

Next steps for transport in Scotland - infrastructure, decarbonisation and economic growth 20th November 2018

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About this Publication

This publication reflects proceedings at the Scotland Policy Conferences Keynote Seminar: Next steps for transport in Scotland - infrastructure, decarbonisation and economic growth held on 20th November 2018. The views expressed in the articles are those of the named authors, not those of the Forum or the sponsors, apart from their own articles.

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Scotland Policy Conferences Keynote Seminar: Next steps for transport in Scotland - infrastructure, decarbonisation and economic growth

Timing: Morning, Tuesday, 20th November 2018

Venue: The Principal Edinburgh, 38 Charlotte Square, Edinburgh EH2 4HQ



SCOTLAND POLICY
CONFERENCES

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Colin Smyth MSP, Shadow Cabinet Secretary for Rural Economy and Connectivity, Scottish Labour
- 9.05 - 9.35 **Priorities for Scotland's transport system**
Alison Irvine, Director, Transport Strategy and Analysis, Transport Scotland
Questions and comments from the floor
- Policy priorities for the forthcoming National Transport Strategy: infrastructure delivery and supporting economic growth**
- 9.35 - 9.45 **Derick Murray**, Director, Nestrans
- 9.45 - 9.55 **Neil Amner**, Director, Anderson Strathern and Director, Scottish Chambers of Commerce
- 9.55 - 10.05 **David Simpson**, Operations Director, ScotRail
- 10.05 - 10.15 **Sara Thiam**, Regional Director, ICE Scotland
- 10.15 - 10.30 Questions and comments from the floor
- 10.30 - 11.15 **Key issues for implementing low emission zones**
Duncan Booker, Head of Sustainability and Resilience, Glasgow City Council
Nicholas Lyes, Public Affairs Manager and Spokesperson on roads policy, RAC
Martin Reid, Director, Business Unit North, Road Haulage Association
Professor James Curran, Honorary Fellow, Scottish Environmental LINK
Questions and comments from the floor
- 11.15 - 11.20 **Chair's closing remarks**
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- 11.20 - 11.45 Coffee
- 11.45 - 11.50 **Chair's opening remarks**
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- 11.50 - 12.35 **Delivering low-carbon infrastructure and increasing uptake of LEVs**
Ross Fairley, Head of Renewable Energy, Burges Salmon
Councillor Lynne Short, Convener, City Development Committee, Dundee City Council
Professor Volker Pickert, Chief Scientific Advisor, The TEV Project
Questions and comments from the floor
- 12.35 - 12.55 **The future for Scotland's transport system**
Professor Tom Rye, Professor of Transport and Director, Transport Research Institute, Edinburgh Napier University
Questions and comments from the floor
- 12.55 - 13.00 **Chair's and Scotland Policy Conferences closing remarks**
Maureen Watt MSP, Member, Rural Economy and Connectivity Committee
Roger Greer, Associate Producer, Scotland Policy Conferences

Scotland Policy Conferences opening remarks

Roger Greer, Associate Producer

Good morning ladies and gentlemen, thanks very much for joining us for this morning's seminar. My name is Roger Greer, I'm Associate Producer of Scotland Policy Conferences, and it's a great pleasure to welcome you all here to The Principal.

Just a few business remarks before we get started. There's one change to this morning's agenda, Alison has to leave us early so will be going first on the agenda, Professor Rye will go last on the agenda, so we thank Alison for joining us, to take the time to be with us this morning.

We also thank Colin Smyth for Chairing and just before I hand over to him, just a couple of little housekeeping remarks.

As with all of our seminars, everything that is said today is recorded and transcribed and will be sent through to you in the form of a publication, usually in about 10 to 12 working days, with that in mind if you do have a question or comment throughout the morning, if you can just wait for a microphone and state your name and organisation clearly, that will make sure that you are put on to that transcript and recorded properly.

Do feel free to tweet, carry on the conversation on Twitter, Facebook, whatever way you are so inclined, there's a hashtag behind me on the screen, the wi-fi is simply The Principal and you can log in using your email address.

And with that I will hand over to Colin, and again thanks very much for Chairing this morning's session for us.

Session Chair's opening remarks

Colin Smyth MSP, Shadow Cabinet Secretary for Rural Economy and Connectivity, Scottish Labour

Thank you very much, and good morning to everyone, it's fantastic to see so many people where for what I'm sure is going to be a fascinating and very relevant and topical debate this morning, the fact that you are all here so sharp means that your journey was obviously trouble free and on time, so that was a good start to our transport conference.

My name is Colin Smyth, I have the pleasure of being the MSP for the South of Scotland, I'm also a Member of the Scottish Parliament's Rural Economy and Connectivity Committee, that Committee's role is to scrutinise legislation around, amongst other things, transport and infrastructure and of course also to scrutinise the Government on the issue of transport.

I also am my Party's Spokesperson on Transport and Infrastructure and I have to say there are few subjects that fill my inbox as much as issues around transport, whether it's around rail services, concerns over the future of bus networks in the rural area that I represent, when am I going to get the potholes fixed, is always a popular email I get on a regular basis, when are you going to actually get the A75/A77, those trunk roads in my region upgraded. So it's a subject that is hugely important to the constituents that I represent, and it's also a subject that is massively relevant at the moment to my role as an MSP.

The Government are obviously about to embark on that review of the National Transport Strategy and of course the Transport Bill is currently before the Rural Economy Committee, we're going through what's called the Stage 1 process of scrutinising that Bill. And that's a very comprehensive Bill, as everyone here will know it covers a wide range of issues and I have to say the work that the Committee has done so far, it's a subject that has ignited, shall we say, a huge amount of debate from a whole host of organisations that have given evidence, issues around, of course, the proposed ban on pavement parking and double parking, we have a lot of evidence of people who say that the exemptions go too far, others of course say those exemptions don't go far enough, and of course low emission zones is a subject that we are going to look at in a lot of detail today, where again we've had a range of evidence, environment groups believing that the timelines frankly don't go far enough and the technology will take over before the low emission zones come into practice. But others, from, for example, the haulage industry and taxi companies who are concerned that maybe the LEZs will go too far.

So I'm relying on everybody here today coming up with the answers for me to take back to the Committee later today so that we can make sure that report gets it right in the end.

Well I'm not going to say much more than that, there's somebody here from ScotRail who will be watching my timing very carefully, if I'm running late will take revenge by having a go at me in the same way that I'm always critical of them. So I'm going to stick to time as much as I possibly can, and that will allow, first of all our speakers as much time as possible, but more importantly of course, everybody here the opportunity to ask questions and to raise any points that you have. So please feel free to make your point and make sure you ask those questions of our speakers.

So we are going to kick off with our first speaker today, I'm delighted to welcome Alison Irvine, who is a director of transport strategy and analysis for Transport Scotland. Alison has worked at Transport Scotland now for around 10 years and she is responsible for providing strategic transport planning advice to Scottish Ministers and assisting local authorities plan for the future. So I have to say a very busy role indeed and a very warm welcome to you Alison, over to yourself.

Priorities for Scotland's transport system

Alison Irvine, Director, Transport Strategy and Analysis, Transport Scotland

Good morning ladies and gentlemen, can you all hear me okay? Okay, good.

I welcome Colin's challenge around timekeeping, and keeping to time because those of you who have heard me speak before know that I can talk a lot, but I'm assured that there are people up the back with red and yellow cards to give me a warning of when to stop.

So just a very brief introduction, I am the Director of Transport Strategy and Analysis within Transport Scotland, it's a new Directorate within our organisation. I would like to say I've got a really wide remit of sort of cross-cutting policy issues across transport, which includes, just so you are aware, putting this into context, policy issues around climate change, all of our analytical teams, our economists, our transport planners, our statisticians, the Transport Bill as well is mine, and my particular favourite this week, Brexit.

However that's not I'm here to talk about today, today I am here to talk about two particular areas of activity that we have in terms of significant workstreams that are on-going and that is namely the review of the National Transport Strategy and the Second Strategic Transport Projects Review. So I want to focus my talk on that, but I just want you to understand that there is an awful lot more than this happening within Transport Scotland as we speak.

So just a brief recap. Why now? What is driving the need for a change in our approach in terms of our strategy? Some of the key drivers that I've just put up there that are worth just highlighting, around climate change and the Scottish Government's commitment to the reduction in emissions, air quality, particularly within our cities and the drive for the delivery of the low emission zones across Scotland, the move towards electric and alternative fuels which we will hear more about later. I think the impact of congestion on our transport networks, but I would say more particularly on bus patronage levels and what that means for accessibility and connectivity to jobs and services in vast swathes of our country. Our increasing investment in sustainable transport modes, you all heard the doubling of spend in active travel to 80 million, and I think also fundamentally changes in travel behaviours, lifestyle choices, and the technological impacts and what all of that will mean for our transport system as we move into the future.

There are some other sort of key drivers of change that kind of help to set out our approach.

First off the Planning Review, that gave us three key signals that were particularly relevant for transport. One was around the delivery of infrastructure, particularly at a regional level and the gap in delivery that was identified there. They gave clear recommendation on an infrastructure first approach and also the recommendation that there was a review of transport governance.

We also had, within Government, the Enterprise and Skills Review which I think has help set a course for delivery, particularly of the Government's inclusive growth agenda.

It wouldn't be right for me to be standing here and not at least talk very briefly about the change that the City and Regional Growth Deal agenda has brought to the landscape, particularly in transport in many ways. Those of you that are close to these projects, to these sort of policy areas will realise that most of them include substantial infrastructure investment proposals. We've got deals agreed in Glasgow, Edinburgh, Inverness, Stirling, Clacks, there's on-going discussions around the rest of the country. I think you wouldn't be surprised to say me say that actually having evidence to support the proposals that are putting forward in these deals is of fundamental important to allow the bus decisions to be made. But what these do give us in terms of the regional aspect of the growth deals, is a real potential for transformational change, not necessarily in terms of infrastructure, but actually in terms of the way in which transport, the economy and land use are thought of within Scotland.

So how are we going about that?

We are reviewing the National Transport Strategy as we speak, work started in 2017 and I can spot at least one member of the National Transport Strategy Board in the audience, so I will need to be very careful what I say. We kicked off with some early engagement, we've been round the country, spoken to people on our islands and our rural communities, younger people, older people etc. We've already done a call for evidence work, but the core part of the work that we are doing is based around these working groups. We've deliberately taken a collaborative approach because my view is that this isn't just the Scottish Government's National Transport Strategy, but indeed this has to be a National Transport Strategy which can be built upon and used by all of the transport authorities that we have within Scotland. So it's important that what we have is collaborative and that it is applicable to each part of our quite diverse country.

We have three functional groups on research and evidence, strategic framework and on roles and responsibilities, and we also have four thematic working groups based around safe and resilient transport systems, tackling inequalities, enabling economic growth and greener and healthier.

So some of the key themes that have already come out of our call for evidence are around the fact that transport can enable economic growth, but it is rarely sufficient on its own, some of the other important ones, that mode shift away from private car use is important for health and for an environment, but there's less consensus on how that can best be achieved. Around the uncertainties there were few submissions that provided the evidence on the differential impacts between transport interventions across our demographics and across our geographic areas, and also around the fact that how many motorised miles on our roads can be substituted by other modes, and then in terms of the real gaps in our evidence base, that largely focuses around those areas around technology and what that will mean for the way in which people make travel choices in the future, what governance models might we want to have in the future to make it more effective, and then some of those external threats around climate change, cyber security etc.

So it's safe to say it's a complex area, there's a lot going on and quite a lot of uncertainty.

So this is where we've got to so far with the strategic framework groups, delivery of a vision and outcomes and giving you a sneak peak of the latest version of this. It's safe to say it's the subject of a lot of debate, particularly around word choice, so it's still up there as a draft at the moment, but our key vision is that we will have a sustainable, inclusive and accessible transport system helping to deliver a healthy, prosperous and fair Scotland for communities, business and visitors, and I think that actually gets to the heart of the challenge of what we are trying to do here, because I don't think any of you could look at that and say I disagree with that, however the trick comes in how do we prioritise within that.

We have four themes around that central vision:

- helping our economy prosper;
- improving our health and wellbeing;
- taking climate action; and
- promoting inequality.

And within each of those there are three outcomes listed.

So it's a big subject area and I think what is very clear is that we will not have a one size fits all, that what measures that we would maybe have, policies that we might want to put in place in some of our cities might not be as applicable in our suburban areas or in our island communities and it's important that we get the diversity of Scotland's demographic and geographic characteristics, as good as they can be, within a National Transport Strategy.

So a bit of the techy process'ey stuff, we are now at the stage where we are working through the 100+ policies and actions that were developed by the various thematic working groups, we are taking that through a three stage appraisal process which the more astute of you in the audience might recognise as part of our transport appraisal guidance, just using slightly different language but it's around initial sifting of options, refinement

and consolidation and then detailed consideration and combined impact of what those policies may be. So we are at the refinement and consolidation stage at the moment.

One of the more geeky and what I think is more interesting aspects of what we are doing is around scenario planning work, I think hopefully you've got the impression that what we do here is quite complex, but it's also fundamentally uncertain. I'm quite keen that we are in a position to proportionately test the impact of the policy options that are coming forward, bearing in mind the levels of uncertainty, with a view that whatever policies finally emerge out the other side of this piece of work, are as robust as they can be within the context of the scenarios that we have developed, but also that we understand the likely potential impacts of some of those policies, and most importantly that we get to choose the future that we want, rather than predict and provide. So that's quite an important change in emphasis and we developed this work with Professor Glenn Lyons to try and improve what we do, but as I said it's quite geeky and probably very few of us are actually interested in that, but it's important to talk about.

Thanks, there was a few nods in the audience there, so that's good, that's good.

So all of this policy work that's on-going, that will then feed into our thinking about the Second Strategic Transport Projects Review. Now this is at a very early stage so we are just at the point of, I think, establishing some key principles, which I'm not going to read out there but they are up on the screen there, and I think just some of the key ones that I would want to pick out is that it will be linked to the National Transport Strategy, that will set our priorities and considering forecasts and what those drivers are for change. We're taking a Scotland wide focus future on strategic transport interventions for our Scottish Ministers to consider in terms of the future. We will use our transport appraisal guidance to help us get there.

We have said that we will take a national or regional approach to how we do that and I will talk more about that later. We are aiming to develop a 20 year plan for transport investment which will complement the National Transport Strategy but most importantly for me will provide part of the action programme for the next national planning framework, so we've got a really clear linkage there and really clear commitment to link transport with land use planning and economic development and I think that that's really important.

Moving on to scope, the first STPR had a strong emphasis on the trunk road and the rail network, a bit around bus and a bit around park and rides, it focused on transport corridors and hubs. What we've committed to for the second review is that a national level infrastructure investment will be around road and rail, obviously, but also around active travel, around rail and connectivity, around buses and around ferries.

We've made a couple of commitments to sort of early outcome work and one of those I just want to briefly touch on is around looking at infrastructure measures to help reduce the impact of congestion on our bus services, just part of the solution in terms of helping to arrest the decline in bus patronage but that is intended to be one of the early outcomes.

Of course within all of that we have to remember our investment hierarchy. This is our current investment hierarchy where we anticipate that we will be doing some work to refine that as we move through the next few stages of our work, but I just wanted to be very, very clear that our first and foremost will be around maintaining our existing assets, they are of huge value to Scotland Plc, both at a national level infrastructure but also at a local level infrastructure, and I don't think that we should forget that.

We will then take the recommendation from the planning review around this infrastructure first approach through maximising the best use of our existing networks. Only once we have satisfied ourselves that those two areas, we've done as much of those two areas as we possibly can, will we move on to targeted infrastructure improvements.

Future engagements are going to be really key, and that's going to be a combined engagement around the National Transport Strategy policies as they are developed and moving into STPR. We've given a commitment to continue that collaborative review, we want to engage at all different levels, particularly with local authorities and RTPs to deliver a national level plan that is tailored to our diverse local geographies.

Positive experience of engagements so far, we've had over 6,000 points of contact on the work that we've done so far across a relatively vast geographic area of our country, that actually are a relatively not particularly densely populated area, so the level of response and interest is to, to pick up on what Colin was talking about, is enormous in transport, everybody has an opinion and it's important everybody is able to reflect that.

So a bit around the national focus and the regional focus again, the national focus we look at the strategic links between our cities, our key ports and international gateways and cross-border links, I think particularly in the Brexit circumstances that we find ourselves in that Scotland's place in the world has never been more important, so it's right that that remains a national focus, but we also have to look at that regional focus that will consider the role of the strategic network within those regional economic geographies.

All local authorities and RTPs will be invited to be involved and there's some work that's already on-going across the country. I've just got my yellow card, so I'm going to have to talk really, really quickly now. All will get an opportunity to be involved, but the national connections, I think I will just skip that really quickly because I've probably said already.

For those of you that interested and might want to take a look at some of our earliest work, the Borders Transport Corridors study, it's been published in draft, it's available on our website. It was as great piece of collaborative working with SEStran and the Scottish Borders Council on transport within their region. It's given us 21 emerging interventions from a long list of over 100, it includes things like improved active travel connections to transport hubs, bus network improvements to key locations, education, hospitals and major centres as well as potential interventions around the trunk road and rail network in the area.

We've also got some really great work going on in the North East of Scotland that's emerged from one of the city deal commitments, and I think what I particularly like about this piece of work is the way in which Nestrans are using the same piece of work to help inform the regional transport strategy, and I'm not just saying that because Derick is speaking next, but I actually genuinely think that it's a really joined up cohesive way for us all to progress.

And in the South West of Scotland we have work underway on South West Scotland Transport Study that has that particular focus on the reports that came round which provide a major route to Northern Ireland and are of major economic importance, not just for the region but also for Scotland Plc.

So all of those studies, along with the rest of the areas as they emerge over the coming months will help inform what we do within STPR 2.

So just a bit on timelines, we are intending to do the policy collation and assessment within the NTS over the course of 2018 and into 2019, that's when you'll start to see some of that regional assessment work taking place, with a view to developing a draft strategy for consultation later in 2019 for post publication consultation. We anticipate that we will have reached a view on the appointment of the consultants to help us do the Second Strategic Transport Project in the next weeks and that will give us the resources to help support that regional engagement in 2019.

STPR evidence gathering through 2019, detailed appraisal in 2020, the aim is to report in this Parliament but I think I would just highlight that what I did say about the linkage with the National Planning Framework and a bit of recognition that as the Planning Bill is going through Parliament as well as the Transport Bill at this point in time, that there are still some things that we need to give Parliament its place to help shape in that regard.

And finally just a continued commitment around engagement throughout the process.

And I think... I haven't had my red card, I didn't notice it, so that's me done, I'm happy to take questions but I'm going to go and sit down over there.

Thank you.

Alison Irvine's slides can be downloaded from the following link:

http://www.westminsterforumprojects.co.uk/forums/slides/Alison_Irvine.pdf

Priorities for Scotland's transport system

Questions and comments from the floor

- Colin Smyth MSP: Thank you very much for that Alison. I will give you time to take breath because that was really comprehensive, thank you. I think that highlights just how much, ladies and gentlemen, that's going on in the world of transport at the moment. Alison highlighted about the point about engagement, so this is your opportunity to have any points of view or more specifically any questions. So I'm going to open it up to the floor, who wants to kick off. You're going get off really lightly here Alison, nobody's got their hand up.
- Alison Irvine: Nobody, they're all scared, great.
- Colin Smyth MSP: Once they start, once they start. Can you say who you are ladies and gentlemen, over to yourself.
- Sara Thiam: From the Institution of Civil Engineers.
Alison it was great to hear you emphasising the importance of asset maintenance as a priority, and it's one of the things that we bang on about incessantly and quite unapologetically. How do we convince the politicians of the importance of looking after what we've already got? Sorry a tough one.
- Colin Smyth MSP: I'll let you know if the answer is correct as well.
- Alison Irvine: I think you need to reflect a bit on part of what you said in your introductory remarks about complaints about the potholes, about stressing the value of the asset and when we see what happens when things go wrong, you know there are a couple of real eye-watering things, when things have gone wrong, but you wouldn't want to focus on the fear factor. I think it's maybe just worth reflecting on what business tells us is important from a transport perspective and it's not necessarily as much about the journey time, but it's more about the journey time reliability, it's about access to the labour market, and how they can get their goods to market, and when you're working within the context of thinking about those things, as a kind of a priority for business and the fact that people want to get to where they want to go, actually I think it helps to start to develop the narrative around why maintaining what we've got is so important and that was me giving you more of a policy based response rather than the real techie response that I wanted to give you, but we will save that for another day.
- Colin Smyth MSP: Thanks very much. Well my answer is if you deliver the South West Transport Strategy than I'll be more than happy.
- Alison Irvine: Okay, thanks for that.
- Colin Smyth MSP: Okay, next question. All quiet this morning. I'll abuse my position as Chair then and ask a question. We've got a lot of city growth deals landing on your table at the moment and Transport Scotland are keen to go through that evidence based process when it comes to the wider transport issues and the STAG reports and the answer often

given for why is X project a higher priority than other projects is because of that evidence based approach you take, and what we as the city growth deals almost, if you like, confused that process because you have landed on your desk something that may be a priority for that city region area, but isn't maybe as high up the national priorities that Transport Scotland may have, so how does that conflict, how do you resolve that conflict?

Alison Irvine:

Oh that's a really tricky question. I think there's lots of things at play there. I think it's important that each of the regional areas are able to identify what's important to them. I think it's important that the decision makers in all of this have robust evidence to support that decision making and I would hope that through the combined review of the policies emerging from the National Transport Strategy and the STPR linked with the National Planning Framework and whatever emerges from a Regional Planning Framework will help to shape what those priorities are. But you will know as well as I do that transport appraisal can only take us so far, and that at some point difficult decisions will have to be made in terms of what is truly the national priority. So my job, and the job of my team through this work is to help provide the evidence to enable that debate to happen on the basis of as much evidence as we can have, as opposed to some of the more anecdotal perception type stuff that we get, so I don't know if... that probably didn't answer your question.

Colin Smyth MSP:

I think so, but your passionate [transcript gap] to make that final decision as to what the priorities are. Okay time for a few more questions, yes the gentleman here.

Dr Tom Flanagan:

From Tactran.
Alison I'm one of those geeky ones who are interested in scenario planning which you mentioned would happen at a national level, is it your intention to also look at scenario plans at the regional level as well?

Alison Irvine:

I think that is very much the way in which I would like it to go. What the national level scenario planning tool will give us will be a range of forecast and demands at a national level that we can then start to use to work with at a regional level, but the tool that we are currently developing is of such a scale that it wouldn't necessarily be as applicable at a regional level, but there are different ways in which you can deal with the scenario planning approach at a regional level. So I would be happy to discuss that with you and with, in fact, any of the regions as we move forward into the work. If you ever get the opportunity to hear Glenn Lyons talk about this work or read any of his papers, I would generally encourage you to do that because it's really interesting, for me.

Colin Smyth MSP:

Okay, any other questions. We've still got time for one more, if you have, they can be geeky if you like. You are getting off very lightly.

Alison Irvine:

Yes I am actually, it's great. I enjoy going first.

Colin Smyth MSP:

Absolutely, I'm sure please give a huge appreciation Alison, there was an awful lot there and I think that really set the context for our

discussions during the course of the day, so I would ask everyone to please show their appreciation to Alison.

I promised Alison when she comes before the Committee I will make it. There'll be a few more questions Alison I'm sure, but thank you very much indeed for your time. Okay ladies and gentlemen we are going to turn to the next item in today's programme and that is to look at the policy priorities for an issue that obviously Alison mentioned in detail today, and that of course is the National Transport Strategy. So we've got four speakers in the next session, I will take them one at a time, and then we will have an opportunity for everyone to ask questions of our four speakers at the end of their presentations. So to kick off this session can I invite Derick Murray, Derick is the Director of the North East Transport Partnership, a role that he has held since 2007, so over to yourself Derick.

Policy priorities for the forthcoming National Transport Strategy: infrastructure delivery and supporting economic growth

Derick Murray, Director, Nestrans

Thank you Colin. Good morning.

As it says up there my name is Derick Murray, in the Director of Nestrans, that's the North East Regional Transport Partnership for the North East of Scotland.

This is the next steps for transport in Scotland conference, and I would guess that most of you will be aware of developments of transport in Edinburgh and Glasgow, so as Scotland is much more than just Edinburgh and Glasgow I'm going to have a quick canter through where we are in terms of the next steps for the Aberdeen region.

This builds upon the priorities set out by Alison for the National Transport Strategy, in practical terms this leads to building better places in our major urban areas. Having spent the last period connecting our cities to each other, so moving from that connecting cities to what's happening actually in our cities.

Each city is different and each has its own issues and solutions and I'm fairly sure that Alison is going to be fairly fed up listening to me bang on about this again, but at the start of the rail industry at the end of the 60s Aberdeen consisted of only the blue areas there. This is Aberdeen today, there's as much of Aberdeen built in the last 50 years as there was of Aberdeen then. This growth isn't just seen in Aberdeen, every town and village surrounding the city has experienced the same growth.

The region has grown by over 100,000 people in that time, this is growth over a third, so the population has increased by a third and in proportionate terms that's three times the rate of growth in the Edinburgh region. In other words we've built nearly two and a half Perths in that time. So in and around Aberdeen we've built nearly two and a half Perths, it's an incredible statistic.

Yet this slide tries to show the road system is almost the same as it was back then. Some widening has been built but very little new routes, you can see some of the purple new routes at the top there, most of the rest of it is the same.

Development in towns and villages surrounding Aberdeen has meant that serving these by public transport has been difficult, as much of development of jobs has been in the peripheral areas of Aberdeen and you can see those yellow areas around the outskirts of town, that's where a lot of the new jobs take place. There simply hasn't been enough brown field sites to cope with the scale and the rate of the development in and around Aberdeen.

We are though at a cusp in terms of transport policy development, the AWPR, shown there in white, will shortly be open and by next December we will have a local rail service crossing Aberdeen on a single railway line. Now these are very significant investments and very significant for moving people in and around Aberdeen.

So historically we've had extensive growth, new jobs meaning more housing, with more people, a regional economic strategy and our strategic development plan are looking forward with plans to maximise economic recovery from the North Sea, to embed the expertise we have in our region, to keep the jobs here, and to diversify our economy. The net result of that plan is an expected more jobs, more housing and more people.

Our city centre master plan on the other hand seeks to create a more pleasant city centre environment by creating more space for people rather than cars. This of course means less cars. So we have a bit of a conundrum. More people generally meaning more cars in the region and a city centre that is full and a desire to reduce traffic levels. With low emission zones to be developed in each of our four main cities each zone will

have to work for each city and they are all different. In our case we need to ensure that our city centre masterplan and our low emissions zone complement each other.

Currently this is our system, the main trunk road having the priority through the city centre, the AWPR will take a chunk of this traffic away and the new local rail service will also reduce traffic. We need to maximise these benefits and that's actually a bigger ask than you would think, we have to persuade people to use these to the maximum. We are trying to link in people's minds that alternatives are currently being provided to the current usage of our network, but we need to do that and diesel alternatives are fairly new. So I hope Alison you heard that little bit.

This will allow us to change the priority to the radial routes into and out of the city centre, our regional centre. We are currently trying to identify secondary orbital routes to further provide options for not crossing the city centre.

And we are investigating the appetite amongst those living in and using our city for stopping the city centre itself being part of the road network and making it a destination. So you would travel into and out of the centre but not through or across it.

It's an interesting point that the Scottish Government's developing National Transport Strategy needs to consider the current main transport issue of creating better places in our major urban areas, but the responsible authorities in those areas in most places is our local authorities. Local authority buy in to the new strategy will be essential to delivery of the strategy's aims and that's why I think that Alison's engagement process is really powerful and really strong, to deliver a lot of the National Transport Strategy we are going to need local authorities to do it.

This slide is an attempt to visualise what we are trying to achieve, this doesn't represent traffic volumes but tries to show the current usage of our network and you can see a fairly busy situation there, mostly in the city centre.

This is trying to show what we are trying to achieve, which hopefully you can see is a fair bit calmer.

So we hope that this will create the conditions for acceptance of some restrictions on movement of cars in the city centre to provide the cleaner, quieter and more pleasant city centre that people have said that they want. They've said they want that plus not wanting to give up their car mind you, but we've got to try to work that one.

The key to being able to achieve this acceptance and people's willingness to change habits. Everywhere will still be available but some will need to use public transport, buses or trains, better buses, of course, means more priority and less car space. Some will need to walk or cycle, cycling of course means safe cycling, which in turns means less road space for cars. There will of course need to be some people in cars, are they willing to alter their route into the city? They would still be able to get to where they want to go, but they'll maybe have to use different unfamiliar routes and to walk the last distance, but are they willing to pay that price to get the better, cleaner, quieter city centre that they are looking for?

So the ambitions for Edinburgh and Glasgow are similar to those for Aberdeen, because each city is different, the route to get there will be different, but the end point will hopefully be the cleaner, quieter and more pleasant places that people have said that they want to live and work in.

And that's me, thank you very much.

Colin Smyth MSP:

Thank you very much indeed for that Derick, I'm sure the first question will be how you get people to choose all those public transport and give up their car, but we will give you a couple of minutes to think of the answer to that one before we open up to question and answer.

Okay, can I invite our next speaker, who is Neil Amner who is a Director of Anderson Strathern. Can I invite you to make a presentation today. Thank you very much.

Policy priorities for the forthcoming National Transport Strategy: infrastructure delivery and supporting economic growth

Neil Amner, Director, Anderson Strathern and Director, Scottish Chambers of Commerce

Right, thanks very much.

For those who know me I wear a number of hats in life, so I am speaking this morning with my Scottish Chambers of Commerce Director hat rather than any of the other ones.

For the overwhelming majority of businesses transport is an enabler, it's a means to an end rather than an end in itself and I make this point deliberately at the start of a transport conference. For business, transport if you like is the oil in the machinery of business; it delivers materials, goods, staff and customers. An effective and efficient transport system therefore is something which businesses and their staff and customers all share a common desire for. It's essential for our transport services and the infrastructure upon which they rely, are reliable and resilient, and wherever possible that contingency is planned for and users are kept informed when things go wrong.

A transport system which consistently delivers high quality services within an accessible and integrated manner is one which supports the economy, encourages people to live, study, visit, trade with and invest in Scotland. As an enabling activity transport inevitably interfaces with a great many other areas of policy, not least land use planning as Alison mentioned this morning. Transport therefore has a role in place making, by the connectivity provided, as illustrated by Derick's talk.

In due course for a revised National Transport Strategy, a Strategic Transport Projects Review, and the National Planning Framework will all need to be aligned. The recognition of the important of city regions for economic development, and the objectives and potential impact of city deals, including but not limited to the transport projects as such which fall under them, need to be reflected not just in the regional transport strategies of each of the areas in question, but nationally too.

So a choice is made in transport provision and infrastructure can have major impacts on social inclusion, again back to Derick's talk. By this I do not just mean accessibility for disabled people but a more general issue. If transport provision is too expensive to use, has dysfunctional timing or frequency, or simply is not available it excludes people and locations from vital services and the wider economy.

With record levels of employment and skills gap issues, Scotland needs to prioritise labour market accessibility. That can take many forms including the promotion of active travel options. So the art of the possible will doubtlessly require a degree of flexibility, again as Alison indicated this morning on a case by case and location by location basis to allow innovative solutions to be found. The forthcoming National Transport Strategy will need to address transport's role in respect of the economy, equality, health and wellbeing and the environment.

With transport emissions predicted by the EU Commission to make up 25% of all emissions in the EU by 2030, and with road transport making up 70% of that, it is to be expected that there will be significant environmental elements specifically related to climate change in the new transport strategy. But as with the work of Glasgow's Connectivity Commission, overarching policies and their specific implementation must be based not on rhetoric but on analysis of the factual position. After careful consideration which must include and must be mindful of the risk of gaming, the creation of perverse incentives are otherwise collateral damage to the economy.

Environmental aspects of a new strategy need not however necessarily be at odds with business or of the economy more generally, if there's a coordinated approach between transport, energy, communication and industrial policies along with land use policies, there could be significant opportunities for our economy.

Decarbonisation of transport is inevitably linked to the availability of alternative energy, of fuel for transport as well as smarter transport choices. But it's the rise of data as a driving force of the economy which offers new possibilities for how we organise and deliver production, transportation and consumption of all manner of things. This offers new levels of efficiently gains and lowering of cost, especially in the back office functions. If you add in advances in connectivity there's potential significant gains to be made with new interactions between people, vehicles and infrastructure. This will doubtless lead to new business models and the rise of collaborations amongst and across suppliers and modes of transport.

There is far more to this than solving the challenge of not spots and trains and other modes of transport. Intelligent transport systems and decarbonisation may entail a fundamental rethink of our infrastructure, more detail of which we may well hear more about later this morning. But the pace of change could be very rapid indeed, if what seems to be far-fetched now being capable, if enabled by appropriate policy frameworks that are being achieved far sooner than might be expected. Think about how rapidly the UK moved from a horse drawn economy to one dominated by the internal combustion engine in little over 20 years a century ago. The advantages of mobile phone technology our renewables industry we've seen in Scotland more recently in a similar timeframe. The strategy must be drafted in a way that's mindful of emerging technologies and the potential they offer, whilst taking cognisance of existing shortcomings and pressures on various aspects of our transport networks. Safety and security, including data security will need to be factored in to how the new transport solutions are developed, deployed and regulated.

Scotland is of a scale that offers opportunities for new technologies to be trialled and deployed at a city level. Funding for demonstrator projects, for mobility to service is therefore welcomed as is the recent opening of a transport catapult of an office in Glasgow as a satellite from its Milton Keynes HQ.

The coalescence of engineering and industrial design capabilities in and around Glasgow offers the potential not just for transport provision, but for industrial policy and economic growth, and acts as a benchmark for other parts of Scotland and indeed the UK.

Whilst it's natural to think of land transportation, the existing capabilities and potential, both of our maritime sector as champion of our Scottish maritime cluster and the aviation, defence and space sectors should not be forgotten either.

I would however like to finish with a couple of challenges. First, there's a fundamental problem with discussing transport policy, namely that too often any discussion is framed from the perspective of personal travel of the passenger journey. Freight and logistics issues are despite literally delivering the goods, too often ignored, overridden or consigned to a too difficult pile. Whilst people rather than packages or pallets have a vote, the beast from the east and some of the practical concerns around Brexit ought to be a reminder of the fundamental role of an efficient and effective supply chain as well as passenger transport. Let's not ignore the elephant in the room, the strategy cannot possibly please everyone all the time, choices will need to be made. It's inevitable that the last mile for nearly all deliveries will be by road, and if it's precious little cargo it can be carried on a bike.

Secondly, to return to where I started, and to line up Sara and David's contributions, I shall repeat that reliability and resilience are key. By the same measure what infrastructure upgrades and new vehicles are committed to, if the economic and social benefits sought are to be delivered by such projects, they must be delivered consistently on time and in a manner that they work out of the box first time, I suggest there's perhaps some work to be done there.

Finally, we can all agree that Scotland is big enough as a country to be able to test new ideas; it's also small enough to bring private and public sectors together to create a meaningful and productive partnership. Tapping into our respective strengths and networks can only ever be a good thing, as we rise to the challenge of creating an effective transport system for our businesses and communities. With younger generations focusing on experiences rather than ownership, with the rise of the likes of Spotify and Netflix, the words of Enrique Peñalosa the former Mayor of Bogota in Columbia will perhaps have a greater resonance. A

developed country is not a place where the poor have cars; it's a place where the rich use public transport. Thank you.

Neil Amner's slides can be downloaded from the following link:

http://www.westminsterforumprojects.co.uk/forums/slides/Neil_Amner.pdf

Colin Smyth MSP:

Thank you very much indeed Neil for highlighting the priorities of the chamber and the importance of transport to the wider economy and to business. We will have an opportunity to ask Neil some questions in a second, but I am delighted to welcome our next speaker for this session, which is David Simpson the Operations Director of ScotRail. David has over 30 years' experience in the rail sector, so over to yourself David.

Policy priorities for the forthcoming National Transport Strategy: infrastructure delivery and supporting economic growth

David Simpson, Operations Director, ScotRail

Good morning, thank you.

In a nutshell my job is to make the trains run on time and I congratulate Colin so far on running the conference within PPM so we can hopefully learn from that. Scotland rail network is huge and diverse and plays a key role in supporting Scotland's economy. The network splits into four key parts; we've got the key cross border arteries West and East coast linking Scotland with the rest of the UK. We have the urban networks around Glasgow and Edinburgh, Glasgow being the second largest in the UK outside of London. We have our intercity network serving our seven cities in Scotland, and last but not least we have the rural routes acting as key lifelines to some of our more remote communities across the country.

Within the ScotRail alliance we employ 7,500 people directly in the industry and of course plenty more in our supply chain. We operate 2,300 trains per day, we operate 350 stations and we operate that over 3,000 route miles. Now recent years have seen huge expansion in Scotland's rail network, I've worked in the network up here for about 12, 13 years. We have seen new lines to Larkhall, to Alloa between Airdrie and Bathgate, linking Edinburgh and Glasgow. The fourth route, and of course more recently down to borders and also new stations. Now all of those have outperformed the forecast for their growth and made a major contribution to the economy of the areas in which they serve. And that's I think what we need to focus on, how do we predict the way railways will benefit the economy more accurately going forward to justify that investment.

I would be the first to acknowledge that recent punctuality been below the standards we set ourselves, and indeed Government set us. I can assure you that we are working hard with our Network Rail partners to tackle that and get the trains back to where we want to be in terms of punctuality.

There's a wee snapshot of the network, the investment we are making currently is vital in growing Scotland's economy and connecting communities. ScotRail's currently investing £475 million in brand new and upgraded trains, and our Network Rail partners investing more than £2 billion in new and improved infrastructure since 2014. That's billions of pounds going into Scotland's economy, creating jobs and boosting the supply chain across Scotland and indeed more widely. And ScotRail itself contributes over half a billion pounds in gross value added every year to the Scottish economy.

Let's look at some of those investments, there's major projects ongoing currently on electrification and enhancements. We are electrifying the lines from Glasgow and Edinburgh, up to Stirling, Dunblane and Alloa. We are electrifying the lines between Glasgow and Edinburgh via Shotts both those projects on time, under budget and shortly about to deliver benefit to customers. Picking up on Derick Murray's point, we are also improving the route between Aberdeen and Inverness and also about to introduce next year more local services along that corridor, supporting the growth in Aberdeen and the North-East. We have also now started work on enhancing the highland mainline, Perth to Inverness to increase the frequency of services and improve journey time and capacity.

We are also working on stations. Down the road at Waverley, the two new platforms we are building are going very well, they will be ready early next year. Glasgow Queen Street is going well, though we will be running eight car trains to Queen Street from December next year and have completed that fantastic new station by Spring 2020, a fitting entrance to Glasgow for customers from the North and East.

Also working on new stations, building at Robroyston about to commence, and planning well underway at Dalcross and Kintore on the Aberdeen, Inverness route. The Queen Street work is massive; it's a building site right in the city centre. So far, we have removed 14,000 tons of rubble from the site from the demolition work there. But 94% of that we have been able to recycle, so the environmental issues are well aware there. And the right hand photo there is Forbes, which was rebuilt and moved as a key part of the Aberdeen, Inverness route enhancements.

It's not just stations it's trains as well. We now have our brand new Hitachi Class 385s operating between Glasgow and Edinburgh, and out to North Berwick. We have 70 of those on order, we have got 23 currently available for service, we are operating 10 a day and using the rest to train our drivers, conductors and maintenance staff on these new trains. And from December we will see those running on many more routes across central Scotland. These trains are longer, they offer more capacity, they improve journey times and they are greener than the diesel trains which they replace. And so far feedback from our customers has been extremely positive on the routes which these Class 385s are operating on.

On the intercity network in December we introduced new high-speed trains connecting the seven cities, the first refurbished train entered service last month, that's had fantastic customer feedback, that's got more seats, more luggage space, better legroom, power sockets, fantastic on board hospitality. With a new timetable it will help to reduce journey time and again increase frequency between the cities. We have 26 of those on order, we will be operating 10 from December, a mix of refurbished and classic HSTs, and we are also ordering more trains for Strathclyde with 12 refurbished electric trains increasing capacity by 2,500 seats a day across that busy Strathclyde network. So it's all about capacity growth, frequency growth and journey time improvement across those routes.

We are also looking at how easy it is for customers to use the network and smartcards are key to that. We have had smartcards up here for a couple of years for now; we are working hard on improving the take up of smartcards by making them easier to access. Looking at integrated ticketing with other modes, all our ticket offices now do smart and looking at trialling tickets on mobile phones as well to make the network easy to use for anyone who wishes to use it. And we have seen great take up on smart in recent months, with some of the improvements there.

Not forgetting freight of course, freight also plays a key role in supporting the economy and of course in recent years we have seen a significant decline in coal traffic both within and to and from Scotland. But other freight markets are holding up well, the intermodal is doing well and the cross-border routes. We also operate some internal intermodal in Scotland on the just in time flows up to the North-East and the North, and freight punctuality is good with over 90% of freight trains arriving within 15 minutes of schedule which is important for those markets. We are also looking at developing new freight markets with bottled water from Blackford and looking at innovative ways of removing timber from the forests in the West Highland over the next year or two, working with the industry on a freight growth plan, recognising the key part which rail freight plays in the economic future.

So in just three weeks' time now, we implement phase one of revolution for rail, this will be the biggest timetable change Scotland has seen for decades. We will be introducing the Class 385 electric trains on routes from Glasgow and Edinburgh to Stirling, Dunblane and Alloa. We will be moving our Class 365 Happy Trains to the Edinburgh to Dunblane route. We will be reducing journey times on the Edinburgh to Glasgow route to 42 minutes, with an average five minute reduction across all services. We will be introducing a new service from Edinburgh to Glasgow via Cumbernauld and Falkirk Grahamston. That will mean our two key cities have five different railway routes between them, all electrified over the course of the next year. That is something I think cities down South would bite their hands off for, when you look at the connectivity and opportunities that brings both to Glasgow and Edinburgh and of course the communities in-between.

We will be introducing our high speed trains on the seven city routes, again vast improvements in quality compared to the current trains. And we are also introducing new services along the East Coast corridor, on the Dundee / Aberdeen corridor, again improving connectivity and frequency on those routes. We are introducing more trains between Inverness and Elgin taking advantage of the infrastructure upgrades on those routes. More seats to North Berwick and more capacity across Strathclyde. So across the whole of Scotland's rail network December 9th, Phase One Revolution in Rail sees huge improvements in the service. That's only the start though, there's further improvements in May and December 2019 as we continue to build the best railway Scotland's ever had across the network.

So, these are exciting times, rail has played a key role in Scotland's economy over the past decades, it will continue to do so. There's massive investment going in, there's a lot of focus on delivering an excellent service day-to-day, make the trains on time, but lots to come and I feel that in the very near future we will really start seeing the fruits of that investment and the railway benefitting Scotland and its population now and for years to come.

Thank you.

David Simpson's slides can be downloaded from the following link:

http://www.westminsterforumprojects.co.uk/forums/slides/David_Simpson.pdf

Colin Smyth MSP:

Thank you very much indeed David and our final speaker Sara who's already champing at the bit there to kick off, so it's over to yourself Sara.

Policy priorities for the forthcoming National Transport Strategy: infrastructure delivery and supporting economic growth

Sara Thiam, Regional Director, ICE Scotland

Thank you, good morning everybody thank you for inviting me along, roll on the 42 minute journey time between Edinburgh and Glasgow, I look forward to that one.

My name's Sara Thiam, I'm the Director of the Institution of Civil Engineers in Scotland. I will say a word or two about who we are and what we do, before I'll share the thinking emerging from our new report, so I am unashamedly plugging it today I am afraid. It's our State of The Nation Infrastructure Investment Report and I will hopefully leave you with some takeaways at the end.

So who are ICE? Well we are a global, professional body; we have 90,000 members around the world. 8,000 of those members are here in Scotland, and they are the people who design, build and maintain Scotland's infrastructure. The infrastructure on which we depend. That is the transport infrastructure but it's also energy, water and flooding and the hospitals and schools, our social infrastructure.

Put simply our members are the infrastructure experts; they range from apprentices and students at college and university as well as senior professionals who work in public and private sectors. Some of them work for client bodies who procure infrastructure, like Transport Scotland or Scottish Water, the energy companies, Network Rail, or consultants like Arup, Jacobs, you know the names, and contractors, the people who build things, the Balfour Beatties, the Bam Nuttalls, the RJ McClouds and so on.

What kind of things do we do? Well we qualify civil engineers and that's about ensuring the best and safest infrastructure. We keep their knowledge and skills up to date, we promote civil engineering with a view to inspiring the next generation, and we advise decision makers and industry on infrastructure policy. The advice that we give is based on expert opinion. We are a charity and our Royal Charter bounds us to act in the public interest, so we have a broad convening power, which we use to inform decision makers and to drive innovation and progress in the industry.

Some of the things that we've been involved in and driven are the UK Infrastructure Client Group, Project 13 which I will talk about a bit more about later, the National Needs Assessment and looking at UK infrastructure needs out to 2050 and The National Infrastructure Commission.

2018's a very special year for us, we celebrate our bicentenary and hopefully you have seen some of the bits and pieces we have been doing in Scotland. It ties in with the Year of Young People, so we brought the world's longest Lego bridge to St Enoch Centre in Glasgow. We've had our invisible superheroes at the National Museum of Scotland and a pop up exhibition with our invisible superheroes. And our volunteers some of whom are in the room have been visiting schools and developing tourism trails of our historic infrastructure in many instances.

So, let's just talk a little bit about the context. Understanding where our infrastructure spend is going and where it needs to go is absolutely vital to achieving the joint prize of inclusive economic growth and decarbonisation. The good news is that we have a Government in Scotland I think, who understand the importance of infrastructure investment. Derick talked about how our cities have been connected up; they've actually prioritised investment in capital projects in the response to the impact of economic downturn and a period of sustained austerity in public finances that we all know about. The programme for the Government very encouragingly contains a welcome commitment to steadily increasing annual infrastructure investment to £7 billion over the next seven years.

So our State of the Nation Infrastructure Investment Report, what's in it? Well it considers what the investment priority should be, in a complex and shifting economic and political environment. Later this week in Scotland we host the new President of The Institution of Civil Engineers, his name's Andrew Wyllie CBE, he's the Chief Executive of Costain one of the Tier 1 contractors. All of the staff have been briefed that there is no

such thing as a challenge, everything is an opportunity. So with that in mind, and please promise you won't tell him, I'm going to talk about a few of the challenges that we face.

So we all know demands on our services are increasing, we have pressures from a growing and ageing population, disruptive technologies, we are moving to cities, we are becoming increasingly urbanised in Scotland and actually we are drifting from West to East in terms of Scottish Water's projections. The extreme weather events that we have seen in Scotland are linked to climate change and they require intervention to extend the life of those bridges, the railways, the tunnels.

Infrastructure's a long-term investment; it provides services that we rely on for decades if not for centuries. That long-term investment is hard because we have short political cycles. Not every party is going to agree on the priorities and we are not naive, we know that infrastructure decision making, and that capital investment is a political decision and always will be. But having all of the partners around the table improves the chance of getting the right decisions and a shared vision.

So in terms of our recommendations we've welcomed the infrastructure commission which was announced at the SNP Conference which we've been calling for, for some time. That investment and planning needs to move beyond those short-term policy cycles and it needs to be founded on a shared vision which is underpinned by cross-party commitment. We need a consistency of approach and long-term certainty of funding. Not just for new assets but for maintenance and renewal of existing assets if maximum benefit from that investment is going to be achieved.

We asked for the Scottish Infrastructure Commission to be independently chaired, we asked for it to be transparent and evidence led in its recommendations to the Scottish Government. So as I said, yes infrastructure decision making is political, it always will be, but actually we can give politicians the best chance of making the right decision by informing them of the facts and figures. There will be times when they will make an infrastructure decision based on... or for political reasons. It may be not on paper a piece of infrastructure investment that doesn't stack up. However, they will say actually we think this is the right thing to do and we're going to do it, and that's a political decision and then we vote accordingly.

Any Commission needs to undertake an assessment of Scotland's infrastructure needs. I was really encouraged to hear Alison talking about a 20 year cycle. We think out to 2050 is the kind of timescales we need to be looking at. We need to ask different questions. We need to make sure that that return on investment is going to deliver. Remember how much it cost when we had to close the Forth Road Bridge because of the truss end link failure, very sadly we only notice our infrastructure when it fails.

The other thing that we called for was for asset planning and maintenance to be declared a national infrastructure priority. Asset maintenance is a fundamental part of a resilient and productive infrastructure system. The economic outlook and analysis that Fraser of Allander did for us, it showed repair and maintenance represents around 1% of the Scottish economy and supports around two billion of Scottish GDP in 2015, that's the same size as the agricultural and fishing industries combined. So actually we have not really carefully looked at or thought about how much infrastructure maintenance offers to the economy.

We've made a few transport specific recommendations for intervention, however, as Neil was saying, what we've emphasised is that infrastructure should not be viewed in isolation. The different sectors mustn't be viewed in isolation. As our infrastructure evolves and it adapts, digital technology, connectivity and whole system approaches will deepen existing interdependencies.

The delivery of all projects requires transport infrastructure to ferry plant, materials and labour. But electric vehicles are going to require more charging infrastructure, requiring more energy and increased connectivity. So engineers, the automotive industry, the energy sector and telecommunications are going to need to work ever closer to explore how cross-sector investment can support this transport revolution.

Thinking innovatively about our assets and how they can have multiple uses is also vital. One of the examples we give in the report is North Glasgow and the way that they're using their canals for dynamic drainage. So in

terms of the transport specific recommendations, we've talked about the consideration of pay as you go road charging to replace fuel duty and vehicle excise duty that will decline as electric vehicles increase. A third of local roads in towns and cities and I don't need to tell people in Edinburgh about this, but the essential maintenance which costs about £1.3 billion to repair, if we introduce some kind of pay as you go system that income could be used to improve and maintain local roads, of which we have over 50,000 kilometres in Scotland. So it's a big commitment financially. We actually did a survey, over half of Scottish adults supported the idea of some kind of pay as you go, less than a quarter opposed it and the rest were undecided or didn't have a view.

So in terms of roads the recommendation we made was that the Scottish Government and local authorities need to commit multiyear funding of this and not just looking at it year on year for roads. I've talked about how we think... thinking about how we fund road maintenance. In terms of rail we talked about improving efficiencies and delivery and maintenance and building on the kind of lessons learnt through electrifying, and EGIP in particular, to ensure the best value for money. And in terms of energy, actually decarbonising our heat is the number priority at the moment.

So takeaways, well we also said the industry has to look at itself; it's not just about recommendations for the Government. No vision for economic and social infrastructure is deliverable without the people and skills to build it. A clear pipeline of work helps create confidence, and new approaches to risk sharing between the public and private sector are needed to address high profile industry collapses which are in no-one's interest. That closer joint working between the Government and the industry is required to tackle the problems associated with existing contracts and risk sharing, so we need to have some new models and that's some of the work that we're involved in through Project 13.

So the key takeaways, looking after what we've already got is just as important as new capacity. It's about the whole life of infrastructure. Existing infrastructure is our biggest capital investment. It never stops costing money but it costs more money if you don't maintain it and have to replace it. Evidence led, long-term investment decisions are vital to maximise and return on investment and understanding infrastructure interdependencies. The move to electric vehicles as I've said has huge implications for energy generation, distribution and transmission and we need a resilient construction sector with the skills and capacity to deliver investment priorities. A need for a more mature relationship between the Government and industry.

So we're on a journey from getting things right to getting the right things.

Thank you.

Policy priorities for the forthcoming National Transport Strategy: infrastructure delivery and supporting economic growth

Questions and comments from the floor

Colin Smyth MSP:

Thank you very much Sara. For what it's worth I very much share the institution's view around the proposals on the Infrastructure Commission; you can let me know what the Government's response is to that, to those proposals in due course. Ladies and gentlemen we've had four very, I have to say, excellent contributions to the debate on the priorities for the forthcoming National Transport Strategy. I think it's fair to say covering a very comprehensive range of stakeholders, but all sharing the view of the importance of infrastructure and the role in wider economic growth. But now is an opportunity for you to have your say, to ask our panel any questions or just to simply share any points of view that you have on this particular issue. So it's over to yourselves. Who wants to kick off? The gentleman here, if you could say who you are and...?

Andrew Malcolm:

From Malcolm Logistics.

We're very heavily involved in both road transport and also into model rail. Neil, firstly thank you for drawing the point about sometimes logistics getting lost in the transport strategy. We do feel there's possibly a bit more required to highlight the need and necessity to maintain, you know, a successful road infrastructure. Today we are finding that in the last three to four years that nearly 20% more logistics resource is required just to stand still, probably more due to congestion. David, obviously we sit alongside yourself on ScotRail and Network Rail and a credit to what you've done to date. One wee question might be, on the improvement we're seeing on timetables and passenger numbers, is there sufficient park and ride facilities to make the railways more accessible to try and get some of the cars, you know, off the road and more people to use the public transport?

Colin Smyth MSP:

One for yourself to kick off with David, I think.

David Simpson:

Andrew thanks. I think that's a great challenge. Park and ride is something that exists in some parts of Scotland, is the take up good, probably not. I think we need to take a serious look at how we improve that and target some of it. Obviously getting people into the city centre will help some of the... by public transport, helps some of the issues that we talked about earlier on in terms of major cities. I think it's maybe time for a fresh look at that and as part of the transport strategy how we perhaps encourage park and ride, helping city centres and help the model shift.

Colin Smyth MSP:

Bring Neil into...

Neil Amner:

I think it's a... is it on? Yes I mean I think we've been developing park and ride now for, well, certainly the last couple of franchises actually, but I think the point I was trying to make was that the emerging technologies actually might end up with a complete rethink as to how people use the car at all. You know, in the statistics, something like 90... the average car, unless it's a sales rep or a taxi, your average car

in the UK is stationary for 94% of the time. You know, if you think about it, you get up in the morning, you drive to work, or the station, you park your car, you do what you do during the day, you go home, you might nip out to the shops or the cinema or something at night, but otherwise the thing just sits there doing nothing. So actually we have cars in the first place, could change with the advent of Mobility as a Service type thing. The danger there though actually is that you know, we end up with more vehicles and more journeys, so we need to think carefully about actually how the unintended consequences of some of these emerging new technologies could bring to us. But I think there is a... that's the point I was trying to make, and Sara picked up on it as well, was a need to think about not just the immediate problem but look ahead 15, 20 years to see what we might get to and in some ways work back from that. Now try and pre-empt a compounding effect we could have in the fairly short-term.

Colin Smyth MSP:

I'll bring Sara in at this point. So how do we make sure that we thinking far ahead? How do we know how many park and ride schemes we need?

Sara Thiam:

Well, and this is the difficulty isn't it and we don't want to lock ourselves into a technology which is then immediately leapfrogged by something else. I think the... I was very encouraged by what Neil was talking about in terms of the big picture because actually this is fundamentally about planning as well and about where we build those new houses. We want to build 50,000 new houses in Scotland. But actually where we're building them, what's the kind of access to water where we're building them and actually what's the access to public transport networks actually is. I was driving out of this city the other day seeing all these new developments and I'm thinking, oh gosh this is already a horribly busy junction, it's not going to get any better. So we're actually building lots of houses which depend on the car rather worryingly. So I think much more careful thinking around all of that, which is really about planning and hopefully the planning review will pick up on some of that. But yes, taking... it's a bit like the energy one, it's not about either, or, it's about and, and, and, and. We need, you know, as our thermal generation capacity retires, we need to be thinking about wind, about solar. I was very interested to hear earlier this week about the new battery train being trialled on the Kinneil Railway, which charges at either end. Now you can see how that would be a great solution on the West Highland Line and things like that. So we just need to be... we're in perpetual white water here, but locking ourselves into infrastructure investment which is going to be redundant, because the one thing you can be sure is that the regulators are always playing catch up. The Ubers of this world are out there thinking about their next great way to make money and by the time the Government regulators have caught up they'll have moved on to the next thing.

Colin Smyth MSP:

Lots of nods from the audience at that point. Derick, I mean you highlighted the growth in the north-east, how important are the park and ride schemes to managing that growth and getting that culture change that you talked about in terms of the numbers of cars that want to go into our city centres in Aberdeen for example.

Derick Murray:

Well in our strategy what we want to do is to attract more people onto the train and get less people out of the city centre, exactly as you're talking about. So given that Uber doesn't exist yet in Aberdeen, this move towards not having cars I think is probably much longer term and we are going to need park and ride car parks, both for bus and for rail. The very point that the Nestrans board will be considering a report in February on car parking at railway stations, because we've got the rail revolution proposals to introduce a local rail service which we hope is going to be very successful. People will have to be able to park to be able to use that. So we are thinking about that. We are thinking about where the railway is going to be then. The city council in Aberdeen has just built a park and ride at Dyce; very unsuccessful so far, very slow take up. But what we need to do I think is to try to link the provision of these facilities to the city centre that people want and you've got to see the thing in a whole. If we are going to have people still coming into the city centre, but not taking their car, we have to provide them with the alternatives. So it's trying to find that balance of how much is the car, how much is public transport, how much is the train. And I think we need to provide that infrastructure now for today's situation even if in 50 years' time it may become redundant. But I suspect it will be quite a long time before we're all carless.

Colin Smyth MSP:

Absolutely.

Neil Amner:

Just throwing something back in on that one. First of all to say I think the task of Alison and our colleagues is nigh on an impossible task given the situation today and as I was saying, and by the way acquire a crystal ball and prediction and provide for that as well. But it is that thing about transport does not sit in isolation by itself, transport is part of land use planning; it's part of being economic. You know, one of the answers to car congestion is not to live outside the city. One of the answers is not to have to go to work at a certain time of day. Now actually as a Past President of a city centre Chamber of Commerce, we want people to come to our cities and that's what cities are for. But there's a package of things you look at and say right well do we manage the demand. One of the key things is, you know, create a series of choices where actually it becomes easy... today I got the train through. I haven't taken the car to Edinburgh for decades now because it's too much hassle. But I just walked up from Haymarket. Other folks may have got the bus or cycle. You do what you can do in terms of a practical thing. You give people practical choices. But I think the point about all this is that when we're looking at emission zones, one thing and another, we've again fallen into that trap already. Andrew mentioned park and ride and suddenly we're off talking about passengers again. You know, there won't be stuff to sell in the shops unless you can get deliveries to them. And we just need to think about the demand and actually in some ways the change to the high street, the change of consumption also creates challenges but also opportunities in terms of how we manage the flow of people and goods.

Sara Thiam:

Data is the real key here and actually as Governments, as local authorities we don't have that data. Google has it; Google knows

what we're doing. TfL did some really interesting work around this and actually they discovered that they didn't... people were not moving around their network the way that they thought they were. And Isabel Dedring from ARUP, I think there was... have I spotted Alan from ARUP in the audience here today, she spoke in Edinburgh earlier in the year and actually some of the more interesting models were cities like Barcelona who were teaming up with Google to say actually, we need that data in order to inform our future transport planning, to understand what people are doing already and what we can make them do or encourage them to do rather. Offer choices.

Colin Smyth MSP:

I think the gentleman at the back here had his hand up.

Cllr Martin Bartos:

Chair of SPT.

Following on in fact from that comment and indeed principally from the comments which Neil Amner made, I'm interested in the panel's views about where national strategy and where regional strategy should be in terms of the disruptive technology and in terms of data. You know, there's a huge amount of opportunity there which relates to how transport, which is fundamentally a demand led kind of entity, is engaging with demand responsive transport technologies, be it mass or whatever. And it strikes me that a lot of the infrastructure stuff that we're rightly concerned with is kind of long-term physical infrastructure, but there's a certain amount of disruptive infrastructure which is not yet built within the public sphere, although it seems to be being increasingly controlled and built within the private sphere. I'm just wondering where should national and regional transport organisations and local authorities be in the direction towards a kind of digital transport future which is what the kind of younger generations, not so much represented in this room, are expecting.

Colin Smyth MSP:

Look what you've started Sara.

Sara Thiam:

I know, sorry about that.

Colin Smyth MSP:

Do you want to pick up on that one?

Sara Thiam:

I suppose actually I would just really offer the example I've given of some of the cities that are beginning to have that conversation, the big urban centres, London, TfL are having that conversation with Google. You know, I think that the onus is on Governments to begin to have that conversation. But it's very difficult actually for the Government to exert any kind of... or to influence that and actually the skills and knowledge; the capacity does not necessarily exist within the public sector to deal with some of this. I don't know Neil; if you've got any brilliant examples you can pull out of your hat?

Neil Amner:

That might be my bag over there.

Sara Thiam:

The people in the audience I'm sure have got good examples.

Neil Amner:

Derick and I actually were sat on the SCDI's, Connectivity Commission and they produced their report which was published during the summer, which was called Scotland's Big Mo which talks about

precisely this challenge. The concern I guess for the Government is about skillsets, it's about knowledge. To pick up more serious points, the one I always go to, it shows how old I am, we want to make sure we buy the VHS version not the Betamax version, if I can put it that way, of some of this stuff. And equally, as we go for integration between modes by using various platforms, be it ticketing technology or you know, journey planning perhaps etc., the Ubers of this world, the Googles of this world are the ones who have access to the data. You know, who's to say that in 10 years' time, actually it won't be whichever PLC we can think of, or whichever public authority we can think of at the moment, who actually runs and dictates and controls and manages our transport. It could well be a Google type of person because they're the ones who at the moment, through our iPhones etc., can track what we're up to far more readily than any public authority can, unless you're GCHQ perhaps and, you know, have the means to analyse that and predict our behaviours. And at the moment we don't really know how the concept of mass is going to work, but it's that... crunching that data, the big data exercise and being able to predict almost on a moment by moment hourly basis what the demand will be, where it's coming from and then model accordingly. I don't have a magic answer to it I'm afraid because it's the level of knowledge of the technology goes beyond my realm unfortunately, but I think that is hopefully the opportunity and a challenge in the same moment.

Colin Smyth MSP:

I'll bring David in at this point. How do you... I mean the Borders rail link runs through my region and what a tremendous success that's been in terms of numbers. But those numbers exceeded all our expectations, so how do we get that information? How do we get those projections correct?

David Simpson:

Yes that's a really good point. I think the answer to some of this lies in Neil's earlier comment that, you know, railways, buses, whatever, is a means to an end. A train's a seat for me to be, so is an Uber. I work in a very traditional industry that perhaps doesn't think of what it provides in that way for either customers or freight users. So how do we pick up on the opportunities that disruptive technology brings in terms of data. We have to start answering questions like that. You know, Borders was built on a business case around economic development and as I said earlier on, their patronage has exceeded the forecasts as it has on most recent railway openings whether in Scotland or further afield. We're trying to use stuff like Google technology. Google information more widely and trying to plan where we provide trains, time of day frequency and so forth and try to understand better those travel patterns which need to be... where demand has to be met, or indeed where we can generate new custom by introducing new services. So I think there's opportunities there. But also, and someone mentioned the younger generation and when you look at how, you know, certainly my children use their mobile phones to travel about, how we make our industry, public transport more accessible is seen just as another Uber and not a train or a bus or a ferry or a car. Those are key as well and I don't think we're pushing hard enough in making use of the data, the disruptive technology we perhaps could do to kind of make sure public transport plays its role in the future transport strategy.

- Colin Smyth MSP: So I always feel we're playing catch up in terms of passenger experience, so given my own experience, two buses and a train to get to Edinburgh, so a bus from my house to the town centre, the town centre to Lockerbie railway station and then by train from Lockerbie to Edinburgh. It was a wee bit late but you'll be pleased to know it was a TransPennine train not a ScotRail train but that required three tickets. So I was able to use my bank card with one of those buses but not the second one and I certainly couldn't buy a train ticket on that first bus when I got there, so I needed three tickets effectively. If I went to London tomorrow I could swipe my card and get on and off buses quick. So why are we playing catch up? What's missing? It's not the technology, what's missing? So obviously the politicians haven't driven it enough, maybe that's the answer, but I know what's missing to actually delivering that to improve the passenger experience?
- David Simpson: I think there's a huge prize there and London's a good analogy. You can go with your bank card and travel wherever you like, the toll is capped and so forth. It's really easy.
- Sara Thiam: But you have a regulated transport system so then you're into a conversation about, you know re-regulation.
- David Simpson: Well I'll not go there at this moment in time. Feel free to feed your views on that to the Transport Committee, or the Economic Committee at one point.
- Neil Amner: A passing thought to actually come back to, to Andrew's initial question on this. It does... it will require a big brother approach to the management of for example the road network, but the technology is there at the moment as I understand it but you could effectively geofence the city centres or industrial estates, such that between track and trace, visibility on individual consignments in trains and trucks and ships for example, you could track a container when it's loaded to the port, until it's on the railway, until it gets on the truck, updated its ETA at a warehouse and you could say right, Malcolm's lorry that's carrying X is due at warehouse Y at 10.30 this morning. If it's late then you can update the system to know to expect it at quarter past 11 or if it's early at half past nine. But you could manage the traffic and give individual passports for individual vehicles, be it buses, taxis, HGVs and give priority over private transport, if that was the way that our politicians decide to go and if we could get the infrastructure to do it. I think the technology, as I understand it, broadly speaking is there, the question is, is the political will to get to that kind of big brother existence with the investment and with the systems and regulation that goes with it. That's a big decision and a political one fortunately rather than a technical one.
- Colin Smyth MSP: I could give you my answer but I'll get cut off... I'm not allowed to go into detail on that, but it's a very important point in how we actually drive that. I mean do we have the technology, I mean Derick, I'll bring you in at this point, on the basis of when you're planning, do you feel you've got the technology there, or is there something

missing? Or is it a political will? So I'll give an example. In my own area, they built a new hospital, so it was a very simple move, what happened was the bus routes that went to the old hospital, because that closed, were switched to the new hospital and the bus... the routes were the same in terms of frequency but bus usage plummeted and nobody could work out exactly why bus use has plummeted to the new hospital, when people got the bus to the old hospital. You know, do you have the information on this to make those judgements, at a local transport agency level. Or is there something missing?

Derick Murray:

Well currently of course it's up to the bus company to operate what buses it wants. We can have a view but it's up to the bus company, so that's another... back to the regulation thing. On the other issue, it's how big is your crystal ball? Because I don't know the future and Alison unfortunately doesn't know the future. But we've got to currently plan for the future that we don't know. So it's currently a difficult situation. But I come back to what's happened in the growth of Uber. The growth of Uber or its ilk has been in the major cities, but there's an awful lot of our country is not in the major cities. And it hasn't even gotten to our secondary cities yet. So what's going to happen to our more rural areas? People in these places are still going to, in my view anyway, still going to have their cars. And the question is, it might be a different kind of car, it might be a different kind of ownership, but we're still going to have to deal with that. And the thing I have in the back of my head about all of these future technologies is, what happens if you manage to get everybody using autonomous vehicles and therefore where are they coming from? One autonomous vehicle versus one car, that's fine, that's one car for one car. What about the bus? What if you attract 50 passengers out of the bus into 50 autonomous vehicles, what's that going to lead to in terms of congestion in our cities? So to me there is still huge questions about where this future goes and we may have less cars or less autonomous vehicles kicking around and sitting doing nothing for 94% of the time, but if they're all moving all the time what's that doing for congestion in our cities and how are we going to deal with that? So I think there's an awful lot of research still required to do here to understand how this is going to work and how it's going to spread and how it's going to affect the whole country, because it may not affect the whole country. I mean up in my part of the country, is it going to go to Fraserburgh, Mintlaw, Peterhead, or is it only going to go to Aberdeen, when Uber still aren't operating in Aberdeen? So a huge amount of unknowns, and the difficulty for us is trying to plan for that unknown and really all we can do is plan for what we do know.

Colin Smyth MSP:

I think the lady at the front here wanted to raise a point? Did you want to comment?

Councillor Lynne Short:

No it was just the whole concept of MaaS, we had a project in the Dundee / North Fife area and it was called NaviGoGo and it was billed as being Netflix for travel and it was made by young people for young people. And it was basically a carrot system in that the more sustainable choice of transport that you took then the more points that you got, which gave you benefits from your young

scorecard. So it is out there and open data is huge and MaaS is that opportunity and I think it's £2 million worth of MaaS is available. And in Dundee we have a concept called the Mobility Innovation Living Lab and it's had its first tender and it's going out to a second tender and it's council and EDFR money working with a company called Urban Foresight, and it's looking at transport and using Dundee and our 26 square miles of perfection, to actually come up with ways that you can take travel and practise with it. So grey fleets into green fleets, parking using the sensors, so that you only park for what you pay for and you use your car to then pay for it, so it comes out of your bank automatically, and then it gives businesses an idea who's coming in, why they're coming in, how long they're coming in for and city centres being more service led, parking needs to be so as well. So lots of things going on.

Colin Smyth MSP:

And what was your name sorry? It's just you mentioned Dundee, so I'd like...

Councillor Lynne Short:

Dundee City Council, sorry.

Colin Smyth MSP:

Thank you very much indeed Lynne.

Councillor Lynne Short:

By the way, David, it took a whole hour for someone to mention Dundee and it was you, so thank you. So I'll forgive you for not building us a train station.

Colin Smyth MSP:

And on that point David. We are running over I'm sorry. We are running over time, but we could talk about these issues for the rest of the morning. There's no question about that. But I'm very conscious of time and you know, we have overran here, so ladies and gentlemen could I ask you to please show your appreciation to our four panellists.

Okay, and there will be an opportunity during the coffee break if anyone wants to chat to our panellists and raise any points that sadly we didn't get an opportunity to raise during the course of the discussion.

Now we are going to change our panel now and ask our four new members of the panel to join us for the next session. We are just getting the debate enlivened up and we are going to go on to the very non-controversial issues of low emissions zones a little bit. Could I ask our four panellists if they can join us at the front please. Okay ladies and gentlemen can we move on to our next item and I have to say this is an issue that we've been debating extensively as the Transport Bill is going through the Scottish Parliament and the Rural Economy Committee and that of course is the issues around the low emission zones. We've got four excellent panellists here today to give us their thoughts on that and I'll introduce you. On my left we have Nicholas Lyes, Public Affairs Manager and Spokesperson on roads policy for the RAC; to my immediate left we have Duncan Booker, Duncan is the Head of Sustainability and Resilience at Glasgow City Council for the neighbourhoods and sustainability department. We then have on my immediate right, Martin Reid, Director of Business Unit North of the Road Haulage Association,

Martin has already had the pleasure of coming before the REC Commission to be asked questions on that, so give him a hard time, because we did on this didn't we Martin. And finally we have Professor James Curran, Honorary Fellow of Scottish Environment LINK who is obviously going to share his thoughts on low emission zones. It promises to be an excellent debate so I think we will kick off for your first contribution with Duncan.

Key issues for implementing low emission zones

Duncan Booker, Head of Sustainability and Resilience, Glasgow City Council

Thank you Chair and good morning everyone, it's a real privilege to say a few words here today about Scotland's first low emission zone, which will be introduced in Glasgow City Centre at the end of this year.

I'm sure that all of you are already well aware that air quality has become a key aspect of urban policy discourse, not just for Scotland's cities but wherever you might be in the world, and to that same extent where those cities have an issue with poor air quality then something like a low emission zone or a similarly titled intervention is very much becoming the ordinary part of the urban policy response to that challenge.

Now in that light Glasgow's low emission zone, when it comes into place at the end of this year, is being put in place in many ways for public health reasons, in order to protect and enhance the health of our people, and in particular those who are most vulnerable, the effects of poor air quality. But as I say that I would like you to bear in mind that air quality is one part of a broader approach to building a more sustainable city, generating green economic growth and ensuring a strong and high urban quality of life for residents, visitors and businesses alike, and at the same time maintaining Glasgow's strong position with a competitive and distinct urban offer that is a major contributor to the Scottish Government's own national ambitions.

With that having been said I do want say that air quality in Glasgow has been improving and is generally good, but we know we have a problem, with exceedances of the nitrogen dioxide objective limit in the city centre, and the principle cause of that is road traffic, and within that diesel engine road traffic, and within that further, according to our analysis in some of the most polluted streets, it's diesel engined buses that are one of the principal contributors, and that's very much shaped our approach to a low emission zone in Glasgow into a two phase approach. We've worked very closely with national partners, particularly of course the National Agency Transport Scotland, and with SEPA, with the regional body SPT whose Chair is here today, and with local organisations and crucially with local stakeholders, particularly from the business sector and especially in its first phase with bus companies.

So Glasgow's first phase of the LEZ which will be introduced that the end of this year, will look to improve emissions from bus journeys going through the city centre, we are going to be looking at rising improvement from those buses to a Euro6 diesel standard for NO₂ emissions, the only one proven in real world terms to actually do what it says, as it were, on the tin, and we are looking at that on an incremental annual set of improvements, moving toward full compliance by the year 2022. That first year, beginning at the end of this calendar year, is in place with sign off from the traffic commissioner. Has that debate with our colleagues from the bus industry been always an easy one? Well no of course not. Has there been criticism from the third sector and citizen activist groups about what we are doing? Yes, naturally. Have we finished, is everything settled? No there is a lot more work to be done yet, at the end of this year we will introduce Scotland's first low emission zone in Glasgow city centre.

And that robust and at times uncomfortable but necessarily democratic debate will continue with business, with residents, with activist groups as we move towards a second phase of the LEZ at the end of 2022 when it will apply to all vehicle types. With an emission standard for diesel of Euro6, which is one of the strictest in the United Kingdom outside of London's ultra-low emission zone. We believe that that period of introduction is relatively brisk in terms of how these things normally take place across Europe, in our experience, whilst at the same time being proportionate, ambitious, but also pragmatic.

And we've been very keen to make the point that as a public health intervention we need to recognise that the social determinants of health include access to an affordable and working transport system and access to a thriving city centre economy, without those there's not a great deal that people can do to improve their overall health in Glasgow. So we've had to measure that sense of not wanting to harm the bus industry leading to fare increases or service cuts, with the need to improve emissions.

Are we subject to criticism of that calculation? Of course. Will there be more debates? Yes, but that's part of the kind of data and part of the science that we've been trying to bring to the table and one that's allowed, as I said, a discussion with the industry and so on.

The next phase now, which will be introduced at the end of 2022 needs to engage much better with stakeholders, many of you in this room today, with Chambers of Commerce, you heard Neil earlier on, Glasgow Chamber of Commerce being a key aspect of that. We've been working with the British Vehicle Rental Leasing Association, fleet managers, taxi operators, not all of you in this room will have been engaged in that, all of you we would like to be engaged in that discussion as we move forward.

And I should just say as well that that's part, obviously the national conversation where what goes on in Glasgow for a driver needs to be consistent with what goes on for access to Dundee, Edinburgh and Aberdeen in due course, from 2020 onwards, and that's part of the Transport Scotland conversation about sunset clauses, exemptions, blue badge holders, vintage vehicles and so on, and things like, for instance signage and the level of penalty notice enforced by, in due course, ANPR cameras.

But all that technical aspect of it which will be resolved in due course as part of the conversation between the four cities and the National Agency, is part of an overall approach to creating a vibrant amenity for Glasgow City Centre that looks to improve air quality, but also its liveability in terms of access to local businesses for shoppers, for visitors and for the employees of those businesses alike.

And if I can end with one final though then. Glasgow does engineering and social policy in tandem, it does it well, from Loch Katrine onwards we have innovation, not only in technology but in producing the social outcomes that we would like to see from the use of that technology, and the low emission zone should be seen as one of the latest in that line of policy interventions in Glasgow, one that will transform our air quality, but one that will also contribute to a vibrant sustainable and green economic growth for the city and for its residents and visitors.

I will be happy to answer more questions later, I hope I've stuck to time.

Thank you.

Colin Smyth MSP:

Thank you very much Duncan for kicking us off and sharing the experience of Glasgow, it's over to yourself Nicholas on behalf of RAC to share your thoughts.

Key issues for implementing low emission zones

Nicholas Lyes, Public Affairs Manager and Spokesperson on roads policy, RAC

Good morning everyone. My name is Nicholas Lyes, I'm Head of roads policy at the RAC and I'm here to talk a little bit about what Scottish motorists are thinking about on low emissions zones and other environmental questions in our towns and cities.

Now I've probably got more slides than required and I've only got 5 minutes. So I will try and stick as much as I possibly can to the main findings otherwise I risk a yellow or red card.

So a little bit about the RAC. I'm sure you all know who we are. We have 8 million members. We've got 1,600 patrols up and down the UK providing motoring services, but probably best known for our breakdown cover.

As a motoring group we represent our members and the wider motoring public. And our job in the policy and public affairs team is to understand what is on the mind of motorists, how they behave, and inform policy-makers. So how do we do that? We do it in two ways, we've got our Annual Report on Motoring which is published in September, which is based on a representative cross section of UK motorists, and we had almost 200 responses from drivers in Scotland which is what I'll be doing my presentation on today.

We also have our opinion panel which is something separate which gives us a quick snapshot on Government policy issues.

So first of all how concerned are Scottish motorists with air quality? So we asked drivers whether they agree or disagree with that statement up there, which is, I am more concerned now than I was 12 months ago about the impact vehicles have on air quality in the area where I live.

And about 36% of people said that they are more concerned, so there's quite a lot of people, although rather worryingly, 64% had either no opinion or disagreed. And we also asked about low emission zones, or clean air zones in England, but specifically low emission zones in Scotland about whether or not it would likely change people's behaviours with the introduction in the four cities here.

And as you can see, the findings are pretty split. So 32% of drivers, so that's one third, said it is likely to reduce the level that they use their vehicles, but there is still a bit of work to do though.

We also asked what other changes drivers would be willing to make in order to improve air quality. Now if you look at the slide, anything with a smiley face is something that tells us that drivers are willing to take that up, so switching off engine in city centres when stuck in traffic. Now many of you in this room will probably have vehicles that do that automatically with stop/start technology, but many people don't. And amongst those that don't quite a substantial portion say they would be prepared to switch their engines off more.

People want to understand a little bit more about their vehicle's emission impact, and its impact on air quality. Part of the problem is it's not just in Scotland, it's across the entire United Kingdom, we do not have a central database whereby you can stick your number plate into a website and it will tell you what your emissions standard your vehicle is, and where you are likely to encounter charges across Scotland or anywhere in the United Kingdom.

Of course drivers love it when Governments pump money their way. So buying a zero emissions car becomes much more attractive if you increase the incentives. I don't think there's any surprises there.

Perhaps more surprisingly, on the final smiley face, people are willing to share a car with a friend or a colleague in order to reduce their emissions footprint. We've got a majority there that say they're prepared to do that. So employers in the room, that's probably something to take a little bit of note of.

Just very quickly before I move on, the second bar graph down you'll see that it's quite close, there are a substantial number of people who would like to swap their car or walk. Swap their car for a bike or walk, instead of using their vehicle, to reduce their emissions footprint. Now, across the UK around 24% of all car journeys are 2 miles and under. So we need to start making dents into those numbers if we're going to clean up our urban air.

A couple of other findings here which are probably just worthwhile looking at. Drivers do think that, Scottish drivers do think that the Government, whether it's UK Government, Scottish Government, is unfairly targeting diesel drivers. There is a great desire out there amongst drivers to have an online emissions look up system. They want to know how polluting or not polluting their vehicle is.

And in terms of vehicle choice, petrol is still very much up there, 54% say that's going to be their next vehicle type. Diesel has fallen over the last few years. 17% of Scottish drivers say that they will choose a diesel next. Unfortunately when we get down to the cleaner models such as plug in hybrids we have got only 6% saying that would be their next vehicle choice, and a rather low 2% for pure electric.

So I'll skip one there. So there's just a few key issues to consider. I shan't go into that because there's a lot of written text there. I'm sure we'll discuss that in our debate later on, and also we've got some policies on cleaning our air up in our urban areas, again which I shall probably talk about later because we are running slightly short on time.

So thank you very much for listening.

Nicholas Lyes' slides can be downloaded from the following link:

http://www.westminsterforumprojects.co.uk/forums/slides/Nicholas_Lyes.pdf

Colin Smyth MSP:

Thank you very much Nicholas for sharing the thoughts of your members. From cars to heavy goods vehicles, I would like to introduce Martin from the Scottish, sorry the Road Haulage Association.

Key issues for implementing low emission zones

Martin Reid, Director, Business Unit North, Road Haulage Association

Good morning everyone. I too have prepared a slightly different type of presentation. So I'm going to cancel the show tunes ending and I've also got rid of the flamingos that I'd planned.

Okay, I'm not from the haulage industry, or I'm not certainly for the last five years since I joined. My background was in construction. And when I came one of the things that struck me was the scale of the industry.

Over 90% of all goods that are delivered, everything you're sitting on, you're wearing, everything you're going to eat today, has been at some point on the back of a truck. It's also fair to say that anything that has come on another mode of transport, i.e. plane, train, ports etc. has also been on the back of a lorry at some point. Because we mentioned earlier on in the presentations the last mile was brought up, and the importance of the last mile.

Road haulage is the current solution for the last mile because even trains need things taken to and from, and haulage best suits that. So when we're looking at things like modal shift, which is something that's often mentioned, there are some really good innovative ideas surrounding that, but if it's ill thought through, then the market will object to it. And the reason that it's 90-odd% of goods that come on the back of a truck is because the market wants it that way, and with the services provided and it meets all requirements.

The UK logistics industry employs 2.54 million people. It's worth 124, sorry, 124 billion, my eyes aren't as good as they should be, and there's some of the other numbers.

Lastly, the last bit on that slide, 85% of UK operators are SMEs. That becomes a key figure when you're starting to look at changes in legislation, changes in process etc. because the smaller operators tend to be the ones that are hardest to get to. And in most cases a good percentage of those 85% will be microbusinesses, and for the haulage industry that means you're speaking to the owner or you're speaking to the guy who's driving the truck.

So they can't be there to be at policy meetings, they can't be there to read instructions that have come out, even from trade associations like ourselves. So that becomes a problem when you're trying to put a new message out there.

I'm going to fly through some of these slides as I said because I've planned for a longer presentation. If we look at the NOx emissions and where they come from, 2013 the number was 9.8% for lorries and buses. And that number in 2015 dropped by a couple of per cent. We're going to see how the actual industry is moving forward as we go through the slides.

But one of the key stats there is that that includes lorries and buses. Now one of the problems we as an industry faces currently there is no CVRAS-approved retrofit option for Euro 6 technology to go into Euro 5 trucks at the minute.

Buses have that, so they've almost got a head start with us on that. I understand that there are trials going on just now, and I've heard anecdotally about a successful trial that's been run by a waste operator down South. **[alarm sounds]** But, is this planned, or do I run, but... so in that sense we're behind the grey curve there, and one of the issues that face us as an industry when looking at low emission zones is the fact that technology that surrounds our industry is not there for us to get there. I'll touch on that again as we move through.

Scotland's most polluted areas, there are different ones in different areas as a Dunfermline boy, I noticed the one in, well the worst one in Fife is Appin Crescent, which is about 100 yards from Dunfermline Athletics football ground. So I would be interested if anybody's done any surveys on pollution versus football performance, because at the minute we are disgraceful.

Alternative thinking, there are many different options as well as things like low emission zones. Here's one taking place in Dundee. Other things for the industry itself that we're doing to reduce our emissions surrounds things like the, this is a great moment to lose the words, tachometer analysis, sorry, tachograph analysis and the surrounding technologies from that.

Some of you who are not from the industry will not be aware that the analytical side of things, or the technology that's going into trucks now can actually... a transport manager when he's pulling out the readings at the end of the day can tell whether a driver has broke, has braked harshly somewhere, and he can pull that driver in and say, right, what happened there? Why did you brake, were you driving too fast, or was there an incident that forced you to brake? Everybody's looking for efficiencies within the system, but equally so on the safety side of things everybody's watching the drivers, right?

So that side of things has created better behaviour that is particularly as we understand more about further the environmental issues on tyre degradation etc. these are things that the industry itself is becoming more good at self-policing.

So if we take 2013 as a baseline, HGV NOx emissions are between 2000 and planned to 2025 you see yourself the plan is, and certainly the way that the traffic's moving just now, should be around under a fifth of what the base unit of 2013 will be.

So how's the happening? Euro 6 is largely the standard as we look to low emissions, low emission zones, and by natural progression that fleet changes every year. You have to remember that the Government were convincing everybody to buy Euro 5 not so long ago. And so a lot of the fleets were only obeying what the best practice guides were at that time. So it takes a while for the next technologies to come in.

Just to give you a bit of insight, a Euro 6 truck, depending on the size etc, can be anything from £80,000 to £120,000, which is a big investment if you're asking a small or medium sized operator to do that. It's a big investment when you're looking at renewing bigger fleets, but we're now starting to get to the stage where we're seeing some of the bigger fleets putting their Euro 6 engines onto the second hand market, and that's where we start catching the smaller guys and the SMEs.

So if we look at these numbers here, 2017 36% roughly of the UK industries are on a Euro 6. By 2019 we expect that to be 50%. So by the time the Glasgow low emission zone comes for us, which would be 2023, we could be up to something like 74, 75% of the fleet going just by natural progression.

So we as an industry appreciate Glasgow's stance on that. We've seen some of the chaos that evolved around some of the low emission zones south of the border where there's different standards for different cities etc. so again we would urge as we move forward here we would urge that the other major cities that are looking to do as Aberdeen, Dundee, Edinburgh, Glasgow, all try and match it so we've got a similar situation, it's perfectly feasible that a truck can deliver in Edinburgh and Glasgow on the same day and for there to be two different sets of standards makes it really problematic for the deliveries to happen. It's unlikely that there'll be all three in one day, but it is technically possible.

So what's the industry doing? It's working hard to highlight the impact with Transport Scotland, SEPA, local authorities etc. everybody deserves clean air, and our industry is committed to supporting that.

The Government need to support the industry to achieve this, and not penalise it with fines or increases in the roads user levy. Funding from the Government in the form of an HGV scrapper scheme that works for our industry would be very welcome. We know it's not going to happen, we've had these discussions before, it would take a lot of money, but even support in the form of grants for operators to upgrade, because one of the by-products of what's happened with the low emissions zones is the value of Euro 5 engines has dropped through the floor. The value of Euro 6 has gone up.

So the barriers for entry are even greater than have ever been for those trying to come into this or become compliant by the time the low emission zones come in.

So phase in for us is essential, it gives us time to plan, it will be less destructive for our sector. We'll avoid a knee-jerk reaction to shift to vans. Now, I understand there's an argument for electric vans, distribution centres etc., and just touching on that I don't know of a haulier that has a problem with a distribution centre, we're already delivering to distribution centres, but what I would say is that for every 44 tonne truck it takes 28 vans to carry that payload. So while you might be taking a truck which to be fair a Euro 6 truck has been categorised as ultra-low emission, and then you're putting on a less regulated industry, its surrounding vans, and you're putting 28 of them to cover one truck.

So it might be a case of be careful what you wish for there, because that's not helping the congestion side of things. Low emission zones, air quality has to be addressed, it's not just about vehicles. I mentioned telematics, that's the word I was looking for earlier on. Thank you for bearing with me.

Telematics has made a big difference to how we manage road movements, and how companies manage their drivers and trucks. Hauliers need time, phase in is preferred, but they just need to know, so we would urge the other cities, let us know what your plans are now because it gives us a better lead in time and a better chance of becoming compliant when your deadlines come.

So consistency across local authorities would help. Also encourage out of hours movements. It was interesting the debate on park and ride facilities. Now I think we missed a trick with park and ride facilities because they tend to be just day shifts. So at night they could be used as truck parks, they could be used as almost like mini distribution centres. But the problem, to my understanding, in having these conversations is that the weight limits on the carpark area are not conducive to that. So maybe that's something that can be built in to future plans. Who knows?

If the Government wants to go faster they need the support of the industry. Dragging an industry behind it, especially one that's so important to the UK supply chain, is not going to be beneficial. Come with us, help us get there, and we will do our very best to be compliant all the way across.

We all want cleaner air, we need a balanced approach and not at any cost for your deliveries. Thank you very much.

Martin Reid's slides can be downloaded from the following link:

http://www.westminsterforumprojects.co.uk/forums/slides/Martin_Reid.pdf

Colin Smyth MSP:

Thank you very much, Martin, for sharing thoughts on behalf of the Road Haulage Association. Finally, can I introduce Professor James Curran, Honorary Fellow at Scottish Environmental LINK.

Key issues for implementing low emission zones

Professor James Curran, Honorary Fellow, Scottish Environmental LINK

Good morning. It's good to be here. This session is about the issues for implementing LEZs. And my reflection on it is that the European Standards for Local Air Quality, which the UK signed up to and resulted in the Local Air Quality Directive, the original target for meeting the Air Quality Standards was 2005.

So there's been a deal of foot dragging over this issue, and for me the key issues for implementing LEZs are to ensure that there's sufficient sense of urgency, that there's an appreciation that solutions are already well known, and a realisation that there are multiple benefits to be gained from those solutions, and that really it's a test of leadership.

If you believe in evidence based policy then I'd like to run through some of that evidence just taking a step back from some of the detail we've already heard from, from other speakers this morning. There been a lot of evidence coming out recently about the health impacts of poor air quality. Just two days ago there was a report released showing that poor air quality stunts the growth of children's lungs. Early years exposure is linked to later life obesity, and type 2 diabetes.

Poor air quality is responsible for 5% of all deaths in the UK. That's the same as obesity due to heart disease and strokes. There's also reduced cognitive function and dementia in the wider population in later life.

The UK Government reckons that 28 to 36,000 people die early each year because of poor local air quality, and Europe just recently designated diesel fumes as a carcinogen.

Interestingly the WHO, World Health Organisation, has also ranked noise, obviously closely associated with traffic and traffic emissions, it's ranked noise as the second most serious environmental cause of health problems with 40,000 hospital admissions each year in Europe.

Transport emissions also we've heard earlier contribute very significantly to carbon dioxide. It's now the single biggest sector as a contributor to Scotland's carbon emissions. There's been very little change to that sector over decades, and in order to for Scotland to meet its world-leading carbon emissions reductions, transport will have to start making very significant changes.

So what's actually happening? Well, vehicle miles have actually increased 16% over the last 20 years in the UK. And the real cost of train and bus to the user has increased 60% in real cost terms since 1980, but the cost of motoring has reduced 20%. So all the incentives are in the wrong direction.

Over the past 40 years commuting by car has increased three times over. Whereas on foot or by bus has halved.

So what are other solutions? Clearly to remove the source of air pollution in order to create a modern prosperous city, improve amenity and green spaces, and again a recent report shows that asthma is measurably cut by living within 100 meters of natural green space.

Even 70% of drivers now believe that exhaust fumes are damaging to health. The consequences of all of these health impacts are disproportionately loaded on the poorest and most vulnerable. So there's also an equalities issue.

Interestingly, UK mayors representing some 20 million people in the UK have recently called for a national plan to clean up polluted air.

We know the solutions. There are over 200 LEZs already up and running in Europe. This is nothing new. In the UK we are way behind the curve. There are numerous car-free city centres, Ljubljana, Brussels, Copenhagen,

Paris, Oslo, Seville in Spain recently built 80 kilometres of cycle ways in the space of four years with a 30% reduction in car traffic resulting.

Dunkirk and Tallinn both have free public transport, and Seoul in Korea has demolished 15 express ways in 15 years to create cycle and bus lanes. The solutions are there. If we have problems implementing them here we should go and look elsewhere.

So what are the multiple benefits? Well the Royal Economic Society calculates that the health benefits alone are worth twice as much as the cost of upgrading private and commercial vehicles within a city centre to meet modern emissions standards.

Toronto reported investment in public spaces generated real returns in property values which increased by 50%, higher tax returns, and increased employee satisfaction and employee retention in businesses within the city.

Salt Lake City reported 20% sales increase when they improved their pedestrian and cycle access to the city centre. Copenhagen saw a 30% increase in retail sales one year after removing vehicle access to the city centre.

And Transport for London has recently estimated that people who are walking, cycling, or using public transport in London spend 40% more in their neighbourhood shops. So what's the current status? Well, there is a lack of UK Government leadership. The UK is currently in the queue with the European Court of Justice for being years behind meeting the Directive requirements.

What minimal action there has been volumes, and this was a point made earlier, different schemes with different standards, with different quality, different charges, and different exemptions for different vehicles. As Client Earth, which has taken the UK Government to Court three times successfully over a lack of implementation of air pollution control, has summed it all up by saying, it's a shambolic and piece meal mess.

Thank you.

Key issues for implementing low emission zones

Questions and comments from the floor

- Colin Smyth MSP: Thank you very much, Professor Curran. Four excellent contributions I have to say from the panel. Four ranges of views from key stakeholders and what is a hugely important, very emotive, and challenging subject. So an opportunity we have some time before you rush off for your coffee, some questions, contributions. So happy to hand it to the floor for any comments. Gentleman over here.
- Graeme Johnstone: From Scottish Borders Council
Just wondered what the panel's views were on the who should pay for the cost of retrofitting vehicles?
- Colin Smyth MSP: Who should pay for that. Interesting point you made, Martin, was there isn't any technology to allow you to retrofit at the moment. So but you did mention issues around new entries who obviously have a higher cost to meet those targets. Who should pay for that?
- Martin Reid: Well, certainly having spoken to a number of hauliers, I don't think they have any particular issue in facing this cost, but certainly for the smaller guys then that can be quite prohibitive. We don't have any technology there that we can retrofit just now. But indications that are from the people who are developing them, they could be anything up to £20,000 to do, which is a substantial investment, particularly if you've already bought a Euro 5, which is losing value constantly within the market. I don't think the hauliers have a problem spending their own money doing this, but if there was grant aid or help available then they would most certainly welcome it.
- Colin Smyth MSP: Anybody else want to?
- Nicholas Lyes: Yes, I think when it comes to retrofitting I mean I, again, it's always nice when Government picks up, or helps with the cost there. I think actually what we should be looking at is not just retrofitting, but also looking at types of vehicles that should be electrified. So typically in your urban areas you need to be looking at the types of fleets that are doing the same sort of journeys every single day, and you can get reliable charging of that. So I'm thinking in you know the bus networks for example would be much more easier to electrify than perhaps the taxi sector. But I'm not an expert on HGVs, so I shall refrain from commenting on that sector.
- Colin Smyth MSP: Professor Curran, do you want...?
- Professor James Curran: Yes, it's closely related to the usual problem isn't it, that the environment is usually as a cost rather than actually providing a lot of free economic services to us worth something like it's been estimated one third of Scotland's GDP, the free services that nature provides to us. But at the more detailed level, yes, there are various models can be looked at. The Transport Bill as it stands allows local authorities to run bus routes where there is an unmet need. I don't know what unmet needs means, and as far as I'm aware it's not yet defined, but I would hope an unmet need is where air quality is not being met.

Therefore opening up a lot of opportunities for local authorities to run bus routes in profitable areas rather than as usual the public just picking up the unprofitable ones and the private sector picking up the profitable. So that might be one route to bring in some income. Nottingham for instance has implemented a car park levy which is currently making more than £10 million a year which they then reinvest in things like transport infrastructure, and public transport. So there are any number of solutions that can be looked at and again I would suggest we look at other cities, other successful cities across Europe and how they've balanced out the costs and the benefits.

Colin Smyth MSP:

Thanks very much. Any other questions? Okay the gentleman here.

Delegate:

One just to support Martin's of the barrier of entry. All European manufacturers from the 1st April next year are [transcript gap] there could be a 15 to 20% import tax in all new Euro 6 trucks coming into mainland UK. So you imagine a truck 80 to £100,000 pounds you could be looking at 20% import tax non-recoverable. So again the barrier of entry for Euro 6 technology in 2019 beyond, with Brexit is going to be quite significant.

Martin Reid:

Can I just add something to that? For those again that don't know, there's currently a class action being taken by the industry against the truck manufacturers. And that is amongst other things surrounding the embedding of cost for Euro technologies within the trucks, and also potentially delaying the bringing out of that technology. So there's a big piece here that where the haulage industry has essentially been stymied a wee bit at the start of the process, and now we're having to try and play catch up without the technology there that's necessarily going to support it for the next couple of years.

Colin Smyth MSP:

Gentleman here.

Ewan Swaffield:

From Transport Scotland.
I'd be interested in the panel's views on the impact of emissions from diesel powered refrigeration units on trucks and HGVs. Less regulated than emissions from the drive train obviously.

Martin Reid:

Well I'll say it's a good point. At the end of the day the trucks that were running are compliant to what the standards are just now. Unless there's a change in that legislation then you know we have to remain compliant to what the standards are. Refrigeration units are absolutely essential for getting ambient and cold goods to and from the market. So basically unless there is a change that's legislated in that area then it's not going to change voluntarily I don't think.

Colin Smyth MSP:

I think it's an important point. What's your experience in Glasgow? Is this something you've looked at?

Duncan Booker:

Absolutely. I think one of the most interesting things in Glasgow is the extent to which we've broadened our discussion beyond perhaps what might at times seem like the house of mirrors of the public sector, and managed to engage much more with business interests from the Chamber, and also from actual hauliers and fleet operators.

And that's given us I think a much more nuanced sense of what's possible, where there are challenges, and what the data tells us. So the example you've just given when you look at actual the contribution of trucks to air quality, particularly NOx, in Glasgow, as you've just seen from the presentation it came a surprise to many people to find it's relatively low on our most polluted streets compared to buses and diesel powered cars. Nevertheless, as you said, that's from the exhaust. And certainly refrigeration units are an issue and we need to be very mindful of that when we go forward. I would just say as well that our intelligence of what's going on out there in the market so to speak has immeasurably been improved by our ability over the last six months or so to engage with the industry, to talk for instance the Federation of Small Businesses who have asked perhaps for support around maybe a website that could allow small businesses to pick up on Euro 6 vans when they become available, simple kind of approaches like that. Very conscious as well that... of the precipitous drop in the resale value of Euro 5 engine vehicles, as you've just heard, and also potentially of the availability from OEMs to provide enough Euro 6 right hand drive vehicles before you even go onto what tariff will be applied as a result of Brexit. All of that's really important. That goes further for us in Glasgow to help us work out how to be, as I've said earlier, both ambitious but also proportionate with the industry bearing in mind that we're looking at the end of 2022, and also part of that national discussion with Transport Scotland in particular about exemptions, sunset clauses and so on. And I think we need to carry on talking. I think we do genuinely need to find ways at times challenging, at times robust, at times uncomfortable, of continuing to have that debate whilst acknowledging too that there are many activists out there that think we're going far too slowly, and somehow we need to balance those particular pressures such as democracy and that's a good thing.

Colin Smyth MSP:

Nicholas.

Nicholas Lyes:

Yes, can I just... I mean if I was to make one final point I think that we in this country, and that's the UK Government, Scottish Government, we have had over a decade of promoting diesel use, and I think there is a big trust issue out there when we talk to our members who say to us, well, we were encouraged to buy diesel 10/15 years ago, and why should we trust any of you so called experts now? And I think that's a fair point. I think when we're now saying we need to move away from diesel, we need to recognise that the mistakes have been made, and we need, also everybody in this room needs to demonstrate why we need to move away from diesel, why we need to move away from conventional engines, and why we need to make a leap towards electrification. So I just think that that's an important point to note.

Professor James Curran:

Just final comment, yes. Sorry. Yes, just a final comment from me. There was something I picked up very recently at a study in Vancouver looking at various options for people to move around the city. And looking at a particular 5 kilometre commuter route, which is a very popular one in Vancouver, some economists came up with the following figures, that driving along that 5 kilometre commuter route costs society £1.60. That's because the driver contributes to charges and taxes obviously, but society pays for the damage from

the emissions, the infrastructure, that needs to be built, the congestion, and the cost of accidents and hospitalisations and so on, doing the same 5 kilometre commute by walking then society benefits to the tune of 65 pence. So you know I think we need to find ways of actually capturing these benefits, modifying the way that the funding for our transport infrastructure and our transport usage actually goes to the places that create benefit to society, and away from those places there it causes disbenefit.

Colin Smyth MSP:

Thanks very much.

Session Chair's closing remarks

Colin Smyth MSP, Shadow Cabinet Secretary for Rural Economy and Connectivity, Scottish Labour

I'm very conscious that I'm eating into your coffee time which is a very unpopular place for a politician to be, I suspect, however... so I'm going to draw this particular part to a close, but we are of course going to continue this hugely important subject after a coffee break.

But I will keep my closing remarks to this session very, very brief, it's simply to say a huge thank you to all the panellists in the earlier sessions and the current sessions, I think the contributions, the debate, the questions that we've had exemplifies how important the whole issue of transport is, also the challenges I suppose, as policymakers' phrase, in the range of views and the different stakeholders with the different opinions when it comes to policy around transport and infrastructure. The debate of course comes at a hugely topical time, as the Government are embarking on the review of the National Transport Strategy and also of course as the Transport Bill makes its way through Parliament at the moment.

I've certainly found this morning's session very beneficial from my own point of view, as someone who obviously has to scrutinise that piece of legislation as it makes its way through Parliament.

So thank you very much indeed for all your contributions and please thank our four panellists.

Okay, I'm just the warm up act, I'm going to hand over to Maureen this afternoon, or later this morning, but if you can all be back here for 11.45 for the next session. Thank you.

Session Chair's opening remarks

Maureen Watt MSP, Member, Rural Economy and Connectivity Committee

Well good morning again ladies and gentlemen, can I welcome you back to the second session of this morning's event.

For those of you who don't know me, I'm Maureen Watt, I'm MSP for Aberdeen South and North Kincardine and have recently joined the Rural Economy and Connectivity Committee but I'm delighted to be here this morning to listen as well as to Chair this session.

I think already we have heard from our speakers and from the questions we've had some of the dilemmas and conundrums that we, as Committee Members, are going to face in looking at this Transport Bill and coming to some conclusions and recommendations in our Stage 1 report. I don't know if Colin said but we've taken a lot of evidence, we've had a round table, this has obviously been interesting too, and we have the Transport Minister in front of us tomorrow.

So in the second session we are going to look at delivering low carbon infrastructure and increasing the uptake of low emission vehicles, and I think this feeds on nicely from what we have already discussed this morning.

So as speakers we have Ross Fairley, Head of Renewable Energy from Burges Salmon who has been very much involved in offshore wind projects. We have Councillor Lynne Short, Convenor of City Development Committee, Dundee City Council, and I think in Aberdeen very envious of Dundee with the opening of the V&A which is absolutely fantastic, but all the infrastructure projects that have gone around that, including a very nice railway station. We also have Professor Volker Pickert who is the Chief Scientific Officer for The TEV Project, really interesting that you have a workforce of 100 researchers at Newcastle University on this project. Unfortunately Mark Bonnor-Moris, Business Development Director of BP Chargemaster can't be with us this afternoon, well today, family issues have intervened. That would have been interesting but just a few weeks ago I had the chap who is obviously his equivalent at Shell, at the Cross Party Group on Oil and Gas and they're very much, if they're like Shell and BP and they are always competing as you know, they're looking at introducing charging points at their petrol stations, so it will be interesting to see the competition between them on that.

So without further ado, and given that we've got one speaker short, we'll perhaps be a little more lenient on the time factor, or else we are able to finish a bit earlier, which I'm sure all of you would be interested in.

So without further ado can I call on Ross Fairley please.

Delivering low-carbon infrastructure and increasing uptake of LEVs

Ross Fairley, Head of Renewable Energy, Burges Salmon

Hello everyone. Thanks, Maureen, thanks for that. Just stick that down there in case it interferes with the mic.

Yes, good morning. So as Maureen said, I'm from Burges Salmon. Burges Salmon is a law firm, for those of you who don't know. And my interest here is slightly different to the previous speakers I guess in the sense that I come at this much more from the energy side and possibly the transport side. And the reason why someone from Burges Salmon is speaking to you here is the two biggest sectors that we operate in, we only operate in limited sectors, are transport and energy. So you can imagine that electric vehicles and connected autonomous vehicles is a massive area and seen as a massive growth area for us as a law firm. We get involved in all sorts of policy debates, formulating policy, early stage trials, and various other things, as well as the typical legal bits and pieces that we get involved in.

So my perspective was very much to look at how electric vehicles and low emission vehicles fit within energy policy because a few years ago we looked at what was going on in this area and thought that not enough attention was being paid to the energy implications. So whilst the move to electric vehicles in particular was gathering huge momentum, it was very much from the transport side. And the more we looked at it, the more we thought that there were going to be some blockers from the energy side.

And the more we looked at it, and I have to say that probably slightly less in Scotland but certainly across the rest of the UK, the policies between energy and transport don't necessarily fit together perfectly. And so we thought this was going to be a big issue in terms of rollout and a big issue in terms of energy supplies as well.

We were involved in this report which is here, which I've got a copy of here. It's on our website if you want to go on our website, it's free you can just get it. If you don't want to wait for the website, if you give me your card afterwards I'll send you a copy of it, I'll send you a link and you can have a look at it. But this was a report prepared in conjunction with Scottish and Southern Energy and ZCM, Zero Carbon Marine, and it looked at the enablers and the blockers in terms of harnessing the electric vehicle revolution.

And the conclusions from that report, well, when you look at it now, given it's been out for about eight months or so, probably these conclusions are relatively old hat but at the time certainly one of the enablers for the rollout of low emissions vehicles is the legal stick that I call it, so the Automated Electric Vehicles Bill, various other targets, forcing people to change is one of the ways in which this can be done. As can the targets that are set at a policy level and clearly we have a number of policies in Scotland that are really forcing this change.

Interestingly, one of the blockers we discovered was the choice of electric vehicles. Well, that's probably not such a surprise because we know there's still a limited number of electric vehicles out there. It's growing as we speak. But it's the supply as well and if you talk as I do to a lot of the fleet people and the fleets are seen as the early stage adopters which will then drive the second-hand market in electric vehicles, the fleets will tell you that they're quite happy in some cases to sign up to get electric vehicles. But what they're finding is the delivery timescale on those electric vehicles, it just doesn't fit at all now. And there's a real shortage and real delay and waiting time for electric vehicles, and I think that's becoming an increasingly big issue for the fleets, as it is for the general consumers as well.

The cost of electric vehicles is clearly a big issue and that's something that Governments can do something about, something that is being done in terms of grants and loans. But we need to be slightly careful. One of the conclusions I've got here on grants and loans is, it's okay to give them but when do you take them away and at what point do you signal that you're going to take them away, because people have an inherent distrust of some handout from Government, they wonder whether it's still going to be there, they wonder whether something's going to be changing particularly as it looks at from the energy side what's happened in terms of renewable subsidies over the last few years.

Charging and range anxiety was obviously another big concern and big blocker and again that's something that Government can do about it in terms of enhancing the rollout of charge points and so forth. Interestingly, supply chain orientation, the view here was that the supply chain and the traditional motor manufacturers there's going to be huge revolution in that and there's going to be some very, very big losers. There will be. And that industry we think is still trying to get its head around this and get together. And that will potentially block change and there will be some hiccups along the way.

And finally, another big potential blocker is network, by which I mean grid and infrastructure, electricity infrastructure reinforcement.

So something close to my heart. How do you fit the electric vehicle or low emission vehicle revolution that there's going to be into the energy revolution? And I keep saying to my kids, schools, the young lawyers that come forward, that they probably don't realise it but they have lived through an energy revolution. It has been unbelievable what's happened in a very short space of time in terms of our change to clean electricity.

And that has driven a complete change in energy, new, clean generation, much more distributed localised generation. With it has come concerns about the system stresses on grid, transmission, distribution, the need now rather than the desire, just the desire, the absolute need to have flexibility, storage, local upgrades needed to reinforce the system.

And what we've also seen over the last few years, some of you may recognise this in the audience, is corporates grabbing hold of the energy debate as well. So the renewable energy 100, or procuring green energy, realising that they can't be in the background of this anymore and taking hold of that. And I predict that's going to happen with electric vehicles if it isn't already anyway.

The good news is that electric vehicles and low emission vehicles can fit very nicely into all of that new system and in fact can actually help a lot of that with flexibility and system stresses. So that's the positive.

Unfortunately, what you also need though is a policy context as I said at the beginning, that fits everything together. And at a UK-wide level we've got the Industrial Strategy, we've got the Clean Growth Strategy which talks and targets electric vehicles and makes assertions about what we're going to do and how we're going to be at the forefront of electric vehicles which is really well and good. But then if you look behind it and you look at the energy policy fitting behind it, the planning policy, carbon policies that are out there, positive in Scotland not so positive outside of Scotland. Then actually does it all fit together? How does it fit together?

You've got this bizarre situation where we're going to have electric vehicles but what power is going to drive those electric vehicles at a UK-wide level? And as we all know, there's a bit of a hiatus at the moment in terms of the cheapest form of generation, which is onshore wind and solar, and that's not being facilitated, it's not being built because the Government is not looking at ways in which it can find a way of floor price or subsidy to allow that to happen. So there's a bit of a mismatch there and we need to sort that out.

So my observations to finish up with. As part of the road to zero, the UK Government looked at the issue of solving the conflicting problem between energy and transport and there's this so-called EV energy taskforce. How that's going to work, I mean it's a positive situation, I guess it's wait and see what comes out of that.

The private sector has a big role to play in this, but as I've said before in talks that I've done before, what needs to happen is Governments wherever need to get together and provide a framework within that which that private sector can supply. If you leave it too much to the private sector you will end up with mismatches, different technologies, not talking to each other, which is what we were starting to see with electric vehicles and I think there's just time to pull that back and rein that in.

Fleets are the key, I mentioned that earlier on. From the people we've been talking to, definitely that's the early win if you like, to get electric vehicles out there. The interesting thing when I talk to fleet operators is, which I find quite surprising actually given that this has been around now for a little while, I did a talk to the major energy users council which major energy users across the UK, and it was their energy managers in the

audience and I got up about a year ago to do a talk on electric vehicles. And myself and a co-speaker thought that we'd planned out this workshop really well. And we got up and the first question we were going to ask is, well, you know, who's procured electric vehicles. And we were expecting people in the audience... or who has looked at procuring electric vehicles.

And we were expecting, given that these are the major energy users, to at least have, you know, probably a third of the room's hands go up. Out of the whole room, three times the size of this, one person stuck their hand up. And we looked at each other and thought well this is going to go well then isn't it? And do you know what we concluded from that, talking to people at the end is that within these corporate businesses, fleet management is very much driven by the fleet managers. The historic fleet managers. They understand procuring vehicles and they think that procuring electric vehicles is just procuring another fleet of vehicles.

And what we were trying to say to the energy managers is, in your corporates now this is absolutely a key role for you because it's about managing your electricity supply and how you can use those electric vehicles in other ways to manage you electricity supply, which is a major risk for you going forward as a business.

At the very least, the fleet managers and the energy managers need to be working together on this and that doesn't seem, or hasn't seemed to happen so far. I think it will change dramatically.

Change in mind-set, or an investment shift. By that I mean infrastructure in terms of the electricity transmission and grid. We have a policy don't we of sweating the assets in terms of transmission system, distribution system. Just in time patching up the network, flexibility, charging the full cost to anyone that comes along who wants a connection. Socialising costs at a local level. That is all going to need to be looked at very, very carefully if we really are going to future-proof our system for electric vehicles coming on stream.

Incentives that people can trust but let's all be aware of incentives because incentives when they go can cause problems if they're not properly signalled and there's not properly a shift out.

And last but not least, I do sometimes worry when I'm standing up and talking about electric vehicles, and I did a talk at Highways UK the other day in terms of this and it was all about electric vehicles and everyone was standing up talking about electric vehicles, it was the topic everywhere. And then you think well okay, but what in 20 years' time will we be talking about electric vehicles or the infrastructure we think we need now? In 20 years' time what's connected autonomous vehicles going to be doing to the system? How will that have changed even how we look at things now, and are we having an eye to that going forward in terms of making sure that whatever we do now fits with that later on?

So as typically as a lawyer, some of those things are downbeat. I don't want to be downbeat because I think low emissions vehicles it's a fantastic opportunity for me from the energy side to engage with businesses, individuals, consumers, and get them thinking much more about their energy supplies as well. We saw this with the rollout of wind and solar, people... and particularly at a household and local level, people engaged with energy. People who'd never expected, who didn't care where their energy came from suddenly are looking at their meter in their homes that they've got solar panels on and going great, I'm making some money or I'm saving this amount of money. And they got into low carbon energy in a very big way.

I think the same can happen here and so it's a fantastic opportunity and it will be a massive revolution for us over the course of the next 10 to 20 years.

Thanks.

Maureen Watt MSP:

Would you like to come and join me here? And Councillor Short, would you like to take the podium? Thank you.

Delivering low-carbon infrastructure and increasing uptake of LEVs

Councillor Lynne Short, Convener, City Development Committee, Dundee City Council

Good afternoon.

First of all, I'm going to promise you two things. Passion, and no fear, because that's what I'm about and that's what Dundee's about. And hopefully, that's what I can bring to this morning for you. As Councillor Lynne Short, and Convener, City Development, it means that I am politically responsible for roads and transport, property and build, economic development, and planning policy across the city. So quite a mixed bag but incredibly exciting I'm sure you could imagine at the moment.

The last gentleman was talking about all the things that I'm hopefully going to turn on their head completely because what we've been doing is, we've been doing it and bringing it and that's why I think they've brought me here today to talk to you.

So first of all, if I can give you an idea of where we are and then we'll go back to where we came from. There's lots of moving and shaking around Westminster at the moment and you may or may not know that Jo Johnson, he moved on last Monday and a gentleman called Jesse Norman went in. First day of the job, right, where do I go to find out about what's happening in the world of transport? Right across the board, go to Dundee. He was in Dundee by Thursday and we took him around the city and we showed him first and foremost our Princes Street hub.

And the Princes Street hub was the first public solar powered hub in the whole of the British Isles. So we're very proud of that. And we are Scotland's sunniest city, it's fact, and what we have done is we've taken that solar power and we are using it to charge the cars. What's not used is taken and it's stored in second life batteries from Renault EVs. So we're making the most of even the redundant technology already, so there's five batteries and then there's a small power station there going. And one of the reasons that we are doing all these things and we're being looked at, is because we are being seen as leading the way.

A couple of examples. In 2017, in Beijing, the climate of European Ministers decided that there was going to be an incentive called 30 by 30. And what they called for was 100 cities across the world who would sign up to provide 30% of their transport by 2030 as being via electric, whether it's bikes, cars, buses, etc. We joined and in May of 2018 I was in Copenhagen and I was at a panel like this and I was explaining to the people in the room how we'd got this far and what they would have to do to kind of adapt to that. So we're right there at the top of our game at the moment.

Last month in Kobe we were awarded the Europe's EV visionary city, which obviously is a real honour. In the past it's been places like Amsterdam. And there's one for Europe, there's one for the States and that was New York, and the one for Japan... the Far East, was Kobe. So we're in really good company.

And the other thing that people are looking at us because of is because Dundee, I said before, are 26 square miles of perfection, but if you take those 26 square miles, we've got a river, we've got volcanic plugs, we've got a road that goes through the centre, and we've got small usage of cars, 46% of the population don't have access to their own cars. So there's lots of things that we can do within the city to experiment. And then if we pick up Dundee and you put it in an arrondissement, or you put it in a borough, or a canton, then you can just upscale or you can downscale into different areas. So these are some of the reasons why people are looking at us and how did we get here.

First of all, it's not all about EVs. First of all, the reason that we got here was ching-ching. Dundee is known as She Town, which means that we're very careful with the purse strings. No guesses for local authority are having to pull in the purse strings and we pooled together all of our fleet into one area. So instead of there being a fleet in education, and a fleet in bins, and all these kinds of things, pooled it under one umbrella and then had one fleet team that was looking after it all.

And then they looked and they thought 18 moving parts, was it 18,000 moving parts? We're going to get more life out of this electric one. And they went to the market and they were able to buy. We we're now in a situation that as a local authority we have the most electric vehicles across the whole of the British Isles again. And it's saving us money. We've got a couple of mechanics who've gone and trained how to do the electrical, but obviously we've not got the same pressure on brakes, we've not got the same breakdowns, and we don't have the petrol costs that you would have had. So it's about saving money.

However, obviously, it's about also the bigger picture. It's all for the bairns because it's for the future and it's all about the Paris agreement.

The other thing that we did was, we got in very closely at the very beginning with our taxi industry and again, that was a lot to do with money. Those of you who may have met the late great Davy Young will know that that was a man who was very passionate about electric vehicles and also Dundee, and what he did was he actually produced the first private EV hub in the whole of Scotland. And he started our taxi revolution. Now, you perhaps already know that taxis are the ambassadors of our roads.

We now have 112 electric vehicle taxis in the city of Dundee. One of them is a Tesla, believe it or not, so it's a huge uptake. And we always look to others to learn and in the past we look to Oslo and the next project that we're going through after we've done the hubs is our multi-storey carparks. We're putting solar panels on the rooftops. So by day commuters can get a triple feed and then by night residents can come in and they can feed.

However, Oslo, where we stole that from, is now coming to Dundee to say how on earth did you get the taxi drivers to convert over? Again, nice and easy, it's all about the carrot, because we're in a really fortunate position because we started seven years ago, we're still at the carrot stage so really, really lucky.

There was talk this morning about the last mile. We have a road that goes around the city, an orbital route that goes right through the middle. So a lot of our last mile stuff is done in smaller vehicles and we're looking with EST for them to come into the city to look at okay, so cargo vans, what about cargo bikes because it's a flat city. We've got cargo coming in from Amazon and Hermes landing beside the airport and we could take that into the city by cargo bike. Really keen to be looking at the future of the city with regards to our young people, millennials. They'd rather have a Smart phone than a Smart car so making sure that things like NaviGoGo are in existence for them. Making the choice about multi-modal because amazing investment from European funding, Scottish funding, Westminster funding, no matter who asks we'll take their money. If they can throw it our way we'll make use of it.

And we are making use of it. We had recently a planning application for 99 apartments. Now, you might think well that'll be 99 parking spaces required and a few visitors. Not a space at all. And I was able to argue for that... I'm getting the red card, sorry... because what I said was, if you look that way there's a train station, if you look that way there's a club car, if you look that way in five months' time there'll be an active travel hub and around the corner is a taxi rank. And you've got these things.

Just get moving, because that's what it's about. It's not about transport and infrastructure. It's about people and it's about healthy communities and that's why it's hashtag multi-modal. It's not just about EVs, it's about the whole lot of them.

Thank you.

Maureen Watt MSP:

Thank you very much. No that was great, that was very passionate, brilliant. Thank you very much Lynne. And last in this session can I ask Professor Volker Pickert to give us his presentation. Thank you.

Delivering low-carbon infrastructure and increasing uptake of LEVs

Professor Volker Pickert, Chief Scientific Advisor, The TEV Project

Yes, so thank you for inviting the TEV Project to this forum.

Originally it was planned that Caroline Carrick was supposed to speak because she is heading the TEV Project, but unfortunately as she is in the US she asked me, as the Chief Advisor for the TEV Project to give you a quick overview what this project is about.

So TEV is a Scottish initiative and stands for Tracked Electric Vehicle. My name is Professor Pickert and I'm from Newcastle University and at Newcastle University I'm managing a group of 100 researchers which, by the way, do not all work on TEV, that would be fantastic, but it's not the case, so we are basically involved in all the transport aspects in terms of providing power electronics, drives, machines, control for the automotive, aerospace and the railway industry.

So what is the aim of TEV. So TEV aims to be first of all the safest and the fastest and the most versatile transport system which is also the most cheapest for zero emission carbon vehicles.

The concept is able to replace 17 lanes of highway, and the question is how is this achieved?

So first of all in the the TEV Project itself there is one lane and we are using the infrastructure which exists already, so the existing highway infrastructure. Segments are built, pre-manufactured and delivered and each of the segment has effectively one lane where one car can go on with a very narrow side bar, so you cannot easily open the door, if you like. And on each of these tracks goes effectively one car, but that is followed by another, so all of them are in a platoon. And the whole platoon goes with the speed of 200 kilometres per hour and the whole platoon has a very narrow inter-vehicle distance, so think about the NASCAR racing. Well I come to this later.

So the side barriers are very narrow and we have a very long distance before the next junction and effectively electric cars, any type of electric car can go on, but this concept is only for passenger cars, so it's not for trucks or anything else.

So the question is how is the power actually delivered into the car, and you all heard about inductive road charging, dynamic inductive road charge. There have been various studies and the studies show that the cost basically in putting dynamic road charging, where you have the coil in the road and the coil in the car effectively, depending on what your read now, the bar is between £5 to £15 million per mile per length. So there is a change in the way, how you want to charge cars if you go for long distance, and we are going effectively back in history and that is what you see there, it is basically the railway industry which helps us.

So you can see the recent developments in order to deliver electric power into an electric car and what I want to make you aware of is, look at the names, they are not only start-up companies, they are also brand names like Alstom, Honda, Siemens, and I was just last week at a conference and the number of publications who are looking into these concepts is actually shooting up dramatically.

So that means the future for dynamic road charging is not in inductive charging, it lies basically in what we call conductive charging.

And I understand that many people laughed a little bit about this concept, that are the awards that we received already. It is not a bunch of people who think about scale electric on a big scale, this one is a thorough thought concept with a large number of awards, the last one was just now in 2018 and if you think about it, if you spend time to think about it, how we travel on the highway, you go with your own car, you go on to the TEV it is driverless, you go with high speed, you exit very safely as well. In case of an accident there is no hard accident as we sometimes hear from the highway or the motorway because all of them have the same speed and the reason why we have this horrendous accident is the speed difference between one of the static

cars and one of the other car which crashes into it, that is not the case. The distance between each of the cars is basically a quarter of each car, or let's say between 1 - 2 metres, and by doing so the aerodynamic can be reduced by a factor of 40%. So if you go on your own driving with the speed of 200 kilometres per hour, or if you go in a platoon then you reduce the amount of energy by 40%. This includes the front car too because it's always argued that the front car basically sees still the full air resistance. That is not the case if you bring the cars very close, and you see it at the NASCAR racing that is the reason why they go very close.

Now these drivers are very experienced and they can keep the distance, technology here keeps the distance, because the cars are controlled by the TEV controller and the technology itself is not radically new, all what you need is to keep the distance, which we have already in some of the cars, and to keep the lane which we also have already. So there's no radical new technology here. And from the pick-up point, so how you deliver basically the power into the car, there is no new technology because the railway industry, effectively, has it already available, it just needs to be tailored for the TEV Project.

Also the communication between the TEV and the cars is not linked with the internet, so consequently the system cannot be hacked as well.

And finally it is a system which can be premanufactured, the unit can be delivered to the existing infrastructure, so we are not talking about basically building new roads is a green area.

And this has led to the numbers of awards that you can see here, and consequently what we have here is that in the future the motorways should be faster, safer and cheaper, and therefore also electric cars do not have any limitation, we don't need fast charging infrastructure which costs us a lot of money, and the technology is already out there.

Those of you who are interested I recommend go on this website, there's a complete handbook out there. There is some technical data, you also some video clips which makes all this one much more feasible, but also demonstrate more what I just said here in 5 minutes, and obviously by all means you can contact me at any time, and again thank you for inviting me.

Maureen Watt MSP:

Well thank you very much Professor Pickert.

Delivering low-carbon infrastructure and increasing uptake of LEVs

Questions and comments from the floor

Maureen Watt MSP:

Well, ladies and gentlemen, we've heard three very different presentations in that session. Ross gave us an idea about the blockers and enablers that are associated with LEVs and a much more a kind of policy overlook. We heard from Lynne a very practical demonstration of what's happening within one of our own cities in Scotland, never mind having to go abroad for examples. And Professor Volker Pickert gave us what I would consider quite a futuristic idea of where we're going with LEVs. So, can I have some questions and comments from the floor? Can I ask you to say who you are and who you're from, because these conferences are very much about networking as well as learning?

Douglas Robertson:

Good morning. I'm the President of the EV Association of Scotland. Some of you know me in the audience. And I'd like to thank Lynne Short for her excellent speech. I'd also like to thank our association for promoting Dundee for the EU green city award, which they received. Our association basically represents 1,100 users of electric vehicles and obviously it would be very interesting for us to drive onto a guideway like Professor Pickert has suggested. My question to Professor Pickert is have you established the safety case for this with all the European authorities?

Professor Volker Pickert:

Yes. I mean that is obviously a good question. So first of all let's go to the safety aspect itself. So as I tried to explain to you, from the car itself is inherent, or it is an inherent safe system because the car cannot first of all spin in case anything happens. All the cars, all the platoon will be, if a failure starts to occur, all the whole platoon will basically come to a stop. So first of all, in terms of injury, the injury we believe is very small. Now, in terms of talking to authorities, obviously this needs to be done. At the moment we are in the process of producing the blueprint so the first static demonstrator will be demonstrated next year. And we are in the process now to look for funder so and I must say that Caroline's father is a self-made millionaire, so he has connections to Abu Dhabi, Dubai, etc. in order to invest in this project but obviously everybody is invited and there will be like, I will not say a call, but there will be an invite obviously to participate as I'm going for instance to Honda where we have been invited to explain this in more detail. So going back to in terms of the looking into the safety aspect, I mean from my accent you hear I'm German, the speed of the car in Germany is effectively limited to 240 kilometres per hour. So the cars in Germany are allowed to go on this speed. Where actually you have cars changing the lanes. They don't change the lanes here.

Maureen Watt MSP:

Yes, at the back here.

Vincent McInally:

From Glasgow City Council.
Some excellent presentations, really enjoyed them. I had a question for Ross and it was regarding the incentives being removed. Now, he identified it as an issue, I'm not sure we got really what the answer is to that. But there's a couple of things that have come up or so.

We've already heard somebody today say that people were encouraged to use diesel vehicles now they've been told that's not the right thing to do and they've invested in that fleet, or that car, and now they have to replace it with something cleaner. In Glasgow we introduced a free on road parking spaces for electric vehicles. We've withdrawn that now, not for financial reasons but because it was basically being abused by people with... instead of plugging in to charge their electric vehicles they were just leaving them there all day, including plug-in electric hybrid vehicles. We've already heard there's moves afoot at a UK level to withdraw some of the financial assistance for plug-in hybrids. But the main question I have is about electric vehicles and the fact that you can charge them for free in Scotland at the moment. That's clearly not sustainable over the long-term that people can have free fuel for electric cars and will have to be withdrawn. Yet at the same time at the moment it's being put forward as a massive incentive towards getting an electric car. How do you think we should tackle that going forward? Has it been a mistake to provide free... they don't do it in England... provide free charging for electric vehicles, and how much longer do you think we can maintain that?

Ross Fairley:

Thanks for that. I'm not sure I know the answer to that, but what I do know is that you need to stimulate the take up of whatever it is the new technologies that are coming forward in order for that technology to grow and in order to get the manufacturers building that technology, get the through-put and then drive the cost down. And if I take for example, the renewable energy analogy that's actually what happened. So, you know, the subsidies went in to onshore wind, the price of onshore wind came down. And, you know, there is a fine balance between those who are deploying the technologies, developing the technologies, relying too heavily on subsidies, and the Government wanting to make sure that deployment goes ahead. So it's a really fine balance, which I get. I think what happened a few years ago in the renewables industry was that it all came to a halt quite abruptly and I think that's what sent shockwaves through investors and those involved in developments. It wasn't as bad as people made out in that because actually they didn't do the changes retrospectively, so those things that were deployed didn't get it taken away. But my point about... the point I was making about incentives was everyone knows in the early stages if you're going to get incentives, or they should do if they're sensible, that it's not going to be there forever and you've got to go into it, you are paying a higher price for electric vehicles than you hoped you would do in years to come. And the quid pro quo for that is getting some grants and some subsidies to get the movement and the through-put of vehicles. I think the free electricity, in fact the whole issue about electricity and if I can lump into that as well road taxing and everything else, is going to be a massive issue going forward because somehow we're going to have to be paying for our new infrastructure and our roads and we're not going to be carrying on with non-fossil fuel and, you know, Westminster Governments looking at it and going okay, where's all this revenue coming from, from tax now and fuel duties and so forth, and how are we putting this infrastructure in. So sensibly you've got to look at it and say that is going to change. Are we going to move to a pence per mile and

various things like that? Almost invariably we have to and that is a big issue that's just not been tackled yet.

Maureen Watt MSP:

There's a couple of questions there. I think we've just got time for those two at the back there.

Dickon Posnett:

From Argent Energy.

I notice the title of the conference was about infrastructure, decarbonisation, and economic growth. I haven't heard an awful lot about decarbonisation so I was just interested on the panel's view on that. Professor Pickert, you talked about zero emissions. It's... I understand what you mean, it's no tailpipe emissions, and zero emissions may be misleading to say that because we all know there are emissions in the production of electricity. Lynne, I'd be interested, you talk a lot about the electric what you do, but where's the decarbonisation? And I also noticed that Ross, you're Head of Renewable Energy, I didn't hear about the renewable energy side in terms of the what's being provided as an alternative transport. So just really interested in what the panel's view are in how important decarbonisation is in your three areas and what you're doing about it.

Professor Volker Pickert:

Okay, I'll make a start if you don't mind as you mentioned TEV first. So, it is clear that regardless of it's TEV or not TEV. Obviously the energy needs to come either from a renewable source or from nuclear, but nuclear is another debate obviously to have. So from the TEV project what I can say is that TEV will support the power distribution. So that means the power can go along the TEV line as well underneath, basically, you can put a high voltage cable in order to power the TEV electricity. So what I'm saying is, suddenly TEV is not only transport of cars, it is also now providing you the highway for you making use of electricity grid, of the Smart grid that we need in order to charge electric cars. So in terms of decarbonisation, we still need to go for renewable energy but the other big thing is the power grid, the Smart grid, and TEV helps with the Smart grid at least.

Maureen Watt MSP:

That's interesting, anybody from Ofcom here? The grid discrimination we have. Lynne?

Councillor Lynne Short:

Just yesterday evening we had a committee, a report that went through, we have a 6% reduction in the past year for our carbon. We're working with Nissan on vehicle to grid experimentation. We're very much hashtag sustainable Dundee, the museum that Maureen talked about the V&A, that was built with heat pumps. We have 11 multi-stories in the city. Of the 11, 10 of them have combined heating, so district energy. We have a new incinerator going into the city and it's going to be taking its heat and putting it into a factory that's now closing but we'll move on from that. So we're working with the Scottish Government as well looking at making the whole city a district heating connected area...

Dickon Posnett:

I was thinking more about transport.

Councillor Lynne Short:

Well, transport we've talked about the batteries. We have the bus companies are moving over to hybrids. We have the Euro 6 as the majority, ECO Stars. We have 5,500 vehicles, 120 owners lined up for

Eco Stars. There's a big thing about that to travel, so I think the Scottish are looking for... the Scottish Government are looking for a 10% journey to work by bicycle. We're sitting at 7 at the moment. And of course obviously with what comes next with the low emission zones and my friend from Tactran which I'm on the board of, will tell you quite clearly that last month I was Madam Guillotine and I was taking no prisoners because we really need to look at park and rides, or park and strides, or park and walks, whatever, to get vehicles out of the centre and help with our carbon.

Maureen Watt MSP:

Okay, very quickly the final question at the back.

Councillor Martin Bartos:

SPT again.

I suppose a very quick question to Councillor Short which would be in mention of the kind of taxi side of things, there was also a mention of Tesla in there, so I wasn't quite clear whether or not it was black hack taxis which have all the accessibility kind of arrangements which private hire cars don't, or whether or not taxi definitions were different in different areas. But that's perhaps a tiny thing. But first of all, Professor Pickert, I thought absolutely fascinating kind of project suggestion which is signs basically like personal rapid transporting, trackways, except using electric vehicles to achieve it. I'm a little bit kind of not clear about where within the transport space you see this happening given that it's 125mph speeds. Do you see this as being intercity and replacing rail, or kind of in that kind of motorway space? Because clearly it doesn't necessarily resolve Derick Murray's difficulties with potential congestions and people fixated on the cars. And if we're talking about passenger carbon emissions per mile, even if you're doing a 40% reduction because you're doing platooning, you've got one occupant potentially in a four-occupant vehicle and your load capacity may not be as good as buses and public transport generally. So I'm just wondering where it sits within carbon reduction as a whole and where you see it coming forwards in the transport space. Thank you.

Maureen Watt MSP:

Okay?

Professor Volker Pickert:

Shall I?

Maureen Watt MSP:

Yes, please.

Professor Volker Pickert:

Okay, yes. So the way we see it at the moment is that TEV is certainly not the right model for cities and perhaps also not in the context of larger cities where you have many junctions. What you've just said, the intercity, so the distance of 2-300 kilometres, for instance, would be the right distance to have. And is it in competition to trains? Well, trains you still have the small commuter trains and you have obviously trains which go very long distance, or the high-speed trains. You could argue that this might be... it might be in competition. The point is that we believe that in the end you still want to have either your own car or you want to have at least a car in front of your house, right, and consequently if you want to go from A to B you still face a challenge basically of changing of the speeds of the transport mode so there's no seamless integration between all these different modes. Now, with this concept you basically do what you normally

do with your car and obviously you are much faster and in terms of you use less energy. So if you would compare it with trains, as I said, it could basically reduce 17 lanes of highway into one, then I would say it's also competitive with regards to trains, with regard to this distance.

Maureen Watt MSP:

And Lynne?

Councillor Lynne Short:

We have a mix of taxis, private and hackney and the Nissan LEAF and that's maybe why there's a problem of getting electric vehicles because there's just a... when I was down at Nissan they are currently in production and every third car on the LEAF, on the production line is a LEAF. And one in 12 of those is staying back here and the rest are going over to mainland Europe for obvious reasons while they can. So what a lot of them are doing now is they're looking at the Nissan Van and converting it over.

Just on the topic, one last thing of the economic development, we still have free parking and from an economic development point of view, if you think about your city centre customer, last week I parked my car and it cost me £10 for the day. This morning I got a taxi and it was £4. If I get the bus it's £1.20. If I get the bus there's no hassle and I spend more because I don't have to worry about it. If I had an electric vehicle I would park all day for zero, so all of that money will go into the shops. So we're seeing that as an incentive and also an economic kind of push as well and it has to be said, 400 vehicles have signed up and now if there's a choice between Dunfermline, Kirkcaldy, Perth, or Dundee, and you've got an electric vehicle, then come over to Dundee.

Maureen Watt MSP:

Well, I think that was absolutely fascinating as usual. Poses more questions than answers for folk like me, but can I ask you to thank the panel in the usual way. Thank you. Our final speaker is Professor Tom Rye from the Transport Research Institute at Edinburgh Napier University. I spoke about having a round table the other evening at the Parliament. Tom was one of four academics there and as you can imagine ...

Professor Tom Rye:

If anyone needs to leave now. Sorry. If anyone wants to leave now, don't feel embarrassed, if you've got a train to catch or anything like that, okay? I don't mind. Otherwise don't walk out halfway through. Sorry.

Maureen Watt MSP:

... we had about six or seven different angles to that. So I'm sure this will be very interesting from Tom. Tom, over to you.

The future for Scotland's transport system

Professor Tom Rye, Professor of Transport and Director, Transport Research Institute, Edinburgh Napier University

Hi there. Yes, hi, I'm Tom Rye, I'm from Edinburgh Napier University. Thanks for that introduction. I was supposed to be on at the beginning but now I'm on at the end. I won't keep you from your lunch, alright. So I've got a few things to say about Scotland's transport system in context. In the context of developing National Transport Strategy, obviously. There's been a lot of focus today on low emission vehicles and I will try to say something about that, but I also want to relate them to one of what I think is perhaps the more neglected parts of the National Transport Strategy.

They are... I've been indeed involved of the new National Transport Strategy but nothing much is published about that yet so I'll have to refer to the previous National Transport Strategy. What I want to basically do is this. Has the NTS achieved its objectives that were set out? I'll also try to look at what transport spending, how transport spending is aligned with those objectives, and also how spend support social inclusion and social equity.

Try and relate that also a little bit to electric vehicles because that's not something we've heard much about today but of course electric vehicles still aren't very cheap and so if you look at the Norwegian experience for example, then the people who are benefiting from electric vehicles, who are buying electric vehicles, and who are getting all the incentives for using electric vehicles, tend to be the wealthier people in Norwegian society. Yes, there are wealthier people in Norwegian society although it is one of the most egalitarian societies in the world.

So we have to think about that I think and how those bits of public investment who is benefiting from them.

National Transport Strategy, going back to that, National Transport Strategy apparently flows out of the strategic context, the Government's strategic context. And one of those flows down into high-level objectives in the National Transport Strategy and you can see there's five high-level objectives, and one of those is promoting social inclusion. And then there are some strategic outcomes which are apparently related to the objectives although sometimes I find a little bit of a disconnect between the outcomes and the objectives.

So, for example, I've said a lot at other conferences about well does improved journey times and connections really do much for promoting economic growth? But that's another question for another time. But I want to particularly I suppose focus on reduced emissions and social inclusion today, but very quickly don't you worry.

In the NTS there are those strategic outcomes. They set a number of indicators so for example, reduced emissions indicator, how much carbon emissions from the transport sector has been reduced. Improved affordability and accessibility of the transport system, what's happening to the access to key services and so on. So those are the indicators attempting the measure to the strategic outcomes.

And I thought it's useful to consider since this strategy's been in place since 2006, was refreshed in 2016, is now being completely reviewed, you know, what's been achieved? What kind of things have been achieved? Well, in terms of congestion which is one of the top indicators, it's better than in 2006 but on a worsening trend. Percentage of trips made by public transport, foot, bike, the trend's stable but the distance walked has reduced.

Domestic carbon emissions, so that's excluding international aviation and shipping, well, they're down slightly on 2006 but they're well off target and there are recent increases in spite of what's going on in electric vehicles and clean vehicles. Bus passenger numbers as we know are falling sharply in most areas. Bus services are reducing so there is probably less access to services for people who don't have a car. Bus and rail satisfaction is high but stable. And access to key services like hospitals, pharmacies, that kind of thing, well there's no data, there's not really any monitoring that I can find that actually shows us whether accessibility is increasing.

So it's a very mixed picture in terms of what's being achieved by the National Transport Strategy. Is that perhaps because of what's spent? I think that's in a... yes, the NTS a former Minister said, it's not a spending plan. But I always think that if you want to achieve your policy objectives it's quite a good idea to align your spending with your policy objectives and not in the opposite direction. So what's been happening?

These data are a bit old, I really need to update them. I'm sorry it's 2012/13. That's Transport Scotland total spend in cash terms at that point. Roads, maintenance and investment, 30%. Scot Rail subsidy, let's not forget that every Scot Rail trip is subsidised to the tune of about £7.50. Concessionary fares on buses 11%, and other, which was mainly ferries, air subsidies and bus operators grant, 16%. So the vast bulk on roads and trains, and not much in that part.

What about local authority? At that time, 2012/13, it will have gone down since then. And other will have gone down too. But it amazed me that 32% of spend was on new roads, 27% was on road maintenance. Only 10% on public transport subsidy and 24% was on other, but quite a lot at that time was the Edinburgh trams so that will have changed.

Right, so I would say spending is not necessarily always aligned with for example, improving social exclusion, inclusion, or access. So also affordability hasn't really improved over that period. Bus fares went up, rail fares went up, the cost of motoring stayed constant. So the schemes that have been built, the schemes that have been delivered tends to be in the main big infrastructure schemes at the national level. So we see there for example the Queensferry crossing, Borders railway, HRH opening it, dualling of the A9, this type of thing.

Obviously, there's been reduced fares through the concessionary fares programme for older people. And some limited investment in new, clean buses. But the vast majority of the spend is going on things which to be honest increases travel distances and therefore emissions.

How am I doing for time? What do you reckon, Maureen? Five minutes?

Who travels how? Useful data this. I think we need to think in terms of incomes, who's travelling how. Basically, the poorest people, the poorest 20% they're highly dependent on walking and bus. And also as passenger in a car. Whereas the highest income level are as you might expect, disproportionately dependent on driving, but also have very high rail use and very low bus use.

So if you're spending on low emission vehicles, spending on encouraging the acquisition of low emission vehicles, low emission private vehicles, then you're going to be benefiting people at the higher end of the income spectrum. Surprise.

So regard to equity and social inclusion of the National Transport Strategy, there's not very much data on some of the relevant indicators. Poor people walk and take the bus more and travel less overall than richer people. So subsidies for EVs aren't necessarily really helping them.

Transport spending is focused on big schemes for cars, rail, and rail subsidy which will tend to increase travel distances overall. The work that's being done on concessionary fares shows that even at the most benefits of concessionary fares are being delivered to wealthier pensioners. So I would say it's a little bit hard to see how the NTS up to now between 2006 and now has really promoted social inclusion.

And then just briefly, don't worry I'm not going to go through all these slides at all, I'm just going to go onto the one about what do you really need to do I think if you want to reduce emissions from transport, because as I said earlier, emissions from transport are basically stable. So the climate change action plan which is a sort of subset, well it's related to reducing transport emissions, in terms of transport it plans to rely mainly on low emission vehicles.

EU emission standards and local LEZs which I know are for local pollutants but would have some impact as well on emissions, global emissions because of making cleaner vehicles or more energy efficient vehicles. So it's

very vehicle reliant, the climate change action plan. But if we want to cut emissions from transport, if we want to make a significant change, we need to tackle like all of these things that contribute to increased emissions from transport.

So land use increases distances. All other things being equal, if distance is increased our emissions will increase. If speeds and demand aren't managed, emissions will increase. If there's no mode shift away from private vehicles, emissions will increase. So some of these things, right, big subsidies for the uptake of ultra-low emission vehicles, are in place although there's a question as to whether or not they're big enough because the size of the emissions... the ultra-low emissions vehicle subsidy in Norway is enormous in comparison to what it is here, basically it reduces the difference between a conventional car and a normal car... and an electric car to nothing.

But you need all these other measures in place as well. And I would argue that many of your current policies, which to be honest are stimulated or delivered by the National Transport Strategy, and in particular by the spending that accompanies the National Transport Strategy, are unfortunately delivering the opposite of these things and also not really helping social inclusion.

So there we are. The critical academic. I have, you know, my luxurious position that I can sit in my ivory concrete tower in Merchiston, southwest Edinburgh, and make comments like this. But I think it's important, you know, that there is somebody around to make comments like this and say we have to do a lot more than we are doing which isn't to understate the value of what we are doing already.

And I hope that's alright, Maureen, in terms of time.

Thanks for listening, thanks for hanging in there, okay?

Professor Tom Rye's slides can be downloaded from the following link:
http://www.westminsterforumprojects.co.uk/forums/slides/Tom_Rye.pdf

The future for Scotland's transport system

Questions and comments from the floor

- Maureen Watt MSP: Thank you very much, Tom, for that bit of a reality check. Does anybody have a quick question for Tom? A burning question?
- Professor Tom Rye: I did have actually I was checking a very good report by a German research institute just now about the situation with incentives for EVs in Norway. Half of all new vehicle registrations in Norway are electric vehicles, or ultra-low emission vehicles. There's a vast range of subsidies that they enjoy. Some of those subsidies are now being withdrawn, incidentally, which kind of I think relates to Vincent's comment earlier on, or question earlier on. They're starting to withdraw those subsidies including parking and access to bus lanes and things like that.
- Vincent McNally: Being too greedy with another question. It was just that if you could have gone back to that slide where you had your kind of list of actions that were needed, I wonder if you kind of had a priority rating for those measures? And I thought you would have had cost of public transport as one of the top measures within that?
- Professor Tom Rye: Actually... what happened? Somebody took away my pointer, I put it over there. There. That one. I would have, changing a vehicle fleet, so as a high priority, but I would have demand and speed management as a priority. The experience of cutting public transport fares at least in the short-term is that the people who benefit from the cutting of the public transport fares tend to be people who are using public transport or walking or cycling already. There's a longer term elasticity effect but it takes a long time to kick in. So if you want to shift, if you want to bring about modal shift to cleaner forms of transport, then demand and speed management for private transport is extremely important. So I wouldn't necessarily have the cost of public transport as number one, but it's in there, it's in there, okay?

Session Chair's closing remarks

Maureen Watt MSP, Member, Rural Economy and Connectivity Committee

Okay that certainly has been a fascinating session and as you can see as a decision maker we have got lots of circles to square or squares to circle and our decision making on the Transport Bill is going to be very difficult. But I have got one very simple maxim as a decision maker in this area and that's to leave the country and the planet in a better place than I found it, that's probably because I'm a farmer's daughter.

But can I thank you all for your attention and Roger you want to say a few words to sum up.

Scotland Policy Conferences closing remarks

Roger Greer, Associate Producer

I'll not keep you all very much longer. Thanks very much Maureen again for Chairing this part of the session, it's really appreciated.

Just as I said this morning, there's a transcript of this morning's proceedings which will be sent through to you in a few days. If you did have a comment or question that you wanted to add to that, more like a comment, we would be more than happy to include that at the back of the transcript and we suggest about 5 or 600 words. There's details in your pack about how to submit that.

Also in your pack you will find feedback forms, if you could spend 30 seconds or a minute filling that out, it would be really appreciated and you can hand it in at the front desk, along with your name badge which we will recycle.

All the slides which were up today, subject to speakers' permissions, will be included in the transcript as well, so I know that Mark Bonner-Moris wasn't able to be with us, but hopefully those will be included in that.

So yes, that just leaves me to thank all of our speakers, our keynotes, Alison from this morning, Professor Rye for closing off, and helping us out by switching sessions, which we do appreciate, and both of our Chairs and you all for attending.

Have a good afternoon.

List of Delegates Registered for Seminar

Neil	Amner	Director/Director	Anderson Strathern/Scottish Chambers of Commerce
Tom	Andrew	Devolved Administrations Analyst	Committee on Climate Change
Douglas	Andrews		Transport Scotland
Denise	Angus	Senior Transport Planner	Transport Scotland
Cllr Martin	Bartos	Chair	SPT
John	Bengough	Account Manager	Eversholt Rail
Gordon	Blair	Associate Transport Planner	Jacobs
Mark	Bonnor-Moris	Business Development Director	BP Chargemaster
Duncan	Booker		Glasgow City Council
Colin	Brandsma	EV Installations Manager	Transport Scotland
Graeme	Bruce	ITS Infrastructure Manager	Transport Scotland
Angus	Carmichael	Scottish Road Works Commissioner	
Donald	Carmichael	Director Transport Policy	Transport Scotland
Ian	Chambers		SLC Rail
Kevin	Collins	Transport Planning Co-ordinator	Falkirk Council
Caroline	Connelly	Rail Policy Officer	Transport Scotland
Raymond	Convill	Senior Policy Officer, Rail Directorate	Transport Scotland
Roger	Cotton	Partner	Brodies
Professor James	Curran	Honorary Fellow	Scottish Environmental LINK
Susan	Daish	Senior Manager	KPMG
Robbie	Drummond	Managing Director - CalMac Ferries	David MacBrayne
Graham	Edmond	Head of Sustainable Engineering and Climate Change Adaptation	Transport Scotland
Ross	Fairley	Head of Renewable Energy	Burges Salmon
Valerie	Ferguson	Ports policy Co-ordinator	Transport Scotland
Dr Tom	Flanagan	Partnership Director	Tactran
Stewart	Fox-Mills	Commercial Director	Abellio Transport Holdings
Alan	Frew	Director	Arup

David	Gee	Business Development Manager - North	Electric Blue
Julia	Gilles	Director	WSP
George	Gillespie	Executive Director, Neighbourhoods & Sustainability	Glasgow City Council
Richard	Hadfield	Head of Ferries Policy & Planning	Transport Scotland
Kieran	Harte	Head of Cities	Uber
Isbrand	Ho	Managing Director	BYD Europe BV
Len	Hobbs	External Regional Consultant for Scotland and Borders	British International Freight Association
John	Hunter	General manager Public Service Enterprise	Trapeze
Alison	Irvine	Director, Transport Strategy and Analysis	Transport Scotland
Mark	Isbern	Commercial Manager	Porterbrook
Rob	Jackson	Business Development Manager	Yotta
Graeme	Johnstone	Lead Officer Access and Transport	Scottish Borders Council
Alan	Kerr	Development Management Advisor	Transport Scotland
Eleanor	Kilpatrick	Low Carbon Analysis	Transport Scotland
Nicholas	Lyes	Public Arrairs Manager and Spokesperson on roads policy	RAC
Inglis	Lyon	Managing Director	Highlands and Islands Airports
Chris	Mackay	Partner	Burness Paull
Morag	Mackay	Manager	Transport Scotland
Gordon	MacLeod	Rail Sustainability Manager	Transport Scotland
Professor Donald	Macrae	Chair of Water Industry Commission for Scotland	Water Industry Commission For Scotland
Andrew	Malcolm	Chief Executive Officer	The Malcolm Group
Grace	Martin		Sustrans
Stuart	Matheson	Policy Officer	The Scottish Government
Katie	McCafferty	Economic Strategy Manager	Transport Scotland
Elaine	McCall	Senior Strategic Environmental Assessment Officer	The Scottish Government
Janice	McCann	HSEQ Director	Direct Rail Services
Jacqueline	McDonald	Rail Policy Officer	Transport Scotland
John	McDonald	Development Management Advisor	Transport Scotland
Doug	McIlroy	Communications Specialist	Hitachi Rail Europe

Vincent	McInally	Team Leader	Glasgow City Council
Paul	McKay	External Relations Manager	ScotRail
Alan	Moir		SPT
Derick	Murray	Director	Nestrans
Robin	O'Malley	Development Officer Transport	East Dunbartonshire Council
Allie	Page	Programme Coordinator	CoMoUK
Professor Volker	Pickert	Chief Scientific Advisor	The TEV Project
Dickon	Posnett	Director of Corporate Affairs	Argent Energy
Kat	Quane	Policy Manager	Office of the Scottish Road Works Commissioner
Alex	Reid		Transport Systems Catapult
Martin	Reid	Director, Business Unit North	Road Haulage Association
Mari-Claire	Riley	Climate Change Officer	Falkirk Council
Daniel	Robertson	Policy Adviser	Office of the Secretary of State for Scotland
Douglas	Robertson	President	EVA Scotland CIC
Professor Tom	Rye	Professor of Transport and Director, Transport Research Institute	Edinburgh Napier University
Damien	Scott	Cities Lead	Uber
Matthew	Shepherd	Planner	The Scottish Government
Yvette	Sheppard	Environment & Air Quality Manager	Transport Scotland
Councillor Lynne	Short	Convener, City Development Committee	Dundee City Council
David	Simpson	Operations Director	ScotRail
Colin	Smyth MSP	Shadow Cabinet Secretary for Rural Economy and Connectivity, Scottish Labour	The Scottish Parliament
John	Sneddon	Head of Engineering and Digital Solutions	Costain
Nicky	Sobey	Senior Policy Manager	Highlands and Islands Enterprise
Keith	Stark	Scottish Manager	Enterprise Car Club
Ewan	Swaffield	Low Carbon Vehicles Policy Manager	Transport Scotland
Sara	Thiam	Regional Director	ICE Scotland
Maureen	Watt MSP	Member, Rural Economy and Connectivity Committee	The Scottish Parliament
Paul	White	Technical Director	WSP
Meg	Whitelaw	Researcher, Office of Colin Smyth MSP	The Scottish Government

Peter	Widdowson	Business Development Manager	Robertson Construction Group
David	Williamson	Head of Policy & Communications, Scotland	Abellio Transport Holdings
Cllr David	Wilson	Vice Chair	SPT
Stuart	Wilson	Manager	Transport Scotland

Contributor Biographies

Neil Amner, Director, Anderson Strathern and Director, Scottish Chambers of Commerce

Neil Amner is a Director at Anderson Strathern LLP, solicitors. He is a Director of Scottish Chambers of Commerce and chairs its Economic Advisory Group. He is the immediate Past President of Glasgow Chamber of Commerce. From a background in commercial property work, Neil has a strong track record as one of Scotland's leading transport, environmental and parliamentary lawyers. His transport practise encompasses contractual and regulatory aspects of rail, road, aviation, shipping and ports operational and infrastructure matters. He is a Chartered Fellow of the Chartered Institute of Logistics & Transport UK. Chambers' guide to the legal profession names Neil as a Leading Individual for Transport (Rail). Neil was a member of SCDI's Connectivity Commission and is the Company Secretary of the Scottish Maritime Cluster. He is a member of Transport Scotland's NTS Review Board.

Mark Bonnor-Moris, Business Development Director, BP Chargemaster

Mark is responsible for all commercial sales at BP Chargemaster. An electric vehicle charging industry expert having worked in the industry since 2010. Before his current role Mark was Head of EV for UK and Ireland for Siemens plc. In addition to his sales responsibilities Mark is the Project Director for ChargePlace Scotland, BP Chargemaster - through their subsidiary Charge Your Car - operate this network on behalf of Transport Scotland. Mark is well known and respected within the EV industry and sits on a number of industry groups and committees and is regularly asked to contribute to both trade and national publications on EV charging, Electromobility and future smart city topics.

Professor James Curran, Honorary Fellow, Scottish Environmental LINK

James Curran was previously Chief Executive of the Scottish Environment Protection Agency and served on several government groups including climate change, zero waste, hydronation, green growth, biodiversity, and fracking. He is currently Chair of the James Hutton Institute and also of Climate Ready Clyde. He serves on the Board of the Green Purposes Company, created to oversee the environmental performance of the UK Green Investment Bank when it was privatised. He served for some time on the Cleaner Air for Scotland Governance Group. He is an Honorary Fellow of Scottish Environment LINK.

Ross Fairley, Head of Renewable Energy, Burges Salmon

Ross is a partner at law firm Burges Salmon and leads the firm's Renewables team. He has been advising the UK offshore wind sector since the first demonstration rounds and has advised developers, investors, off-takers and the supply chain in relation to every offshore wind round. He has been described by legal directories as "pre-eminent in renewables" and the Burges Salmon team has won numerous awards for its work in the sector. He has advised on Seagreen's Firth of Forth projects, Moray, Sheringham Shoal, Race Bank, Lynn and Inner Dowsing offshore wind farms. Ross is also involved in floating wind and wave and tidal projects.

George Gillespie, Executive Director, Neighbourhoods & Sustainability, Glasgow City Council

George Gillespie is Executive Director, Neighbourhoods & Sustainability of Glasgow City Council's Land and Environmental Services with responsibility for roads, lighting, cleansing, parks, waste management, environmental health, scientific services and trading standards. He is a Chartered Civil Engineer and has held a number of senior positions within Strathclyde Regional Council and Glasgow City Council as Head of Lighting & Traffic, Head of Roads, Head of Service Delivery and Assistant Director prior to his most recent, current appointment.

Alison Irvine, Director, Transport Strategy and Analysis, Transport Scotland

Alison has worked in Transport Scotland for ten years after spending eighteen years working in the consultancy sector as a transport planner. She is a graduate from the University of Strathclyde and a Chartered Civil Engineer. As Director of Transport Strategy and Analysis she is responsible for the development of the new National Transport Strategy and setting the investment priorities for transport across Scotland through the second Strategic Transport Projects Review. She is responsible for providing strategic transport planning advice to Scottish Ministers and assisting Local Authorities plan for the future through the development plan process

and policy development and engagement around city and regional growth deals. This includes the development of business cases for Scottish Minister's Rail Investment Strategy and for the A9 and A96 Dualling programmes, two of the largest transport infrastructure projects in Scotland as well as the evaluation of major rail investments including the Borders Railway, the Forth Replacement Crossing and Aberdeen Western Peripheral Route. Her remit also includes providing analysis and research to support strategy and policy development which includes maintaining and publication transport statistics, transport demand forecasting, transport appraisal guidance as well as transport research. She has responsibility for policy integration across Transport Scotland and cross cutting issues including the agency's preparation for Brexit, future mobility and transport's contribution to inclusive economic growth. She is leading Transport Scotland's climate change mitigation work, overseeing associated policy development and reporting for the Climate Change Plan and has oversight of the statutory and institutional frameworks for transport including the Regional Transport Partnerships.

Nicholas Lyes, Public Affairs Manager and Spokesperson on roads policy, RAC

Nick was appointed as roads policy spokesperson and the RAC's Public Affairs Manager in January 2015. Nick is responsible for the RAC's overall public affairs campaigns, Government relations and policy positioning, taking a lead in measuring motoring opinion and devising the organisation's public policy positions on motoring related issues. Nick also oversees much of the RAC's research work which aims to make motoring safer, cheaper and more enjoyable. Nick is a regular contributor and spokesperson on local and national news and TV. Prior to this, he worked as a political adviser in the housing sector and started his career off as a political consultant for DeHavilland Political Intelligence.

Derick Murray, Director, Nestrans

Appointed to the post of Director of the North East Transport Partnership (Nestrans) in June 2007. Prior to that, he was the AWPR (Aberdeen Western Peripheral Route) Managing Agent and has been involved in the development of the route since early 2001. A Chartered Engineer for 26 years and a Member of the Institution of Civil Engineers. He has 30 years experience in Highway Design and Construction having worked in the delivery of many significant road projects in and around the City of Aberdeen. Following graduation with a B.Sc. (Eng)(Hons) in 1980 he started working for Grampian Regional Council, Roads Department, Aberdeen City Division. This provided good experience in the development and construction of many roads schemes including, Wellington Road, Haudagain, Mugiemoos Road, King Street/St Machars Drive, Anderson Drive, East/West North Street. He was the Project Manager for the Bucksburn Diversion. This was a scheme promoted jointly by the Scottish Office and Grampian Regional Council. In 1996 following Local Government Organisation he was appointed as a Principal Engineer in Aberdeen City Council's Client Team developing projects and finding funding sources, primarily to enable the delivery of public transport improvements, which included bus lanes and Park and Ride sites. In 2001 he was appointed to lead a team to develop and implement the Modern Transport System (MTS) including the Aberdeen Western Peripheral Route. This involved a Scottish Transport Appraisal Guidance (STAG) analysis of options for a strategy. It was the first time the STAG methodology had been used to assess a strategy. Following Scottish Executive acceptance of the MTS and AWPR, the Aberdeen City Council was appointed as Managing Agent for the Scottish Executive and Derick was appointed as Managing Agent in October 2003 taking the project forward to Order publication in 2006.

Professor Volker Pickert, Chief Scientific Advisor, The TEV Project

Professor Pickert is Head of the Electrical Power Group at Newcastle University, UK, managing a workforce of 100 researchers. He has 25 years industrial and academic experiences in EV R&D. He worked as Product Manager for Semikron, Germany, and Manager of the EV Electric Drives Group at Volkswagen, Germany. In 2003 he worked for Newcastle University where he became Full Professor and in 2012 the Head of the Group. In 2017 Professor Pickert joined the TEV project, an initiative to advance road infrastructure and the way people travel. His role within the project is to develop the first TEV prototype.

Martin Reid, Director, Business Unit North, Road Haulage Association

Martin joined the RHA in February of 2014 as Director for Scotland & Northern Ireland. In June of 2015 his remit expanded to include Northern England as he took on the role of Director of Business Unit (North). Policy matters are at the heart of Martin's role as he works with MP's, MSP's and MLA's at Westminster, Holyrood and Stormont as well as regularly working with Highways England, Transport Scotland and the Department of

Environment. With overall responsibility for the servicing and support of around half of the RHA's membership Martin is very much a user of the UK roads network and a keen advocate of a better integrated UK wide transport network.

Professor Tom Rye, Professor of Transport and Director, Transport Research Institute, Edinburgh Napier University

Tom re-joined Edinburgh Napier University (in Scotland, UK) as Professor in Transport and Director of its Transport Research Institute (TRI, www.tri.napier.ac.uk) in January 2015. Before this, he worked for 2½ years as a Professor at the Division of Transport and Roads, Lund University in Sweden; whilst there, he also successfully started up Sweden's new National Knowledge Centre for Public Transport, K2, as its Director. Since he left, the Centre has gone from strength to strength. He has degrees in Geography, and Spatial Planning, and a PhD in Mobility Management. He also worked at Edinburgh Napier University from 1996-2012 but alongside academia, he spent much time seconded to consultants and local government, as well as on projects for Scottish and UK Governments and the EC. His specialisms are transport training, mobility management, comparative transport policy evaluation and implementation, parking policy and planning for public and slow modes of transport. In his spare time, Tom enjoys ski touring, vegetable gardening, road and mountain biking, climbing, the company of his 8 year old twins, real ale, playing saxophone and ukulele, lindyhop dancing, learning other languages, and topiary.

Councillor Lynne Short, Convener, City Development Committee, Dundee City Council

Lynne Short was elected as a councillor for Maryfield in 2016 and following re-election in May 2017 became the Convener of the City Development Committee. A proud Dundonian, 49 year-old Lynne has worn many hats in a wide and varied career notably as a surveyor, tour guide and mum. In her role as convener of the city development committee she is one of the key people responsible for the promotion of jobs in the local economy, the maintenance of the Dundee's road network, transportation facilities and a wide range of services designed to seek out opportunity and respond to the needs of the city as a whole. Passionate about social justice, equality of opportunity and connectivity, Lynne is a tireless and fearless supporter of Dundee and its people.

David Simpson, Operations Director, ScotRail

David Simpson has more than 30 years' experience of delivering results across the rail industry, leading and managing change in Network Rail, freight and passenger businesses across the UK. David has a unique blend of experience in Scotland's rail sector, having worked in senior roles at Network Rail Scotland, Caledonian Sleeper and now ScotRail. He brings a strong focus to improving performance and customer service, and building trusted relationships between industry partners, stakeholders and government.

Colin Smyth MSP, Shadow Cabinet Secretary for Rural Economy and Connectivity, Scottish Labour

Colin was elected to the Scottish Parliament in May 2016 as a Regional MSP representing South Scotland. He is a member of the Rural Economy and Connectivity Committee, as well as sitting on a number of Cross Party Groups. He is a Shadow Cabinet Secretary for Transport, Connectivity and Infrastructure.

Sara Thiam, Regional Director, ICE Scotland

Sara is Director for the Institution of Civil Engineers (ICE) in Scotland with responsibility for informing the infrastructure debate, working with members to deliver lifelong learning for civil engineers and promoting excellence in the built environment. She is a member of the Construction Scotland Innovation Centre (CSIC) Board, SCDI's policy committee and former Chair of the Low Carbon Infrastructure Task Force. She brings over 25 years of project management, policy and public affairs experience from external facing roles in the public sector with an economic development focus. These include the Glasgow Edinburgh Collaboration Initiative, Edinburgh City Centre development partnership and EU funded transnational knowledge transfer projects designed to stimulate innovation in the built environment. As International manager for Community Learning Scotland she helped establish the Eurodesk youth information project subsequently adopted by the European Commission and replicated across the EU. Her early career in London was with PBD, business information and strategy consultants and the British Council. Sara is a modern languages graduate.

Maureen Watt MSP, Member, Rural Economy and Connectivity Committee

Maureen Watt was born in Aberdeen to a North East farming family. She was educated at Keith Grammar School and graduated with an Honours degree in Politics from the University of Strathclyde. Maureen also gained a Postgraduate Certificate in Education from the University of Birmingham. Maureen was also a councillor on Grampian Regional Council and was appointed in 1998 to the Independent Commission on the relationship between Local Government and the Scottish Parliament. She represented North East Scotland as a regional list MSP from 2006 and 2011, thereafter becoming the constituency MSP for Aberdeen South and North Kincardine. Maureen has served as Minister for Schools and Skills, Minister for Public Health, Minister for Mental Health and currently serves on the Rural Economy and Connectivity Committee.

All biographies provided by speakers