public transport for daily commutes. That is why we have also been focused on providing that infrastructure for private cars.

Chairman: I thank Ms Sayers and Deputy Smith. Before a second round, I might ask one or two questions. A few years ago, I decided my next car would be an electric vehicle but they were too expensive, and there was certainly range anxiety. I decided I would keep driving my internal combustion engine vehicle and I did so until it broke down. The price of EVs had not come down, nor had the technology improved, and I decided to go without a car for a while. I have not got the EV since then. I have gone five years without a car. I have been getting by quite well, by bike, by bus and by train. In many respects, my life is much easier not having a car.

I am interested in the point made by Dr. Byrne. It is something I have noticed in my experience in recent years. The space that electric vehicles are taking up, especially in urban areas, is quite concerning. You only have to look to photographs of the streets of our towns, village and cities from the past to see that the vehicles before were much smaller. There seems to be a trend where vehicles, particular electric vehicles, are physically quite big. That is a considerable problem. There are all kinds of consequences to that. The value of space in our towns and cities is high and it is increasingly being taken up by vehicles and electric vehicles. I would be interested to hear further from Dr. Byrne on this point but perhaps I could put a question to Mr. Cooke. Would Mr. Cooke acknowledge this and, if so, will he advise on incentives to promote the uptake of smaller electric vehicles? In other countries such as France and Italy that have old cities with narrow streets, it is perhaps more obvious that they need smaller electric vehicles. Is Mr. Cooke aware of incentives? Should we be looking at incentives in this country for physically smaller electric vehicles?

Mr. Brian Cooke: I am not aware of any specific incentives. There may well be incentives based on vehicle size. There has been a move in recent years away from saloon cars to smaller sports utility vehicle, SUV, type cars.

On electric vehicles, we already have a cap. If there was an increased level of support at a lower level, that could possibly help. If you look at the electric vehicles for sale - I am always loath to talk about specific cars and specific brands - Volkswagen has the ID3, Renault had the Zoe, Nissan has the Leaf, and Hyundai has the Kona. There is a wide selection of smaller electric vehicles. They are obviously not as expensive as the bigger ones. Some of the larger ones do not get support. Therefore, there is a strong suite of small electric vehicles out there.

A small car does not suit everybody but some people have one out of choice. People with big families, etc., feel they need a bigger car, and if they want to go electric, they go for a bigger one. However, there is a wide selection of small electric vehicles out there.

I will look into it. I will try and find out from my European colleagues if there is any specific incentive that skews based on size.

Chairman: I thank Mr. Cooke for that. We would be very interested if he could provide further information on that. Indeed, that applies to any of the witnesses. If they want to send in additional information to us, we are happy to receive it and would consider it when we do our report.

Turning to Dr. Ó Tuama, I saw a headline recently on the potential in the UK for e-bikes to reduce carbon emissions. It was 25 megatonnes in the UK, which is a huge amount of carbon emissions. Perhaps Dr. Ó Tuama is aware of the study, and if he is, I would like to hear more about it. Does Dr. Ó Tuama know of studies that specifically look to the potential for electric bikes? It seems to me we are simply not appreciating the potential for electric bikes to cover those 5 km to 10 km journeys. If we capture those journeys, or anything under 5 km, by bikes or e-bikes, then we are solving a lot of problems around transport. Of course they will not cover the interurban journey or perhaps those rural-generated journeys, but a huge proportion of journeys could be transitioned across to e-bikes. I would be interested to hear if the witness has anything to say on that.

Dr. Damien Ó Tuama: I thank the Chairman. I do not have the figures to hand so I would need to send them in. The general point is that the emissions savings arise when there is a switch from using a motor vehicle to using a bike or an electric bike. The Nissan Leaf, for example, is 2,000 kg. I do not know about anybody else but if you are hit with 2,000 kg, it is a significant mass. I do not believe that this is a particularly small vehicle. Consider the elegance of the bike weighing 20 kg moving an 80 kg person, as opposed to 2,000 kg moving an 80 kg person. I once had a maths teacher who was all about finding the elegant solution. For urban areas, moving people with minimally sized machines with minimal emissions is an elegant way to solve the problems. I would be happy to dig out some up-to-date research figures on the emissions savings. It does hinge on the modal shift the Chairman is basing his calculations on.

Chairman: I thank Dr. Ó Tuama. Dr. Byrne made the point originally on the larger and heavier vehicles. Does Dr. Byrne have anything he would like to add to that?

Dr. Colm Byrne: I agree with Dr. Ó Tuama. As I said in my statement, electric vehicles are heavier than their internal combustion engine counterparts. When we look at those vehicles' impacts in accidents, especially on vulnerable road users, there is a danger there in switching directly over to electric vehicles. Where families need bigger cars, unfortunately, a lot of the bigger cars are SUVs, and by design they are more dangerous again for vulnerable road users. In impacts they are not as safe. Maybe the industry needs to look at that and at the design of vehicles that are designed for families. Many of them are being pushed into SUVs when they do not want to be using them.

There are also impacts with regard to the physical space that is used and taken up by cars such as when parking overnight in our towns and cities, and when it comes to charging with cables and so on. We see this in London where there are a lot more electric vehicles. Cables are strewn across footpaths and block pedestrians, especially disabled pedestrians, from being able to walk around their locality. This is an important consideration when looking at how these

vehicles are going to be charged in an urban environment without impacting on vulnerable road users.

Another aspect to consider is that with climate change our population is going to increase. We are probably going to have a migration of people into this country and our towns and cities will come under more strain. The amount of space cars take up in a city compared with the number of people who can be transported in a cycle lane or a bus lane is an important consideration in whether we should be using cars to get around our towns and cities or the more elegant solution of bicycles.

Deputy Alan Farrell: I will go back to the point Ms Sayers made about charging vehicles at night. I am guilty of that. I do this out of pure convenience. How do we incentivise people to do that? If we need greater infrastructure, as Deputy Smith quite rightly raised, and if we have some infrastructure issues where there is a question mark over the investment required to meet the demands of the ever-increasing electric vehicle market, how do we incentivise people to use their home charging equipment at night?

I thank Dr. Ó Tuama for his response to my question on investment. It is certainly to be welcomed. My constituency in Fingal has been terrific with regard to plans and investment in cycling infrastructure, and not just on the coast road side. It has been right throughout the community in the past three or four years. I certainly believe the ratio is helpful. While it might be a case of how long is a piece of string, is there a total investment envisaged for the sort of cycle infrastructure we would require, particularly in urban and outer urban communities around Ireland, and given what we would expect to have to invest in the coming decades to bring us up to the same standard as many of our European counterparts?

Dr. Damien Ó Tuama: The Deputy asked about the figure, which is a good question. I believe 20% of the transport capital budget allocated for walking and cycling, which corresponds to €360 million per annum for the lifetime of the Government, is a very good start. We are playing catch-up compared with our northern European colleagues who have been reallocating space and providing high-quality infrastructure since the mid-1970s, since the oil crisis back then and there was a shift in policy. If we continue to do that, it is important. It is not the only bottleneck. There are bottlenecks around resources in local authorities and in having a sufficient number of engineers, planners and community liaison people, which is important also. Training is needed for all of the professionals working in transport planning and traffic engineering so they are up to speed on all of the latest designs for signalling, junction design, surfacing and so on. Perhaps that is where the bottleneck is rather than an absence of funding at the moment. The allocations at the moment are good but they need to continue for several decades and not just for several years.

Chairman: Deputy Farrell had a second question.

Deputy Alan Farrell: Yes, for Ms Sayers, on incentivising EV users to move to night charging.

Ms Marguerite Sayers: This is very important. We have a range of tariffs in the State, depending on the electricity supplier. If a person has a dual tariff meter and a night-time product, then he or she will be getting the electricity at half price. I am aware we have smart meters rolled out to almost 600,000 homes and an increasing number over time. This will facilitate additional levels of time-of-use charging and tariffs. We will see an increasing number of products that will incentivise people to do that. The retail suppliers get energy more cheaply

at night, so it makes sense to pass it on to customers. The system will work to make sure we incentivise people to charge at night. I will give the committee a sense of the value this is. You can charge 100 km on a car at night for about €1.60 and certainly less than €2. The equivalent for a vehicle with an internal combustion engine is something of the order of €22. There are big savings to be made. It goes back to the point Mr. Cooke made, which is that while it is very expensive or more expensive to buy an electric car upfront, the running costs are lower. It is another incentive for drivers to move towards EVs, but they must be charged at night to get the benefits.

Deputy Alan Farrell: I have a brief follow-up question on night-time rates. Could the witnesses correct me if I am wrong, to the best of their knowledge? I appreciate that there are different businesses within the ESB group. Am I correct that the day rate of the split-rate packages is higher than some of the 24-hour rates that are available? Is it not something of a disincentive to homeowners to switch to dual rates because they are being charged more during the day for domestic uses?

Ms Marguerite Sayers: Generally not, but there is sometimes an increased standing charge for the meter. Someone with a dual-tariff measure is paying more through a standing charge, but sufficient charging at night more than pays for itself. Maybe that is the point.

Deputy Alan Farrell: I assume, therefore, that smart metering would do away with the additional costs associated with that particular type of meter, which, in itself, acts as a disincentive to people. That is just an observation from anecdotal conversations I have had with constituents.

Ms Marguerite Sayers: It more than pays for itself if charging an EV. It is quite a modest increase relative to the benefits associated with charging at night. It might be a slight disincentive but if anybody does the sums, he or she will see that it pays back very quickly.

Deputy Christopher O'Sullivan: I welcome the witnesses. I apologise because I was in the Dáil and I am dipping in and out of the meeting. I missed caught of the opening statements. I missed many of the questions of committee members, so the witnesses can be certain that I will repeat some of them. I will plough on.

Dr. Byrne commented in his opening statement on many of the negative aspects of a move towards 1 million EVs on the road. His point was on reliance on EVs. I think I am the most rural Deputy on the committee. I am down in west Cork, which is a four-hour drive from Dublin. I firmly believe in active travel and more frequent, better public transport. Everyone can attest to the fact that I continually push for these but I believe that even if we introduce a concept such as a service in every village every hour, it will still leave many challenges. I would like Dr. Byrne to comment on this. While we want to move towards more active travel and public transport, surely EVs will play a greater role in places like west Cork, peninsular areas and other rural areas.

If I am misdirecting my questions, I would not mind the help of the Chairman. I believe my next one is for Mr. Cooke. In the past few months, I have been able to visualise far more EVs on the road. In only a few years, the majority of cars on the road will be electric. I hope that in five, six or seven years, those EVs will be powered in people's houses and that, in Clonakilty, where I am from, they will be powered entirely from clean, renewable energy from floating offshore wind facilities. I hope motorists will have no range anxiety when heading to Dublin from a place like Clonakilty. The range of the cars is increasing all the time. We are seeing

more products on the market and more car manufacturers excelling in the EV space. Am I way off the mark with that kind of vision? Everyone present will have noticed that the number of EVs on the roads is increasing every week. We have seen that in the percentages. Is my vision a reality? When will there be a critical mass that will make EVs more affordable and result in a variety of products with sufficient ranges, such that one's next car will be an EV?

The next question is for the ESB. Much of the charging will be done from people's homes. The battle to convince local authorities to install fast chargers in their space and public car parks is like coming up against a brick wall. Clonakilty is a perfect example. It has one fast charger. It is a matter of getting to it first if one can, which is not good enough. It is not an incentive.

I apologise if my questions have been touched on already but I was late for the call.

Dr. Colm Byrne: I do not believe anyone is saying people will have to use vehicles other than cars, especially in the short term. It is just a matter of using them in the right circumstances. Why would people not use a bike to go to the shops if they are living in Clonakilty? It is such shorter journeys that we will focus on initially. As people build up confidence in cycling, we can then focus on longer journeys. I am referring to short trips to the shop. I take a cargo bike and go down town to do the shopping. It is much quicker than trying to drive down through the middle of Naas. I know it is the same in Clonakilty.

Deputy Christopher O'Sullivan: I fully agree.

Dr. Colm Byrne: I know from having worked there that it is the same. We are not saying people should not buy cars but that families may not need a second car because they will not be making the short trips by car. Longer trips will still be made by car but the shorter trips may be by bike. That is what we are saying.

We also need to examine our planning decisions. We must ask what long-term car usage are we embedding by building a lot of one-off houses in the country. This embeds car use. When one hops in the car, one is less likely to go to the local shop. One might go to the bigger town to one of the multiples instead of the local shop, butcher or post office. If we are to regenerate local villages and towns, we need to make planning decisions that will have people congregate in them. We can put in the infrastructure so that shops, post offices and schools will not have to shut down and so that we will not have to embed car use. We would be able to do many more of our daily activities by active travel rather than driving everywhere. Not everyone can drive. A teenager cannot drive. I grew up in rural County Kildare, which is not quite west Cork, and relied on my parents to drive me everywhere. It is quite isolating to have to rely on that form of transport. Not being able to drive, especially in winter, is tough. If one lives in a village or town, it is much easier to engage in one's community.

Chairman: There was another, more general, question.

Deputy Christopher O'Sullivan: I think Mr. Cooke is the right person to direct my other question to. I was saying that I can see a future in three, four or five years where most of the cars on the road will be electric vehicles. What is a realistic timeline to get to that point?

Mr. Brian Cooke: As I said earlier, it depends on the size of the new car market. The new cars will replace older cars, and new electric cars will ultimately replace the oldest internal combustion engine cars on the road. We are only selling 120,000 new cars a year at the moment, so even at that rate, it would be hard to see us reach the targets in the climate action plan. Some 50% of sales of electric vehicles are in the last three years of the climate action plan. It

will not happen in four or five years. There will be hundreds of thousands of electric vehicles on the roads by 2030 but it will be some time in the next decade before they are the majority, with about 2.2 million cars on the road. With a fair wind, it will be early in the next decade, but it is more likely to be the middle of the next decade. Notwithstanding that, the better the new car sales levels are, the more there will be on the roads. There will be hundreds of thousands of electric vehicles on the roads by 2030.

Dr. Damien Ó Tuama: There is a rich cycling culture in Clonakilty with the festival and bike circus. Cyclist.ie has a vision for cycling in rural Ireland that is all about people on bikes being expected and respected on the roads, with lower, safer speed limits, infrastructure, signed cycling routes, and many other things that can be done to nurture a local cycling culture, especially for schoolchildren. A major shift in transportation over the past two decades and in society is the greater use of digital technology. Once upon a time, traffic engineers and transport planners thought about travel time as dead time. That is definitely not the case if people are using public transport and have Wi-Fi. I do not know how possible it would be to drive to Cork and then get the train to Dublin. There are three hours of high-quality time on the train where people can use their laptops or phones and do their business. It is the same on the way back.

When people are driving, it is not possible for them to look at screens safely, and even talking on a mobile phone is distracting when they are driving. There is a significant benefit. I think it is an undersold benefit of using buses or trains. People are able to work while they are moving or even have a nap for half an hour to get themselves together before they go back to using the computer. In a much more sustainable society, public transport use is seen as part of people's working time, and it is a much better use of time. At the other end of their trip, at Heuston Station, they can hop on a shared bike or e-bike to get over to the Dáil. The future is about shared mobility, shared public transport, good quality Wi-Fi on the routes, and people getting their exercise in.

Deputy Christopher O'Sullivan: Dr. Ó Tuama makes a very good point. That public transport option is a non-runner for me at the moment. We need to get to a point where it is and it becomes easy. I take Dr. Ó Tuama's point.

Deputy Cormac Devlin: My apologies to the witnesses. Like Deputy O'Sullivan, I was also in the Chamber, so I missed the first section and the opening statements. I have some questions. I apologise if they repeat my colleagues' questions. This question is probably specifically for the Society of the Irish Motor Industry. Regarding the electronic vehicles and the supply chain, what level of supply is there for second-hand or used electric vehicles? Is there a good supply chain into Ireland given Brexit and all the challenges it has posed to the economy and to the country?

My second question is about the need for more electric charging points, whether at garages or on street. The witnesses mentioned that some local authorities are better than others. Dún Laoghaire-Rathdown County Council is good and proactive. Maybe this is more a question for ESB. I am thinking about public lighting doubling as a charging point. I am sure there is an additional cost to such infrastructure but it is about being imaginative in our public spaces to transform the available charging points automatically and quite easily. One of people's biggest causes for hesitation when buying electric vehicles is whether charging points will be available on their journey. Documentaries often show charging points in garages being in use when people pull up, which delays their journey. It is all about efficiency. The witnesses might address what can be improved about the infrastructure for charging points, both from a local authority and an industry point of view.

My third question is on car and bike-sharing schemes. One regression in Dublin was when four local authorities all had individual tenders for a shared bike scheme. There is no uniformity for car-sharing schemes either. There might be one car-sharing scheme in one local authority in the greater Dublin area compared with another local authority. It is not so bad for cars but it is problematic for bike-sharing schemes. I thought it would have been better to have an all-of-Dublin contract, like the bike scheme to which Dr. Ó Tuama and others referred, across all the Dublin local authorities to ensure there was uniformity and ease of use to encourage people to use them for whatever reason, whether it is because they do not have storage for bikes or it is more convenient for them. Those are my questions. If there is any need for clarity, people might come back to me.

Mr. Brian Cooke: The supply of used electric vehicles into Ireland from the used import sector is only a trickle. At the moment, it is nothing to do with Brexit. There are so few electric vehicles in the UK national fleet and even fewer in the Japanese national fleet. They do not have that supply even if we had not had Brexit. Further down the line, I think Brexit will impact on that. It will probably be towards the end of the decade. It is not only Brexit that is impacting on the supply of cars to Ireland. It is also the fact there is a shortage of used cars there, so it needs to feed its own market. The only way we will have a significant number of used vehicles is to grow our own, by having cars newly registered in Ireland that will become used in three or four years.

Deputy Cormac Devlin: Is there hesitation from customers to buy second-hand electric vehicles? What is the life expectancy of the battery given it is probably one of the most expensive parts of the car?

Mr. Brian Cooke: There are very few second-hand Irish electric vehicles. Most of the electric vehicles on the road have been registered in the past two or three years, so there is not really a used car market. Norway has a much more mature market. There is an appetite for used cars, even with older technology.

Regarding the battery life, there are electric vehicles from 2014 available for sale on Irish websites. Most manufacturers' warranties are for eight years or 150,000 km, which means they expect a battery to last for longer than that. There is potential for a new car to have two, three or four owners during its lifetime. The bottom line is we need to get new cars that will become used cars in three, six or nine years.

Ms Marguerite Sayers: There is absolutely increased usage of charging points. One of the things that was causing much frustration for our users was people driving up to a charging point to park for a day, and then nobody else could use it. With the approval, and almost the insistence, of many of our network users, we now have an overstay charge. It encourages fair use of the network, so somebody can drive to a charger and get as much charge as they need to move to the next stage of their journey, but they are penalised if they stay for too long. That is something most EV drivers endorse because it allows for fair access to the network. It is one of the things we have done and the reaction to it has been quite positive, perhaps in a way one might not expect.

Our relationship with local authorities generally is very good. No more than ourselves, there is a huge draw on their resources and they must decide what best they can do at any point in time. They have given us access to a lot of sites in prime locations and we will continue to work with them as needs be to try to roll out additional infrastructure. My colleague, Mr. Byrne, might make some additional comments in case I have left out any pertinent point.

Regarding charging from public lighting, it is a way of charging if there is no other way of doing so. I say that because when those lights were installed, there was fairly light cabling in between the lights because they were only taking the load or current required for lighting. In the absence of anything else, they will give a charge if motorists adapt the pillar to do that, but there are faster means of charging. They are a great alternative when there is nothing else but if something else, including a home charger, is available, it is likely to be faster.

I will hand over to Mr Byrne now in case I have left out anything on any of the points raised. He certainly knows more than I do about engaging with local authorities.

Mr. John Byrne: Regarding reliability, we have developed an app that can tell users whether a charging point is free and allow them to plan their route. Some 60% to 65% of EV drivers are regular users of the app. Not only will it tell them whether a charging point is free, it will also indicate how long an occupied one has been in use, which allows the user to make an estimate of whether the other motorist is likely to move on shortly. Coupled with the overstay fee, this has brought about some very positive changes in etiquette.

Regarding public lighting charging posts, we are aware through our interactions with Fingal County Council of a micro trial on the northside of Dublin around utilising some of the public lighting infrastructure for the provision of EV charging.

Dr. Damien Ó Tuama: Deputy Devlin made a very good point on bike share schemes, of which we have three in Dublin. The future needs to involve seamless integration between public, private and public private partnership, PPP, share schemes. It is ultimately about a move to seeing mobility as a service. I have used car share schemes. People may not necessarily want to buy a depreciating asset that is sitting on their driveway for a large chunk of the day, but they certainly want to be able to drive some of their journeys. We hope that is what the future is going to involve, namely, public transport for longer trips and shared mobility, whether of car, bicycle or e-bike, for the other trips. There is a need for a much larger number of electric bike charging points in all public buildings, new apartment blocks and public transport access points, both bus and train. I completely agree with the Deputy that we need much more integration, and it would be great if the committee could support that vision.

Senator John McGahon: My first three questions are for Mr. Cooke. What measures need to be taken to improve the second-hand electric vehicle market in Ireland? Second, what is the motor industry doing to facilitate investment and accessibility? Third, when we talk about electric vehicles, the focus is usually on getting private motorists to consider buying them. What is being done to encourage the owners of commercial vehicles, including taxis and lorries, to switch to EVs? I am interested to know what the engagement has been with the commercial side of the sector.

I have another question that might be more suitably addressed to the representatives from the ESB. I only encountered this issue recently. For people living in an apartment block or housing that does not have a private laneway, there is no way to install an electric vehicle charging point. Thousands of people in apartments will not be able to avail of an EV unless their management company has decided to put a charging point or two within the development, which is not the case everywhere, and it is a free-for-all to access them. What is best practice elsewhere on the Continent in terms of providing electric vehicle charging points for people living in apartment blocks or who do not have a private driveway on which one can be installed? What is the solution for those people and what do we need to start doing to make sure they can avail of electric vehicles?

Mr. Brian Cooke: Regarding measures that can be taken to create a second-hand market, what we have in place is very significant. We need to give some certainty to the industry that the grants will be extended for a few years. The only way to create a used car market, as I said, is to have a strong new car market today. The more we can sell today, the more quickly we will be able to create that used car market. We have incentives in place and they need to be extended. The company car sector is an obvious one to target because such cars tend to come back onto the market within two or three years. The benefit-in-kind incentive has started to reduce, which means someone who buys a car next year will not get as much benefit in the following two years. I mentioned the Government fleets. It is encouraging that the Government has committed to go electric on the next vehicle change. If those vehicles are changed every couple of years, the cost to the State would not be huge and it would provide good-quality used vehicles to the market.

In terms of investment, it is hard to put numbers on it. The vehicle manufacture sector at European level is putting billions into the vehicles, including research and development. At a local level, particularly in the franchise dealer sector, a lot of money has already been put into it. We have some dealers who installed electric substations in advance of electric vehicles coming to their premises. In the case of new dealership premises, the service areas are huge and very well equipped. We could be talking about hundreds of thousands of euro of investment by some dealerships. Even at the independent level, there is a huge demand for equipment and training to upskill people to deal with hybrid and electric technologies. Many of them have not yet seen an electric vehicle in their workshop but they are putting in that investment now. We provide that upskilling training for them and Skillnet Ireland gives us very good support to do it and offers value for money. Investment is going on at all levels.

The commercial vehicles sector is behind the car sector. The vehicles are bigger and need larger, more powerful batteries. When the battery technology improves in the second half of the decade and the batteries in cars get smaller, we will see more vans going electric. The State has a very generous scheme for taxis, which I understand is oversubscribed this year. It offers up to €11,000 and is a significant scheme. The State has really stepped up to the mark and there is a commitment to give money to the scheme again next year.

Deputy Bríd Smith mentioned electrification of buses. We are already seeing hybrid buses and we will start to see some electric ones. Over the next decade, we may be having the debate about hydrogen technology, which offers zero emissions, especially for heavy goods vehicles and buses. There is investment right across the industry and from Government. There is a real appetite for this from all the stakeholders. The ESB's e-cars initiative has also been very supportive of this project, which has very much helped to sell it in our sector.

Senator John McGahon: Before my question about charging points for apartment spaces, does the Chairman mind if I ask one other quick question?

Chairman: Go ahead.

Senator John McGahon: This question is directed towards Dr. Ó Tuama or Dr. Byrne. The whole conversation today is around electric vehicles, EVs, but I want to pivot slightly. I find the conversation around electric bikes gets lost at times in the whole conversation. I wonder if we could touch on e-bikes to see if we are doing enough in this country to promote the use of e-bikes, in particular when we have legislation about micro-mobility, e-scooters and e-bikes coming up in the next couple of weeks in the Seanad.

Chairman: We have had quite a good discussion on it, although I understand the Senator was unavailable. It would be good if Dr. Ó Tuama or Dr. Byrne had another opportunity to come in on the challenges around e-bikes and their uptake.

Dr. Damien Ó Tuama: In countries like Germany and the Netherlands, e-bike sales would be approaching 40% to 50% of all bike sales at this moment - they have really shot up. The big advantage is that it is enabling older people in particular to extend their cycling lives and enabling people to cycle longer distances and cycle in hillier places. The advantages are multiple. The bike-to-work scheme currently has a limit of €1,500 for the value that can be written off against tax. For a good electric cargo bike, we are probably talking closer to €2,500 to €3,000, so it would be worthwhile taking a close look at those figures.

As I said earlier in the discussion, it is about the creation of safe cycling routes, both in urban areas and rural areas, the reallocation of road space, the design of high-quality junctions and pre-green signals for cyclists at those junctions. It is about the creation of a safe environment for people of all ages and abilities, including children and women, who are the missing demographic in cycling in Ireland at the moment. It is really the creation of the conditions where people feel safe to jump on the bike, and that is the No. 1 thing.

The other point I was making is around intermodal trips through creating high-quality, high-capacity cycle parking facilities at all bus and train stations. If anyone is ever in Utrecht in the Netherlands, it is worthwhile to check out its underground multistorey, high-capacity bike park, which I think has 16,000 spaces at the moment and that would include many electric charging points.

On the point on electric buses, I was in Warsaw last week. It has 130 articulated electric buses and they are recharged using the pantograph at the bus depots, and each of those buses can carry 133 passengers. There are some very good examples out there of cities using electric buses. For inter-urban trips, it is slightly more difficult technologically with electric buses but there are some good examples out there on electric buses as well.

Chairman: Thank you. Was that it, Senator?

Senator John McGahon: The final query was about providing charging points for people who do not have a private driveway.

Chairman: That is probably for Ms Sayers of ESB Ecars.

Ms Marguerite Sayers: It is a particular issue and it has been with us for a period of time. Some people are very frustrated, including members of my own family, who say it is preventing them from adopting an EV. My understanding is that the problem has been solved for future apartment blocks that are being built because it is now a part of the regulations for multi-residential units to have to include a level of charging. In the meantime, there are a number of solutions. We are largely reliant on the management companies to install a number of charge points, as the Senator indicated, and there would have to be some scheme among the residents to ensure these are shared adequately.

As to best practice, what I have come across in dense city locations is that when somebody buys an apartment now, the shared ownership of an EV comes with that apartment, so they would already have the infrastructure in the building, they already have a number of vehicles and they book the vehicles. It is a mixture of timeshare and shared ownership, along with electric vehicles.

The other option for people as we are installing these high-powered chargers, or even the 50 kW chargers, is in regard to the additional range. Given the distances are quite short within urban areas, which is where most of our apartment blocks tend to be, if people do travel and they decide not to use the bicycle and they use a car, they could possibly do with charging once a week or once a fortnight at some of our infrastructure or one of the other networks that is out there. When people are sitting in traffic, the beauty of an EV is that it is not emitting anything and it is not losing battery power unless it is moving, so they are very useful within traffic. It could be that people could use public infrastructure and, with 400 km of range, only need to charge it once a week or once a fortnight.

There are a number of things. It is not an ideal situation and in some cases it will go back to that need to have charging based on the public lighting system or using lighting columns. There are a myriad of solutions but no obvious or easy one.

Chairman: Thank you. I want to build on Senator McGahon's question. I am mindful of Dundalk town, where Senator McGahon is from, and the rows of terraced buildings with no garden and no driveway, where people must park their car on the street. Does ESB Ecars see itself getting into a situation where it might provide charging points on those streets or does it see its role as being to provide them at central locations or hub locations?

Ms Marguerite Sayers: We have been concentrating more on increasing the size of our hub locations, reflecting that we do not have a right to go on any private property in the first place. We would also need a myriad of small chargers whereas we have seen our role more as providing bigger public infrastructure that allows people to travel around the country. We do have the 22 kW chargers that I mentioned earlier and they are generally within 30 km or 40 km of people, but it does not lend itself to doing the kind of local charging the Chairman is talking about. Certainly, in the immediate term, we do not see ourselves getting into that space with ESB Ecars.

Chairman: It seems to me that, as we transition to an e-car fleet, we should probably think about how we do on-street parking and whether we should do on-street parking. In many cases, it seems it is a poor use of public space and it might make sense from an infrastructure point of view to put parking in more central locations for people who are living in urban areas, separate to those people who are living in apartment developments.

I have a few more questions and I will then invite members in for a third round because we do have time. When the witnesses were answering questions, I found that piece of research from the UK on carbon emissions. It is peer-reviewed research that says that if there is a very significant transition to e-bikes in the UK, it can halve its transport emissions, which is staggering. We need to look at the potential here as well because, at this point, we do not quite know how we are going to get to the 50% reduction in emissions in the transport sector by 2030. The EVs obviously play a role, public transport plays a role and active transport pays a role, but if we do all the sums around this, it does not add up to the 50%.

I want to ask Dr. Ó Tuama about infrastructure. He made a very clear and good point about the importance of coherent and cohesive networks if we really want to see the uptake of cycling, walking and e-bikes as well. Will he comment on the need for quick interim infrastructure? Much of what we are seeing in planning is infrastructure that will take a few years to develop and the process is quite unwieldy, with multiple stages of consultation, and the cost of this kind of infrastructure is very high. However, during the Covid pandemic, we saw the roll-out of interim infrastructure right across the country, in our towns and cities in particular, and we could

see how effective it was. Perhaps Dr. Ó Tuama could comment on that.

With regard to the experimental traffic schemes that are mooted, I know the Minister has talked about amending the miscellaneous provisions Bill to allow for experimental traffic orders of the kind they have in the UK. I would like to hear the witnesses' thoughts on that, in addition to the big question of reallocation of road space.

I will go through a few questions and then bring the witnesses in. I will be interested to hear from Dr. Byrne about research in the medical field around the impact on public health of a car-oriented transport system and the sedentary lifestyles that go with that. It is something we need to consider because it seems we often do not value the co-benefits of alternative transport systems. Will he tell us about research in that area? If he has anything he can send to us, we can certainly seek to include it in our report because it is very important.

Dr. Byrne also touched on the risks around larger vehicles and SUVs, the height of these vehicles and the fact their drivers do not have the same scope of vision. These cars may be safe for the people in them but are much less safe for those who are not. I will be interested to hear more on that and research that might be available that could help us when we compile our report.

Ms Sayers spoke about charging electric vehicles at night-time and availing of different electricity rates and smart meters. She mentioned the potential for vehicles and the electric car fleet to stabilise the electricity grid. Has the ESB looked at the potential of that? Perhaps ESB Networks or EirGrid will have some interesting information on that, but has Ms Sayers anything to tell us about its potential? Has the ESB assessed it? What research has it done in that area?

Dr. Damien Ó Tuama: I thank the Chairman. Following the pandemic, it has been said the future of mobility is not what it used to be. There has been a rapid change in thinking about mobility over the past two years, not just in Ireland but across all European cities. There has been an acceleration in the provision of wider footpaths and cycle lanes because people have been reluctant to take public transport. The pandemic has also accelerated the process of building cycle networks.

The greater Dublin area cycle network plan was published in 2013 but the pace of its implementation has been glacial at times. It has been very slow but the introduction of some of the quick-to-build cycle facilities has encouraged engineers to adopt a more experimental approach to trying out schemes. This is what the Dutch have been doing since the 1970s, 1980s and 1990s. There was a reluctance among Irish local authorities to try out different schemes. We have had a wonderful opportunity to try out different schemes, do before and after monitoring and assess where they improve facilities and where the weaknesses are, which has been a very positive part, if one can say that, of the pandemic.

If we are trying to nurture a shift in travel patterns, we need coherent, cohesive and high-quality networks. I mentioned earlier that very few women are cycling. They are approximately 25% of commuters who cycle, as per the census data. In the previous census, just 693 secondary school girls nationally were cycling to school in 2016, which is a shocking figure. When I was in secondary school, almost 20,000 secondary school girls were cycling to school. A large part of it is due to a deterioration in road conditions arising from more motorised traffic, less quality space for people on bikes, bigger vehicles, higher speeds and a scary traffic environment.

The way we will transform our culture is by creating high-quality cycle networks in each of our five cities, in addition to our towns and rural areas, with signed cycle routes along Rothar roads, which are quieter and have lighter traffic. Electric vehicles certainly have a role, but we need to pay serious attention to the slow mode because it is win-win for everyone. If more schoolchildren cycle and up to 20% to 50% of trips are by bike, that leaves roads available for those who need to use them, whether it is for business trips or other schemes.

Dr. Colm Byrne: As I mentioned in the opening statement, research from Denmark that compared, over 12 years, people who commuted by public transport with those who cycled found an approximate 40% reduction in mortality in cyclists as opposed to those who used public transport. That was also seen in cardiovascular disease and cancer incidents. Other research in the EU has estimated that cycling prevents approximately 18,000 deaths per year in the EU. Cycling has been associated with reductions in cardiovascular disease, type 2 diabetes, different cancers and osteoporosis. There are a wide range of health benefits to cycling.

Chairman: Does Dr. Byrne mind if I interject? As he works in the medical field, does the HSE look at this research? It seems to me that what he said indicates there are substantial public health benefits to promoting active travel. Does he see that in his organisation? I am concerned we perhaps do things in a very siloed way in this country. The cost of our health service is vast. There is a significant economic cost to the issues people face, especially those going into later life but young people too, such as obesity, diabetes and cardiovascular issues, as Dr. Byrne mentioned. In his experience, is the HSE pushing and promoting active travel, perhaps through its public health side, as much as it should be?

Dr. Colm Byrne: Unfortunately, the public health side is quite busy at present with other issues.

Chairman: Of course.

Dr. Colm Byrne: There is certainly much more that could be done. There is a push to try to have more of an emphasis on preventative medicine as part of Sláintecare, but that is at a very early stage of development in this country. There are wide-ranging health benefits to cycling and a lot more could be done. Staff within the health services could do much more. There are opportunities, when doing home visits and things like that, to use a bike rather than have to hop in a car. That could be enabled. There are certain incentives, such as getting paid more in expenses if someone drives a car. If that person drives a bigger engine car, he or she gets even more payments per mile or per kilometre for driving. The same benefits are not there for cycling so people are incentivised to drive rather than cycle. That occurs throughout the public service. Things like that that can definitely push people towards driving rather than cycling in their day-to-day lives. It is important that healthcare professionals and the health service provide a good example to people.

Chairman: Indeed.

Dr. Colm Byrne: I can send on more details on the health benefits without going through all the research.

Chairman: That would be very helpful. If Dr. Byrne is aware of where health services are taking the lead on the promotion of active travel in other countries, we would be very interested in hearing about it and would consider it in our report.

My last question is for Ms Sayers. Has the ESB considered vehicle-to-grid potential much?

Ms Marguerite Sayers: It is not something that ESB ecars has been involved in. There are several trials that other parts of the ESB have been engaged in. The same applies to other countries. If there are 1 million or even 500,000 EVs, each with a 70 kW battery, there is massive potential for storing renewable energy or providing ancillary services to the grid when there are interruptions in frequency, etc., but it is quite nascent. It is all at the trial stage so I feel having a concrete system is something that will happen in the future rather than at present. We will continue to investigate and do trials. Some cars are not capable of having a bidirectional flow so it is a matter that will be addressed over time by the manufacturers. It is quite immature at present.

Chairman: I thank Ms Sayers for that.

Deputy Alan Farrell: I have a final question, on charging infrastructure. It is for Ms Sayers. In Fingal, north Dublin, the council and a third-party electricity supplier, which I believe is German, is trialling lamppost charging. I have used it. It was quite effective, although a little slower than the ESB's facility, which is across the street from the lamppost I used. Given the infrastructure that the ESB owns and the light standards owned by local authorities around the country, is this a matter that the ESB has looked into? On the basis of my experience, parking spaces that have EV facilities are not necessarily in the centres of towns but in and around them. They are mostly on the periphery. Considering the growing numbers in communities such as Malahide, which has a population of 25,000 in close proximity, and the higher socio-economic income thresholds, there are many more electric vehicles. Therefore, two public charging spaces is not enough. Is this a matter that the ESB has considered?

Ms Marguerite Sayers: We are aware of the trial. We have spoken to local authorities at various times but it is not an area that we see ourselves getting engaged in much at present. We are concentrating on rolling out the other charging hubs and the networks I spoke about. It is an area of interest but there are many players that could get involved in it. The ESB is but one. We are doing our bit but the Deputy might find that others are doing something else in parallel. While we are keeping an eye on the matter and have spoken to the council, it is not something we see ourselves getting involved in in the immediate future. As the Deputy said, the ESB does not own the public lighting networks at all. While it looks like we could leverage what the Deputy has described within our own resources, the networks are not ours.

Deputy Alan Farrell: Maybe I should clarify my point. I am not necessarily referring to light standards but to lampposts that have electricity cables on them. I should have been more specific. It occurs to me that the points are easier to install at light fixtures because the fittings tend to be low. I take Ms Sayers's point, however.

Deputy Christopher O'Sullivan: I have two further questions, one being for Dr. O'Tuama. I am glad he mentioned the bicycle festival in Clonakilty and the Bike Circus. Those concerned comprise an extraordinary group. Not only are they promoting cycling, but they are also promoting getting more use and a longer life out of bicycles. For a long time now, the group has been advocating safer cycling routes in and around Clonakilty. This comes back to the rural nature of the town. Some of its best amenities and attractions are perhaps 3 km, 4 km or 5 km from the centre. Unfortunately, the only way to get them safely is by car because you are genuinely taking your life into your hands on a bike. The group has been wonderful in trying to advocate additional cycling routes and signage. In many instances, they have been successful in getting extra signage to promote safe driving to give cyclists space.

Let me refer to one of the main challenges, which many Deputies and Senators at this meet-

ing will have experienced. We are seeing a fantastic investment in active travel. A figure of €360 million was referred to. In some urban areas, this has translated into cycling routes and cycling lanes, but we are not seeing these to the same extent in rural areas. For me, a huge stumbling block is that local authorities are willing to back or invest in a project only when it gets to a shovel-ready stage. There is a big problem in this country getting projects to shovel-ready stage, mainly because local authorities are very slow to go near any project that involves a compulsory purchase order, a right of way or some type of access. They generally run a mile from it. I have experienced this at first hand. With the group Dr. O'Tuama mentioned and others, we are trying to promote, and get local authorities to back, the cycling routes we have identified, but they will not go near them. Has Dr. O'Tuama any suggestions on how to get around that or international examples of where people got around the issue of NIMBYism? People may not want to see additional cyclists passing their front door. There is an issue in this regard that is slowing down progress.

My second question relates to EVs and the ESB's electric car division. I will read the delegates' opening statements as soon as I get a chance. They may have touched on this subject already. What is the relationship with local authorities? Where a local authority owns the large car parks within a town but there is no sufficient provision of fast chargers, what is the process from the local authority's point of view? If an approach is made to a local authority by a group or a councillor to have fast chargers installed in a public car park, what is the process and where is the relationship?

Dr. Damien Ó Tuama: It is a tough question. I have cycled from Clonakilty to Inchydoney beach. I am aware of groups in Bandon, Skibbereen and Kinsale that are also looking for safe cycling routes. Building up community support for them is important. Consider the example of the Waterford–Dungarvan greenway. Kilmacthomas, which is on the route, has benefited greatly from all the additional visitors owing to coffee shops, pubs, bike shops, restaurants and local attractions. The local community needs to see the benefit of having good-quality routes. Maybe the main benefit for locals is not having to drive children to school. A child should be able to cycle to school by himself or herself. There needs to be a little bit of selfish interest. Maybe it is about freeing up people's time by not requiring them to drive children to school. I do not know what the local school bus situation is in Clonakilty. These are the main points that spring to mind.

Land use is very specific to each country. I do not think we can transpose examples from other countries as easily as we might think. Ideally, it is a question of using public land, including disused railway lines, Coillte lands and routes alongside rivers. I am conscious of the difficulty of the CPO issue. That is all I have to say on that point.

Deputy Christopher O'Sullivan: It is a tricky one. It is a shame because there is huge public support and community support. Dr. Ó Tuama hit the nail on the head in that Clonakilty to Inchydoney is the perfect example. It is a shame that, for the benefit of the community and safe travel, it is not facilitated as easily as it should be. I take Dr. Ó Tuama's point. It is a tricky one to answer and I get that.

Chairman: Perhaps I could come in on this. We talk about low-traffic neighbourhoods in our urban areas but perhaps not enough about low-traffic neighbourhoods in our rural areas. It seems that when every road is driveable and every boreen is a shortcut, then we are going to have significant volumes of traffic on them. The Dutch do quite well and they really disincentivise driving on some of the smaller roads and they push the traffic to the more regional roads. Cyclist.ie had its report this summer on rural cycling, which was very interesting and it

touched on this point. If we have a design manual for urban roads and streets which looks at interventions around streets in neighbourhoods to make our towns and villages more liveable, we probably should have a design manual for rural roads and boreens to make them safer and more cycleable, and more walkable as well.

Dr. Damien Ó Tuama: Transport Infrastructure Ireland is taking on an additional role in terms of planning a new cycle network strategy which will be very much connected into rural areas. As part of that process, a stakeholder consultation is happening at the moment in the formulation of that plan, so there is an opportunity to feed those ideas into that. Let me reflect on this. It is a very good point.

Chairman: I understand Dr. Byrne is keen to come in on this as well.

Dr. Colm Byrne: A cheap and easy win in rural areas is to look at the speed limits on our rural roads. Most rural roads are 80 km/h, and if we looked to reduce the speed limits in rural areas, that in itself would make cycling and walking a more pleasurable experience, make our roads safer for everyone who is using the roads, and it would not cost any money at all.

Chairman: Thank you. There was a question for Ms Sayers.

Ms Marguerite Sayers: In response to Deputy O'Sullivan, it is fair to say we have not found that the local authorities are an impediment to us rolling out our infrastructure at all, and we have worked in partnership with them. If there is an unmet need and we do not have the capability or capacity to do it, we see that what some of our counterparts in Great Britain are doing is running tenders to get companies to come in and do that. Obviously, it has to be commercially attractive for companies to be willing to do that. Mr. Byrne deals with the local authorities daily and, if it is okay with the Chair, I will pass over to him to give a more comprehensive answer.

Mr. John Byrne: On Deputy O'Sullivan's question on the approach and the relationship, the relationship is healthy right across all of the local authorities and the County and City Management Association, CCMA. However, I would agree with the Deputy's earlier statements that some of them are further along the journey than others. In regard to the approaches, they come in many guises. Some are more formal and under direction, and some are less formal and come through councillors or town engineers.

In terms of assessing their viability, there are a number of key criteria or pillar criteria we look at. One is the available space in the area that is being proposed. A second is the traffic volumes and whether they will support additional charging infrastructure and whether that is actually required. We also look at local population densities and EV ownership rates in that area. Clonakilty would be a prime example, as well as other towns like Dingle, Lahinch, Clifden and big towns along the Wild Atlantic Way that attract quite an amount of tourism, so that would certainly be a factor in our deliberations. Ultimately, the last two would be grid capacity at the location and consent. In that format, while the local authorities would not have concerns over the longevity of the infrastructure, it is important to note that once the charger goes in, there are revenue and maintenance implications. They recognise they are sometimes not the best placed entity to undertake that and it is handed over to us, by agreement. As Ms Sayers said, that is quite prevalent in the UK, where they package large quantities of chargers together and run them in a competitive tendering or procurement environment.

Deputy Christopher O'Sullivan: Where they are looking for a fast charger in a public

car park, that first step would come from the area engineers in the local authority, who would identify where it may be suitable and then assess it.

Mr. John Byrne: Yes, that is typically the way it goes. It is a collaborative relationship and sometimes it ends up with a charger being moved. On some occasions, the technology has allowed for the grid connection to be upgraded, so where there may have been a single standard charger - a 22 kW charger - there is now the opportunity for a double-headed fast charger, which would double or even triple the speed and double the capacity at the same location. That is often an option that is chosen.

Deputy Christopher O'Sullivan: Is that funded by the local authority?

Mr. John Byrne: Yes.

Chairman: I thank Deputy O'Sullivan and Mr. Byrne. As no other members are indicating to ask further questions, do our witnesses have any points they want to raise?

Dr. Damien Ó Tuama: I thank the committee for the opportunity to present today. There is a lot more research and thinking happening in the development of active travel now than there was 20 years ago, so it is positive in that sense. Mobility is changing all around Europe. Transport emissions have been growing incredibly quickly in Ireland since 1990 and it is simply unsustainable. The future of mobility has to be different. It is going to be partly electric and partly shared. It is going to involve much better public transport, but is also going to be active.

It is about de-siloing public health from mobility. Traditionally, they were very different spheres. I have a busy life and I do not have time to play sport, although I would love to, but I get my exercise every single day without fail from cycling into the city, or to the shops or to visit my mother. We need to start thinking in a more integrated way about the future of moving and public health. I would strongly endorse the points made by Dr. Byrne in his contributions. We need to imagine a future where moving around is not creating all of these negative externalities, which are very difficult, wicked problems to solve. Instead, when we are moving, we should be adding to society, adding to the environment and adding to our public health. We need to change radically how we think about mobility. Otherwise, we are snookered in terms of decarbonising the sector.

I thank all of the other contributors. I learned a lot from everyone I have listened to today.

Chairman: I thank Dr. Ó Tuama. Do any of our other witnesses wish to mention anything that has not been discussed? If not, I thank the witnesses for joining us today. It was a fascinating and broad-ranging session, and it is appropriate that it was. It will be very useful. I believe the members of the committee are going to get stuck into putting together a report, and we hope it will genuinely address the opportunities around electric vehicles, the challenges around them and, of course, the broader definition of electric vehicles as well. I thank witnesses and members for their contributions.

The joint committee adjourned at 5.50 p.m. until 3 p.m. on Tuesday, 7 December 2021.