

Agenda – Economy, Infrastructure and Skills Committee

Meeting Venue:

Committee Room 2 – Senedd

Meeting date: 13 November 2019

Meeting time: 09.25

For further information contact:

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Private pre-meeting

(09.25–09.30)

1 Introductions, apologies, substitutions and declarations of interest

2 Decarbonisation of Transport – Modal shift, planning and local government

(09.30–10.45)

(Pages 1 – 49)

Craig Mitchell, Head of Waste Support, Welsh Local Government Association

Roger Waters, Service Director Frontline Services, Rhondda Cynon Taff

Council

Rhiannon Hardiman, Wales Manager, Living Streets Cymru

Attached Documents:

EIS(5)–29–19(P1) Research briefing

EIS(5)–29–19(P2) Evidence from WLGA

EIS(5)–29–19(P3) Evidence from Living Streets



Break

(10.45–11.00)

3 Decarbonisation of Transport – Rail

(11.00–12.00)

(Pages 50 – 56)

Matthew Prosser, Technical Director, Angel Trains

Andrew Kluth, Lead Carbon Specialist, Rail Standards and Safety Board

Attached Documents:

EIS(5)–29–19(P4) Evidence from Angel Trains

4 Motion under Standing Order 17.42 (vi) and 17.42 (ix) to resolve to exclude the public from item 5 and from the first item at its meeting on 21 November 2019

5 EIS Forward Work Programme 2020

(Pages 57 – 61)

Attached Documents:

EIS(5)–29–19(P5) EIS Forward Work Programme 2020

Agenda Item 2

Document is Restricted

WLGA CONSULTATION RESPONSE on Decarbonisation of Transport



CLILC • WLGA

EIS(5)-29-19(P2)

INTRODUCTION

1. The Welsh Local Government Association (WLGA) represents the 22 local authorities in Wales, and the three national park authorities and three fire and rescue authorities are associate members.
2. The WLGA is a politically led cross-party organisation, with the leaders from all local authorities determining policy through the Executive Board and the wider WLGA Council. The WLGA also appoints senior members as Spokespersons and Deputy Spokespersons to provide a national lead on policy matters on behalf of local government.
3. The WLGA works closely with and is often advised by professional advisors and professional associations from local government, however, the WLGA is the representative body for local government and provides the collective, political voice of local government in Wales.
4. Transportation of goods and people around Wales is fundamental to our current economic model and our well-being as a nation. It is an integral part of most economic, social, environmental and cultural activity. With transport accounting for 14% of Wales' carbon emissions, it is essential that the sector is made more resilient, efficient and low carbon in a cost-effective way if we are to meet the Welsh Government's requirement to reduce overall carbon emissions by at least 80% (or higher) by 2050.
5. However, according to Department of Transport statistics, since 2010 the volume of traffic on roads in Great Britain has increased by 8%. *Department of Transport - The Road Safety Statement 2019 A Lifetime of Road Safety*. As is recognised by Welsh Government, the most effective way of reducing CO2 emissions in the near-term will be to replace car journeys with those using the existing public transport system and active travel. Therefore, as a nation we are still moving in the wrong direction, even allowing for the increased efficiency of vehicles and the rise of hybrid and EV.

6. This trend is also reflected in the data in the Prosperity for all; a low carbon future document where movement on many of the required trajectories is not fast enough.
7. Therefore, some further radical thinking is required as to how demand will be managed to ensure well-being and to tackle the climate emergency. Issues such as helping support and grow sustainable forms of transport as part of the foundational economy as well as improving the accessibility of local services may be critical to this debate.
8. Significant investment in areas such as active travel and the development of the place making agenda with Planning Policy Wales have been vital in signalling a change in direction across transport policy. Some of these changes will take time to have effect.
9. The diversity of Wales also makes this agenda particularly difficult especially in terms of giving people real alternatives to car use in particular. Therefore, crafting a range of policies to meet these wide-ranging issues will always be challenging. The work that some LA's are doing with WG and TFW on Integrated Responsive Transport (IRT) is a good example of the innovation that will be required.
10. The general response from Local Authorities to the *Prosperity for All: A Low Carbon Wales* plan is that this is a good start which captures a range of interventions that potentially begin to tackle the problems. The expectation is that the *Wales Transport Strategy* will flesh out these policies and provide the detail required. In turn this will set the context for the local transport strategies which will set out the detailed delivery.
11. It is also recognised that initiatives such as rail investment programme, and regional transport actions under the City Deal/growth areas are progressing at a pace. The significant investment in rail travel (policy 47) is likely to have a large impact. However, it is difficult to determine from the information in this document what the scale of that impact will be and this remains an issue with most of the policies at this stage. What is the cost-benefit of this investment as opposed to other areas of transport policy?
12. Broadly, Local Authorities have welcomed the approach to transport set out in the document. The key questions remain as to the deliverability of some of the targets and the process to achieve them. The document quite rightly sets out some key aspirations but does so in broad language that makes assessing the deliverability of the targets difficult. The expectation is that the *Wales Transport Strategy* will deliver the specific detail on how these aspirations will be delivered.
13. It is also important to note that the declaration of the climate emergency in Wales happened after the publication of this document. A number of local authorities have followed suit in declaring an emergency. The climate science has been well articulated in the past at the Climate Change Commission so the range of impacts on Wales is understood. What is critical is the wider public

discourse and engagement on this issue so that public agencies have a greater mandate to take the range of radical action now needed to make a difference. There can be no doubt that difficult and controversial decisions will need to be taken as evidenced by the M4 relief road debate.

Are the transport emissions reduction targets, policies and proposals (set out in Prosperity for All: A Low Carbon Wales) achievable and sufficiently ambitious?

14. The document makes sobering reading about the progress Wales is making towards its climate change targets. Clearly there needs to be a step change to get back on track with some of the necessary trajectories. It is *not yet* clear from this document whether the range of actions alone will deliver that step change. Transport serves a purpose and is not an end in itself and what really needs greater thought is how to reduce the demand for movement and enable the societal change that is required. Whilst encouraging broadband is one aspect of this it does not solve the issue and sometimes outcomes such as homeworking and home shopping may exacerbate them.
15. The list of transport actions are wide ranging and challenging. However, most are expressed in aspirational language with little detail on how they will be delivered and, in some cases, how they could be delivered. As stated, it is expected that far more evidenced detail will be presented in the Wales Transport Strategy on the scale of impact that is expected and how it will deliver the necessary carbon reduction. There also needs to be greater clarity about the expectations on all sectors to deliver this and an understanding of the potential opportunity costs.
16. There is a clear need for collaborative working and a strategic approach to decarbonisation, however the individual economic and geographic differences between Local Authorities must be considered, ensuring a 'one size fits all' approach is not proposed.
17. Rural authorities have queried how the policy aimed at zero emissions for bus and private hire vehicles could be met within the timescale. As work in North and Mid Wales is illustrating, the infrastructure goes beyond the charging points and onto the national grid. The issue here is also that a range of technologies for different uses will need to be promoted; hydrogen for example is often talked about in terms of heavy goods vehicles. Again, this needs government investment in infrastructure and support for struggling bus companies to make this a reality. Also, using gases from AD facilities has been suggested as an option. This illustrates the issue where there are a number of potential options, but detailed work required on the practicality, when and where to use, infrastructure (e.g. grid, depots, mechanics/skills) and investment to make it a reality.
18. Expertise, knowledge and guidance will also be critical. Twenty-two local authorities do not currently have this, and collective action will be important.

19. Another comment has been that the approach to achieving low carbon outcomes should do more to get communities to take responsibility for their emissions. This mirrors debates across many service areas where consultation and engagement are moving into involvement, in line with the Well-being Act. Clearly this would need to be handled carefully but a more informed local debate on these issues is needed, alongside co-production of solutions. Public Service Boards will have a role learning from the work in Cardiff and the Vale considering how as major employers can drive this debate. A number of LA's have progressed the digital delivery of aspects of services but perhaps we need a more radical debate about community-based delivery.
20. The role of the recently published National Development Framework should be helpful on aspects of this, setting out strategic development priorities in a spatial way. Therefore, the part played by land-use planning and the location of public services is important. The current patterns of employment growth are concentrated on very small footprints which leads to tidal movement of employees, stressing our transport networks. Trains are often overcrowded (in one direction only), buses are trapped in congestion and private car becomes the default choice for the vast majority.
21. For example, in Cardiff it is often cited that 100,000 commuters cross their boundary every morning, 80,000 by car.
22. Whilst in this case the Metro will offer a major expansion of rail along the A470 corridor circa 2022, even doubling rail use may only equate to a few years' car growth – continuing to follow this approach is not sustainable into the medium term without massive expansion and investment in new public transport corridors.
23. More effective land-use planning offers a way forward and collectively government control the levers on public sector (re-)location; locating TfW in Pontypridd is a prime example of the change in strategy that is needed. Other regional towns have the potential for a similar approach, creating shorter journeys and 2-way flows on rail, and reducing the journey times on bus, making bus a viable option for commuters.
24. Being realistic, the main growth will still be in the cities and require investment in mass transit from the wider region but we can balance some of this by being smarter with public sector investment – this will act as a catalyst for elements of the private sector to co-locate.

Is the Welsh Government's vision for the decarbonisation of transport sufficiently innovative, particularly in terms of advocating new technologies?

25. Welsh Government should continue to strive to provide the necessary economic and business support to allow innovative technologies to develop in Wales. Whilst the public sector may have a role in encouraging new technologies through procurement and infrastructure the scale of the

investment and potential market failure means that it is not prudent to invest significant public money in emerging technology too early. The reality is that LA's are having to reduce current services such as bus subsidy therefore it is difficult to see how this can be achieved. The joint initiatives with TfW to look at demand responsive bus services are attempting to do this by shifting resources rather than additional budgets. This is a model that will need to be used elsewhere.

26. Therefore, technologies in this case are focused on information and communication rather than hard infrastructure.
27. As the document makes clear, the short-term priority is to achieve modal shift to public transport and active travel to achieve the targets. This also has wider potential benefits around physical and mental well-being, connectivity of communities and air quality. Therefore, a careful cost benefit needs to be undertaken to determine if limited resources are better invested in the short term in promoting and delivering modal shift rather than significant investment in hard infrastructure technology which may prove redundant or actually exacerbate the issues. There is a risk that the glamour and excitement of new technology leads to national and local investments in the wrong areas, leading to smaller reductions in CO2 emissions. At all levels, the emphasis should be the best return on investment. If LA's are given a clear signal that the current upsurge in Active Travel funding is a long-term programme of investment, then they can continue to grow the expertise necessary. If LA's have five-year indicative capital funding allocations, they can programme the works far more efficiently than a situation where often a few months into the year in which they have to spend the budget they get confirmation after a resource intensive bidding process.
28. The use of autonomous vehicles has been raised by some LA's as a good example of where Welsh Government action is required with the UK government to ensure that full advantage is taken. Technology has also been cited as a means of reducing the need to travel, remote outpatient clinics using other public sector buildings based in communities quoted as an example. Again, the Public Service Boards need to drive this type of agenda.
29. It is also essential to get a clear national strategy specifying outcomes (not solutions) at the outset. The roll out of EV charging is a good example. If each local area does its own thing there is a risk of inconsistency and/or drivers having to belong to multiple networks when travelling across Wales. Clear national expectations can give a steer to the private sector who have the resources necessary to make change at scale.
30. The emphasis on EV also must consider the potential for 'leapfrogging' existing technology. Significant research and investment in to hydrogen and other alternative fuels, means there is potential for electric vehicles to become redundant over the medium-term. This is particularly poignant in Wales, where topography and dispersed communities make investing in the electrical infrastructure required for charging EVs more costly and challenging than other parts of the UK. A careful cost-benefit analysis should be done to

consider this, and it again emphasises the need for a carefully considered strategy for EV charging.

What action is required, and by whom, to achieve the targets, policies and objectives?

31. Each action requires detail on delivery mechanisms, roles and responsibilities and an assessment of the cost benefit expected for the level of investment required. This should be co-produced between WG, LG and partners, with delivery roles for the new regional structures integrated into this thinking.
32. The Welsh Government Budget should then reflect this in terms of the investment priorities that it sets out across all budget areas. For example, investment in large and efficient medical centres of excellence may improve health outcomes for those patients, but require many more journeys, the stress of remote treatment away from community support, greater travel from staff, balanced against more energy efficient buildings etc... The same is true for investment in education. More needs to be done in understanding the wider impacts of such programmes in light of the Well Being Act.
33. It is important to know the cost implications of these actions for local government at a time when the budget/settlement is being developed and not simply assume the resources can be found. The decline in bus use and LA subsidy for services is a case in point. The resources are simply not there anymore to continue to deliver services in this way. The transport white paper sets out some interesting ideas on approaches such as franchising but without the resources to deliver this it is problematic. The pilot work on Integrated Responsive Transport systems across 3 LA areas may point to a more demand responsive public transport system that is more flexible and able to meet changing needs. This co-production of solutions between Welsh Government, communities and Local Government is the only sensible way forward given the huge restrictions on resources and the ever-increasing policy demands on local government.
34. The private sector will undoubtedly play an important role in achieving the targets, particularly when considering the investment in technology and infrastructure required. This relationship must be carefully managed however, and WG and Local Authorities need to ensure they are maximising the return on their investment. One example of this is in the proposed investment in EV charging infrastructure, where Local Authorities have the potential to receive an income from contracts with private companies, or directly by charging users. The imperative to derive income should not lead to solutions which do not provide the most benefit. Again, the opportunity to utilise economies of scale should be considered, and collaborative working between Local Authorities, partners and Welsh Government will be important in this regard. Engagement with universities and research will also be crucial, not only through the advancement of technology, but also through research in to behaviour change.

How should the new Wales Transport Strategy reflect the actions needed to decarbonise transport?

35. The WTS must make a very clear statement that the climate change emergency and carbon reduction are fundamental considerations that have shaped the strategy and will inform all activity that results. The strategy is developed in light of the WFG Act and the Environment Act decarbonisation goals/SMNR.
36. Each action requires detail on delivery mechanisms, roles and responsibilities and an assessment of the cost benefit expected for the level of investment required. This should be set out in the Transport Strategy but also needs to be reflected across a range of portfolio areas. Every policy area should be required to demonstrate how budget decisions have reflected the need to minimise travel and movement, other than through active travel. No investments should be undertaken which have a negative net carbon whole system impact on Wales unless it can be shown to have benefit across the range of Well Being goals. Assembly Members should be given

the necessary information to review the spending plans of Ministers as part of the budget setting process and to monitor progress over time. This information should be
provided in the context of ensuring that spending is focused on the areas that will deliver the largest carbon reductions based on available evidence.
37. Any aspect of policy that requires movement of people or goods should consider the transport and carbon implications of any policy change and seek to maximise the reduction.
38. More thought is needed to determine how Community Involvement, via local government and others, can help co-produce the range of solutions needed in different circumstances across Wales. Regional Transport Authorities should be given a remit to drive this, alongside the likely roll out of 20mph defaults, greater investment and use of active travel and initiatives such as pavement parking bans. More fundamentally, how we plan, develop and grow as a nation must give our citizens the real option of low carbon movement rather than having to rely on the current unsustainable patterns of travel. It is clear that a change in travel behaviour is required in order to meet Wales' ambitious decarbonisation commitments, and that simply reducing the carbon footprint of existing methods of transport will not honour these.

About you

Living Streets Cymru

Your opinion

- 1. Are the transport emissions reductions targets, policies and proposals (set out in Prosperity for All: A Low Carbon Wales) achievable and sufficiently ambitious?**

Partly

1.1 Please outline your reasons for your answer to question 1

We warmly welcome the message of the transport section of the Plan that “The Welsh Government is putting Wales at the forefront of a shift towards active travel and a low carbon public transport system which is accessible to all and contributes to liveable and sustainable communities”. However, it is our view that the policies and proposals do not go far enough to set out or realise any clear ambition around active travel.

We welcome 'Proposal 13 Significantly increasing modal share of active travel for short journeys', however this is, to all intents and purposes, simply a commitment to review current ambition and targets for active travel. We would like to see the Welsh Government being more explicit as to how it plans to do so, beyond what is already being delivered and which has resulted in the currently low numbers of active travel journeys made.

We also welcome 'Proposal 1 - Design a public communications campaign to encourage people to use their cars less' and 'Proposal 12 - Working to achieve a modal shift from car dependency to sustainable forms of transport' and would welcome the opportunity as an interested stakeholder to further refine each of these proposals and develop them into Policy with the Welsh Government so that reduced car use becomes a solid corner stone of the next Wales Transport Strategy.

An integrated approach to sustainable transport is essential - walking is part of every journey and improving public transport alongside the walking environment enables people to travel further sustainably and make walking a bigger part of that journey. The Welsh Government has declared a climate emergency and we would expect proposals to reflect this boldly and with a sense of urgency.

The two active travel targets included in this Plan (only one for walking and one for cycling)* are limited given that the baselines are already low and our view is that targets need to reflect much bolder ambition longer-term as part

of wider efforts to achieve a step-change in public behaviour and public health.

Living Streets warmly welcomed the strengthened position of the Welsh Government on active travel in Planning Policy Wales, December 2018. This approach must follow through into the debate around Decarbonising Transport and be subsequently reflected in the Wales Transport Strategy once published in 2020. We welcome 'Policy 49 - Use planning policy to promote sustainable travel and reduce the need to travel'. New infrastructure for active travel will not suffice if it does not address the many real and perceived barriers people experience which prevent them walking, in particular, where pedestrians do not feel that they are being prioritised. Issues such as poor crossings and wait times, obstructed footways, pavement parking, road layouts (including shared spaces) and speeding traffic are all some of the contributing factors that must be looked at in any new developments to ensure they are fit-for-purpose.

The City of London in its recent Draft Transport Strategy demonstrated excellent leadership in its approach to prioritising the pedestrian and in making the city a great place to walk and spend time by improving pedestrian comfort levels, making it safer, more accessible, easier and more enjoyable to walk in the city and cross its streets. It proposed targeting the proactive reduction in motor vehicle space and use on the City's streets and plans to reallocate space to pedestrians; using innovative methods to redesign the City's streets around people rather than vehicles and the use of temporary measures to create a culture and acceptance of future streets which are less vehicle focused.

This is the kind of ambition we would like to see matched within our cities in Wales based on a clear vision that genuinely prioritises walking and active travel for a healthier, fitter and cleaner Wales. Bold measures are essential if we are to reduce the dominance of the private car in Wales, especially for single occupancy and/or short journeys, and really maximise on the investment being made in public transport and Metro schemes across the country. Otherwise, there is a risk they are being set up to fail and business as usual shall prevail.

*1 Double the percentage of adults making cycling journeys at least once a week (currently 6%) and increase the percentage of people making walking journeys at least once a week by 25% from the 2016 baseline

2. Is the Welsh Government's vision for the decarbonisation of transport sufficiently innovative, particularly in terms of advocating new technologies?

Partly

2.1 Please outline your reasons for your answer to question 2

The vision presented places much reliance on EV technology as an answer. Our view is that this should be pursued with caution:

- a) There is a risk of simply shifting the source of carbon-based energy where charging energy is sourced from the grid.
- b) The use of electric vehicles does not solve the problem of congestion on our roads, a burden to bus users, cyclists and pedestrians and a drain on the economy.
- c) Road safety is potentially further compromised through EVs, particularly for young children or the hard of hearing as it is more difficult to hear vehicles in the road.
- d) Electric vehicle charging infrastructure can be problematic if badly installed and can further obstruct active travel routes.
- e) EVs do not solve the problem of particulate matter vehicle emissions. Particulate matter is tiny particles of partially burned fuel, as well as engine oils, and tiny specks from tyres, brake discs and road dust. These particles worsen heart and lung disease. There is no safe level of particulate matter but the World Health Organisation (WHO) recommends keeping it below specific limits. WHO measured air pollution in 51 UK cities in 2016, and found that 44 of them exceeded those limits.**

We welcome new assistive technology in vehicles such as intelligent speed adaptation systems that can automatically limit vehicle speeds. We would, however, urge caution in the pursuit of fully autonomous vehicles or reliance on a 'user in charge' due to pedestrian safety concerns.

We would like to see more innovation in active travel. Smart technology on pedestrian crossings can be used effectively to ensure that older people and physically impaired people have sufficient time to cross the road, something which is already being tested.***

Smart ticketing systems will be essential to ensuring efficient and cost-effective use of public transport in Wales. This will make integrating active travel and public transport for all journeys a more convenient and attractive option.

We would like to see further reference to digital information and pedestrian wayfinding linking different transport modes and services to enable seamless travel through a combination of walking and other modes. This should include onward journey information on buses/train carriages on mobile app and on bus/metro stops, to make it easier for people to travel and make their connections on foot.

**RCP (2018) Reducing air pollution in the UK: Progress report 2018. From: <https://www.rcplondon.ac.uk/news/reducing-air-pollution-uk-progress-report-2018>.

***Charles Musselwhite Centre for Ageing and Dementia Research, Swansea University

3. What action is required, and by whom, to achieve the targets, policies and objectives?

All proposals relating to modal shift and increasing active travel must be shaped into concrete policies without delay. Living Streets would be pleased to support this work.

We need investment in active travel. We support the recommendations made by the Future Generations Commissioner for 10% of the total transport budget to be spent on active travel by 2020/21, rising to 15% by 2025 given the health, environmental and transport benefits resulting from active travel. We would recommend a split between capital and revenue expenditure – ideally 70% capital and 30% revenue to start with. We would call on the Welsh Government to introduce a specific active travel to school fund which builds on, and includes, the current interventions in road safety (e.g. Kerbcraft and the National Cycling Standards) to establish a wider range of local interventions which can improve the health, environment and safety of children around primary schools, for example, to include interventions around air quality and wellbeing among others and which enable further active travel to school.

We need to make active travel the obvious choice for short journeys. Barriers to active travel need looking at in-depth to fully understand the blockages. For example, to enable more children to benefit from the daily walk to school, simply improving the routes between the home and the school may not be enough. With an increase in households where both parents go to work, schemes such as Park & Stride can help and in the longer term, public transport links and active travel routes on to key employment hubs are needed to achieve significant modal shift. For more recommendations on how to encourage mode shift read our report *Swap the School Run for a School Walk*.

Living Streets supports the move to greener vehicles, but guidance will be required to ensure good practice across Wales. Charging infrastructure should never be placed on the footway, as this restricts clearance, creating clutter and a potential trip hazard. It is dangerous for wheelchair users, elderly people, blind and partially sighted people and families with young children and pushchairs, who may be forced into the road. London Living Streets Group has produced detailed guidance on electric vehicle charging infrastructure.

There must be a default ban on all vehicles parking on the footway, as this discourages walking and, as with other forms of street clutter, is a safety hazard. We welcome recent steps taken by the Welsh Government to review pavement parking through its new Taskforce Group and look forward to contributing to the debate. Pedestrian Comfort Guidance recommends a minimum of 2m of unobstructed footway.

We welcome the recent commitment by the Welsh Government to make 20mph the default speed limit in residential areas. Slower speeds encourage people to walk and cycle more. We look forward to working with the Welsh Government towards implementation.

Where new infrastructure is being created, we would like to see that the absolute best street design and public realm is delivered for people walking, this could for example include aiming for +A pedestrian comfort levels for new infrastructure.*****

****Living Streets (2018) Swap the school run for a school walk. From: https://www.livingstreets.org.uk/media/3618/lis_school_run_report_web.pdf

****London Living Streets (2019). Electric vehicle charging infrastructure. From:

*****TFL (2010). Pedestrian Comfort Guidance for London. From: <http://content.tfl.gov.uk/pedestrian-comfort-guidancetechnical-guide.pdf>.

4. How should the new Wales Transport Strategy reflect the actions needed to decarbonise transport?

The Wales Transport Strategy must set out a vision for transport in Wales that is forward looking, sustainable and effective. The strategy needs to outline a vision for a Wales transport system that offers real alternatives. One that people can get behind. It must provide realistic solutions to the barriers people feel are there which limit their options. Be clear that this is not about telling people they can't drive, but about ensuring that the alternative is a realistic, attractive, sustainable option for them.

This vision must be backed up with challenging targets that reflect a much-needed change in culture. The Wales Transport Strategy must have a wide range of active travel targets for the types of people we need to see walking more and the types of journeys we make, for example, children walking to school at both primary and secondary age, adults commuting to work, older people who are making local journeys in their community on foot, all short journeys of less than two miles made on foot.

The Wales Transport Strategy should ensure an approach such as Healthy Streets***** is embedded in all aspects of the delivery of the strategy. We would like to see tools such as the Healthy Streets Check for Designers or the Healthy Streets survey used to assess the impact of new developments in our towns and cities and that public health is considered to ensure it is truly embedded in the culture of future street development.

We would like to see bold measures such as the encouragement of a Workplace Parking Levy with employers offered a business support package of travel planning and parking management. In Nottingham, the WPL generates around £9m per year from more than 24,800 registered parking spaces, with surpluses ring-fenced for investment in public transport, including new tram lines, extending the bus and rail network, and investing in electric buses. The scheme has been very successful at reducing air pollution, encouraging mode shift, and funding public transport

improvements, and other local authorities are considering similar measures*****. The encouragement of Charging Clean Air Zones would also be a welcome move.

*****<https://healthystreets.com/>

*****Hallam, N. & Gibbons, A. (2017) A winning policy: Nottingham's Workplace Parking Levy.

From: <https://bettertransport.org.uk/blog/better-transport/winning-policy-nottinghams-workplace-parking-levy>.

5. Do you have any other points you wish to raise within the scope of this inquiry?

Living Streets supports the recommendations made by the Future Generations Commissioner for Wales in her report The 10-Point Plan to Fund Wales' Climate Emergency which suggests a minimum of 10% of the transport budget (20% of the capital budget) should be allocated for funding walking and cycling infrastructure - £60 million per annum, as opposed to the £60m currently allocated over three years.

We also agree with the recommendation to increase funding for public transport in order to enable more stages of journeys to be made on foot and for public transport and active travel to be meaningfully integrated. The recommendation is for at least 50% of the Welsh Government's transport capital budget to be allocated to improving public transport across Wales - £150 million allocation in the next annual budget.

We would further call for the Welsh Government to invest in revenue funding, beyond what is already being delivered, which will enable people to be better supported into making the lifestyle choices required if we are to realise a significant modal shift across the Welsh population. Capital funding is not going to achieve the required step-change without investing properly in promotional and behaviour change interventions to encourage people to use the infrastructure available.

We welcome acknowledgment that the third sector has a significant role to play in driving forward this agenda (page 47): "Third Sector and Local Leadership Voluntary organisations are uniquely placed to promote decarbonisation and influence others. Through awareness campaigns and education programmes the third sector can grow interest, helping people take personal pledges and commitments to reduce their emissions" and believe that the sector should be properly resourced to do so.

Agenda Item 3

EIS(5)-29-19(P4)

1. Overview

Angel Trains welcomes the Economy, Infrastructure and Skills Committee's inquiry into decarbonisation of transport. We support the Committee's consideration of the important issue of decarbonising rail as the Welsh Government develops the next Wales Transport Strategy (WTS) and are grateful for the opportunity to contribute to this inquiry.

Angel Trains is the largest of the UK's Rolling Stock Owning Companies (ROSCOs). We own and maintain 4,450 passenger vehicles, and have a further 785 on order, which we lease to 18 franchised (including Transport for Wales Rail Services) and two open access train operators. Based in London and Derby, we employ 135 professional, technical and administrative staff, graduates and apprentices.

Angel Trains plays an integral role in the UK's rail industry. We are owned by a consortium of infrastructure and pension funds, and act as a bridge between the operational railway and investors by attracting and securing the necessary private finance to procure, refurbish and enhance UK passenger rolling stock. Over the past 25 years we have invested over £5 billion in new rolling stock.

Rail is one of the lowest carbon modes of transport in Wales – and across the UK – and we encourage greater use of the network by travellers to reduce carbon emissions and improve air quality¹. Our submission sets out the actions needed to support the delivery of the Welsh Government's vision and priorities in the transport sector pathway. There is a clear economic opportunity for the sector to become a world-leader in developing and delivering low carbon rail solutions, as well as significant potential passenger benefits to be derived from the transition to alternative fuelled rolling stock, which our submission outlines.

We are committed to decarbonisation and have worked closely with the Rail Industry Decarbonisation Taskforce, including supporting the Decarbonisation of Traction Energy project. While much of the debate to date has focussed on the role of hydrogen, including in the Wales and Borders franchise, a wide range of low carbon rolling stock solutions will be needed to accelerate the decarbonisation of different parts of the GB rail network and support the target of net zero carbon by 2050.

We are already investing in innovation, research and development (R&D) and pioneering alternative fuel technologies, including our Class 165 HyDrive pilot. There are significant opportunities to further decarbonise rail and we look forward to working in partnership with industry and the Welsh Government to deliver new innovations across the network.

¹ Emissions data in *Prosperity for All: A Low Carbon Wales* is sourced from the Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2016

2. Decarbonising rolling stock

“Decarbonisation of transport presents a serious challenge but also significant opportunities”, Prosperity for All: A Low Carbon Wales

Angel Trains is stepping up to the challenge of finding solutions for a low carbon rail future. In recognition of the Welsh and UK Governments’ ambitions, as an industry we are working to adapt and upgrade our fleet and to provide new rolling stock in the future. We are delivering significant investment in innovation to find efficient technology solutions that work for our customers and their passengers, and which improve the performance of traction units to reduce or remove emissions.

Given the diverse landscape and requirements of the Wales and wider GB rail network, we believe it is important that the industry pursues a range of solutions for future rolling stock – including hybrid drives, hydrogen technology and Electric Multiple Units (EMUs). We are pleased to see the development of technologies to support a low carbon rail future being promoted across the whole of the rail industry and its supply chain, including SMEs.

At Angel Trains, we are proud to be working in partnership with Chiltern Railways and Sheffield-based Magtec to deliver the **industry’s first hybrid technology using a diesel train with the conversion of a Diesel Multiple Unit (DMU) to battery hybrid drive**. The pilot unit, Class 165HyDrive, is due

How we will retrofit the first DMU

The conversion will remove entail the removal of the existing diesel engine and transmission, together with hydrostatic auxiliary systems, alternator and static convertor, which are no longer needed. They will be replaced by a 180kWh Lithium Ion battery, which will deliver power to a new body-mounted permanent magnet traction motor rated at 400kW, and to the vehicle’s auxiliary systems. Small diesel generators will be arranged in a modular Series Hybrid configuration to maintain an optimum charge to the battery, with the modular design allowing these generators to be upgraded to even lower carbon alternatives in future. The existing cardan shaft and bogie final drive architecture will be retained.

The permanent magnet traction motor and generators, as well as the IGBT controllers, will be liquid cooled via a dedicated low temperature cooling circuit. Clean, dry compressed air will be delivered by a stop – start electric drive compressor. The vehicle will be able to regeneratively brake, storing the recovered energy in the traction battery. The hybrid drive will give the ability to improve acceleration compared to the existing drivetrain.



Scan this QR code with an iPhone or iPad camera to view Angel Trains’ video on our Class 165 HyDrive. Hover your camera over the code and a link will appear, which when clicked on will automatically load the video.

for completion in H1 2020 and will serve passengers on Chiltern Railways' routes. Key environmental and passenger benefits include a reduction in diesel engine exhaust emissions, switching off engines in stations and other sensitive areas and significant improvements in fuel economy. Once proven through the pilot, we see the potential to roll-out this technology on other modern DMU fleets, for example the Class 175s fleet that operates throughout Wales.

As another example, we would also highlight innovations in dual-fuelling. Grand Central, an open access operator, is currently converting one of Angel Trains' Class 180 diesel-hydraulic multiple units to run on a combination of diesel and liquefied natural gas in a dual-fuel technology demonstration project. The vehicle will be fitted with G-volution's Optimiser System in a trial being funded by the Rail Safety and Standards Board (RSSB). A previous study undertaken by the RSSB has shown that dual-fuel operation can cut fuel costs by 30%, as well as reducing CO₂ emissions and Particulate matter (Pm).

3. The passenger benefits

The next WTS should reflect the significant passenger benefits which alternative fuel rolling stock provide – from higher air quality standards at stations and a quieter on-board environment, to shorter journey times. Angel Trains is committed to putting passengers at the heart of our technology innovations and the upgrades to our rolling stock. The roll-out of our HyDrive vehicles will deliver the following improvements for passengers:

- **Customer:** An improved customer experience as a result of reduced noise and vibration within the vehicle compared to diesel trains, as well as being quieter and cleaner in stations.
- **Carbon:** Reduced carbon and cleaner air by reduced emissions of CO₂, NOx and particulates giving a smaller carbon footprint and much cleaner air.
- **Capacity:** Improved capacity and shorter journey times achieved by increased acceleration, improved by up to 10%, from the new traction motors.
- **Cost:** Reduced operating cost resulting from the improved fuel economy and an overall reduction in maintenance costs aided using remote condition monitoring.

Further additional benefits include:

- **Reduced environmental impact** by significantly reducing the use and disposal of transmission oils.
- **Running primarily on batteries**, with only intermittent use of modern engines, as well as regenerative braking, delivers **increased fuel efficiency**.
- **Significant increase in reliability** predicted using new, modern, reliable components and optimised maintenance. This means that

there is less chance of trains breaking down causing inconvenience to rail passengers.

- **Potential to increase unit range**, with better fuel efficiency allowing the train to run for longer between trips to the depot for refuelling.

Finally, an additional benefit of upgrading existing vehicles to HyDrive, rather than replacing early-life fleets with new rolling stock, is the avoidance of the embodied energy used in the construction of new vehicles. Conservatively, this alone would save at least 1.3GWh per vehicle, which is equivalent to over half a million miles of operation. Upgrading and enhancing rolling stock so it can serve passengers throughout its intended 30+ year life cycle is therefore a key part of the shift to low carbon rail.

4. Delivering a low carbon railway in Wales

Below we have outlined the actions needed to support Wales' transition to a low carbon railway, to meet and the targets and policies set out in *Prosperity for All: A Low Carbon Vision for Wales*.

The transition could be supported and low carbon rail available to passengers in Wales, through the continued lease of Class 175s which as described above, are suitable for conversion to hybrid technology.

Support for a mix of rolling stock solutions

A wide range of low carbon rolling stock solutions will be needed to accelerate the decarbonisation of different parts of the GB rail network.

Hydrogen

On parts of the rail network, hydrogen fuelled trains have the potential to play an important role in the medium-term. However, there are significant barriers to their commercial roll-out. Given the energy density of hydrogen, this alternative fuel cannot currently be used to power fast intercity-type trains or heavy vehicles, including freight. We have provided further background on key challenges below:

STANDARDS | Current regulations restrict gas-powered trains from passing through a tunnel longer than one kilometre, which would significantly limit their use across the rail network. To ensure hydrogen trains can support the shift to a low carbon railway, we recommend that the industry standards on gaseous fuels in tunnels are reviewed, with appropriate safety measures built into any new regulations.

LOADING GAUGES | A further challenge for hydrogen-powered trains is the volume of fuel storage required on-board to enable the train to be in service for one day without refuelling. For example, a three-car train formation would provide two cars of passenger space, with the remaining vehicle being given over to hydrogen storage. This

cannibalises space which otherwise would have been allocated for passenger seating, luggage and bike storage and accessible toilets. A potential solution is to lengthen train formations; however, in many cases platforms across the network would also need to be extended with new capital investment. Current fuel cell technology, coupled with the space needed, also limits the use of hydrogen-fuels to services which operate at a maximum of 75mph. These capacity and speed restrictions means hydrogen-powered rolling stock will need to be deployed in a targeted way across the network.

Batteries and hybrids

At this stage, battery-only trains are not a viable replacement for diesel or electric trains. Based on the current technology available, they would require batteries of 40 times the physical volume of diesel ones to provide the same amount of energy. However, under hybrid technology, batteries can enable trains powered by electrification, a diesel engine or even a hydrogen fuel cell to make short journeys up to a few tens of km without another power source.

Angel Trains' hybrid technology provides a solution to this. Our Hydrive technology offers the battery as the primary driver of the train, which is topped up by an alternative power source, initially a diesel engine or in the future an alternative power source.

We believe the hybrid approach has a crucial role to play as a bridging technology that reduces the emissions from today's trains, with no infrastructure requirements, and without the carbon and energy cost of renewing a fleet before it is life expired.

Encouraging innovation

Where there is currently no business case for new initiatives, government support is likely to be needed to accelerate key schemes and secure industry investment. Recent conversations between the UK Government and industry around central support for a 'first of kind' demonstrator to address challenges such as lineside battery storage and hydrogen generation is very welcome, alongside support for the roll-out of required infrastructure.

We support the Rail Industry Decarbonisation Taskforce's calls for the rail sector's R&D funding allocation to at least match, if not exceed, the levels of support offered to the aviation and automotive sectors. A step-change in R&D co-funding will be required to incentivise change, building on the opportunities available through the UK Government, Rail Standards and Safety Board (RSSB) and Innovate UK.

We welcome the Welsh Government's commitment to establish a Task and Finish Group to explore innovation and decarbonisation. We would be delighted to support this Group and share our experiences and expertise.

Long-term policy certainty

We welcome the Welsh Government's emphasis on the importance of long-term thinking in its Methodological Approach². Working with industry and academic partners, ROSCOs are already investing in innovative, cost-effective ways to deliver alternative fuel rolling stock. However, policy and regulatory certainty, increased R&D funding and targeted government support and incentives are all required to take rolling stock solutions from trial to commercial production and, ultimately, accelerate the UK's transition to a low carbon railway.

Policy certainty is essential if we are to become a world-leader in low carbon rolling stock solutions. Given the 30+ year lifecycle of the trains we buy, rolling stock investment decisions we make now will directly impact upon the industry's ability to meet low carbon targets. New trains, procured in recent years that are now coming on to the network, will also require major refurbishments and upgrades. To finance, deliver and enhance trains that are fit for the future, we need a long-term policy and funding framework, agreed by government and industry, which provides clarity of vision and deliverable timescales.

A long-term strategic approach to rail decarbonisation policy, coupled with a risk prospectus for the relevant infrastructure assets, could also help to unlock new low carbon investment opportunities. Based on our experience of working with the international investor community, we believe that there is significant appetite to invest and finance either new or existing rail infrastructure.

An integrated approach

We agree with the Welsh Government's emphasise on the need to work across emissions sectors and understand the interconnections. All policy discussions which take place should be cross-departmental – maintaining close alignment between the transport, energy and industrial strategies – to develop synergies in hub areas.

5. Improving air quality

Rail transport makes a relatively small contribution to poor air quality – with overall emissions per passenger mile less than other modes of transport³. Nationally, it accounts for 4% of NOx emissions and 1% of Particular matter (Pm) emissions. However, we are committed to playing our part in continuing to improve air quality at stations and across the network for the benefit of passengers and the rail workforce, as well as supporting the rollout of Clean Air Zones in Wales and across the country.

² Prosperity for All: A Low Carbon Wales

³ UK Government's Clean Air Strategy 2019, <https://www.gov.uk/government/publications/clean-air-strategy-2019>

Through our partnership with Chiltern Railways and Magtec, we are proud to be introducing the first hybrid conversion of existing diesel rolling stock in the UK, allowing trains to run on battery power alone in stations and depots, bringing an improved environment on the busy commuter routes between London Marylebone and Aylesbury. As well as eliminating emissions from platforms and other sensitive areas, HyDrive will deliver a smaller carbon footprint and much cleaner air along the route. Overall fuel and CO₂ emissions across the route will be reduced by at least 25%, NOx will fall by a minimum of 87% and Pm by 97%. Last year, London Marylebone became London's first clean air station and we are delighted to support Chiltern Railways and Network Rail in the next stage of this journey with our industry-first solution⁴. Looking ahead, we see the potential to roll-out our technology on existing diesel fleets including the Class 175 fleet operating across Wales to deliver county-wide air quality benefits.

Angel Trains is supporting the RSSB's development of the rail air quality strategy, which is running in parallel to the Decarbonisation Taskforce. Given the overlap between technical rolling stock solutions to address air quality and decarbonisation challenges, we agree with the Decarbonisation Taskforce's emphasis on the need to consider these workstreams together. This will ensure that action taken on air quality now does not have adverse long-term carbon outcomes⁵.

⁴ <https://www.chilternrailways.co.uk/news/marylebone-station-becomes-londons-first-clean-air-station>

⁵ <https://www.rssb.co.uk/Library/improving-industry-performance/Rail-Industry-Decarbonisation-Task-Force-Initial-Report-to-the-Rail-Minister-January%202019.pdf>

Agenda Item 5

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