

Pwyllgor Newid Hinsawdd, yr Amgylchedd a Seilwaith /  
Climate Change, Environment and Infrastructure Committee  
Blaenoriaethau ar gyfer y Chweched Senedd / Priorities for the Sixth Senedd  
PR78  
Ymateb gan Great Western Railway / Evidence from Great Western Railway



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10<sup>th</sup> September 2021

Dear Sir/Madam

## **Welsh Government Climate Change Committee: call for evidence – response from GWR**

Great Western Railway (GWR) appreciates this opportunity to respond to the call for evidence to the Welsh Government Climate Change Committee, in relation to the priority issues for Climate Change and transport in the next 12 – 18 months.

We congratulate Welsh Government on the creation of a Climate Change Committee and Minister and for including transport as a key part of the solution to decarbonization and a sustainable future. We have reviewed your priorities for the next 12-18 months and note the intention to look at roads, buses, freight, ports and rail with reference to the South Wales Metro schemes. We would also very much like to see a wider discussion about rail to include mainline services, and how they also form part of the answer for local journeys, and for business and visitor journeys to and from Wales.

This would allow the Committee to explore the opportunities set out in the Burns Report commissioned to identify rail options as an alternative to widening the M4 including plans for new stations. It will also allow for the Committee to review how train operators, including ourselves, are working together to promote a return to rail and how we could be meeting aspirations for more services, to encourage greater modal shift.

As you may know, GWR provides long distance high speed and interurban services within South Wales linking the English capital and the economic and population centres located on each side of the Severn Estuary. At present we are the only rail operator able to use the 25Kv overhead electrification which was installed through the Severn Tunnel

to Newport and Cardiff, energized at the start of 2019 which eliminated diesel operation on our high speed services between Cardiff and London Paddington. We have recently brought the first all electric train from London to Cardiff and intend to start using these services to supplement our hybrid Intercity Express Trains for major events at the Principality Stadium.

GWR has created a small team dedicated to promote and implement sustainability initiatives, and we are presently working with rail industry partners to map out a decarbonisation strategy for the Network Rail Wales and Western sector. This is primarily focused on rail traction – rolling stock – but the scope of our approach also considers the means to secure decarbonisation in the rail industry estate – at stations and maintenance depots. For information, we attach a short paper which sets out our thinking on aspect of decarbonizing rail transport. This was previously submitted to the Department for Transport when it is issued a call for ideas earlier this year.

With specific reference to Wales, and to priorities for the next 18 months, GWR suggests that Welsh Government seeks that the industry plans led by Network Rail for traction decarbonisation prioritises the extension of the electrification of the South Wales Main Line to harness and exploit that the latent capacity of the bulk supply point off the National Grid at St Brides, between Newport and Cardiff.

Electrification of the rail network has to be viewed as a “whole system” upgrade, and is dependent on infrastructure compatibility, notably signalling. Consequently the rollout of further electrification in Wales is dependent on wider modernization proposals. That said we regard completion of the Great Western Electrification Programme (GWEP) as originally conceived is an immediate priority, with wiring extended west to Swansea.

This would permit electric operation of the high speed service to Paddington, while also giving opportunity for TfW to consider operation of local services by electric or bi-mode (battery, not necessarily diesel) traction.

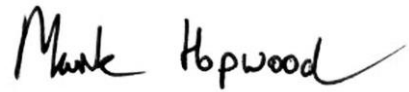
The committee’s interests could be widened beyond the rail network in Wales and could also look at cross border services – in particular the busy corridor between Cardiff, Newport and Bristol. The descoping of the Great Western Electrification programme also saw deferral of electrification into the centre of Bristol and Temple Meads station. Completion of the remaining six mile section from Bristol Parkway and Patchway into Temple Meads would permit the operation of electric trains between central Bristol, Newport and Cardiff. It would allow operation of these services by recently built high quality electric units which can be operated in 12 coach train formations. Completion of electrification into Bristol from Patchway would offer journey time reductions, more seating capacity and better on train ambience on this busy key corridor between adjacent cities.

Extension of electrification which permits wider electric train operation also offers a means to unlocking some of the proposals of the Burns Commission, to provide a genuine alternative to private car in South East Wales. The better acceleration and braking capability of electric traction assists where stations are sited close to each other as in a metro style operation. Capacity is therefore optimized without recourse to possible costly infrastructure solutions to provide these outcomes.

We hope the above comments and observations are of value for Ministers and the

Climate Change Committee. I would be most happy to discuss any aspect further with you, and I do hope that the Committee will feel able to add rail into i

Yours sincerely

A handwritten signature in black ink that reads "Mark Hopwood". The signature is written in a cursive style with a long, sweeping tail on the letter "d".

Mark Hopwood  
**Managing Director**

## Great Western Railway response to Department for Transport Consultation

### “Creating a plan to decarbonise transport: call for ideas”

We are supportive of the Government’s commitment to achieve net-zero carbon emissions across UK industry by 2050, including the proposed removal of all diesel-only trains by 2040. We are always willing to engage with Government, industry bodies and other stakeholders to achieve this aim.

This paper outlines four areas for consideration when developing plans for the decarbonisation of rail.

#### 1. Decarbonisation of rail fleet

We have already seen the benefits of electrification in reducing our traction carbon emissions and are fully supportive of previously deferred sections of route being re-prioritised for electrification. This will ultimately extend the reach of our current electric fleet and reduce the number of diesel trains required to fulfil service requirements.

In addition to electrification programmes, we are committed to reviewing emerging technologies such as bi-mode/hybrid, battery fuel cell and hydrogen power (alone or alongside other technology) and assessing feasibility for services and rolling stock on the GWR network.

Options for regenerative braking must also be considered when introducing fleet modifications, for example options to use energy released by braking to charge train batteries. We will actively monitor new fleet developments to determine future suitability for use across the GWR network carefully considering the benefits and disadvantages of each option.

There are many practical considerations to review before a decision can be made on fleet-wide roll out; namely

- Train range under battery or hydrogen power
  - Can a train complete its full diagram on one charge, what would the recharging requirement be, how would that affect the length of time a train can stay in service?
  - Would additional charging infrastructure be required on the network?
  - What is the training requirement for recharging whilst in service?
- Train maintenance
  - Are depots equipped to maintain trains with new power technologies?
  - What is the training requirement to allow maintenance to be done in house?
  - How might maintenance requirements affect set availability?
- Train performance
  - Does train performance under new technologies compare to existing performance (acceleration, top speed, etc.)
  - If not, what are the potential timetable impacts?
  - For bi-mode trains, does the extra energy required to move the train (diesel power unit moving heavy electrical transformer, or electrical

equipment moving diesel power unit and fuel) still counter the emission saving of having the train run under electric power for part of its journey?

We recognise there are challenges with introducing new power options however none are insurmountable. It is, however, necessary to think about each issue carefully and in the context of the various other strategies in place, for example Network Rail's Depots and Stabling Strategy, to determine the overall best 'carbon free' technology. The aim must be to reduce any chance of a 'micro-fleet' dedicated to one area in order to maintain flexibility to deliver the timetable across the whole network.

The wider benefits of reducing diesel trains is also an important factor to consider, specifically the reduction in noise exposure for people living adjacent to the railway and a reduction in exhaust emissions which will help contribute to better local air quality, something that is a significant public health risk in many areas.

## **2. Decarbonisation of rail infrastructure- stations and depots**

Stations and depots are significant energy consumers and could benefit from investment in energy efficient and renewable technologies. We will continue to invest in asset energy efficiency, to reduce gas, electricity and water consumption and reviewing options to install renewable technologies where the asset demand can be met. We will continue to take a through-life cost approach to asset renewals considering the added benefits of carbon reduction when specifying works for refurbishment and new infrastructure.

GWR are fully supportive of Rail Delivery Group's recommendation to include a Residual Value Mechanism (RVM) for sustainability and environmental initiatives which will allow investment in technologies with a longer payback period which will undoubtedly bring wider economic benefits such as carbon reduction, resource protection and reduced waste.

## **3. Integrated Transport to support decarbonisation**

We have long been active advocates of integrated transport and are committed to supporting our passengers to make a low carbon end-to-end journey. We recognise that there is still considerable work to be done to fully integrate different transport modes alongside marketing activity needed to encourage behavioural change to achieve modal shift. Future transport provision must meet the needs of the modern-day customer, this is particularly relevant as we navigate the post-Covid world.

Rail, for many people, is only part of an end to end journey. We want to provide seamless travel between low carbon forms of transport both for our current customer base and potential future customers/passengers

We acknowledge the importance and benefits of:

- Active travel- connected walking and cycling routes to stations, the availability of secure cycle storage at stations enabling customers to confidently leave their bikes and make their onward journey by train

- Maximising the environmental and wellbeing benefits of active travel helping to shape healthier communities
- Providing excellent bus access through all station forecourt redevelopment works to aid bus and rail
- Public cycle hire facilities that are accessible, cost effective and reliable
- Flexible ticketing including flexible season tickets to reflect changes in working patterns
  - improving the marketing and awareness of them (particularly making them simple and easy to use – take the Bristol Freedom Pass example, where this was made less complex to access uptake increased)
  - making flexible ticketing options more user-friendly, how we make more smart ticketing products available
- Positioning rail (and public transport) as part of the solution for local authorities wanting to achieve local air quality objectives, encouraging and supporting modal shift to reduce single car occupancy
- Electric vehicle charging investment at stations to support those passengers who have limited access to public transport/active modes, helping to decarbonise a passenger's journey to stations where other modes aren't feasible
- Car Club schemes with a preference for short range electric vehicles for short term hire (hours) to support passengers to make an end to end journey not feasible by bus, cycle or foot. This would require rapid charging infrastructure similar to the requirements for taxi ranks
- Removing barriers to accessing or choosing public transport- better connectivity, multi modal passenger information, multi modal ticketing, increased services in rural areas, improved accessibility
- Access to new schemes that support active travel, such as electric scooter rental

#### **4. Rail/public transport role in decarbonisation - improving air quality and reducing carbon**

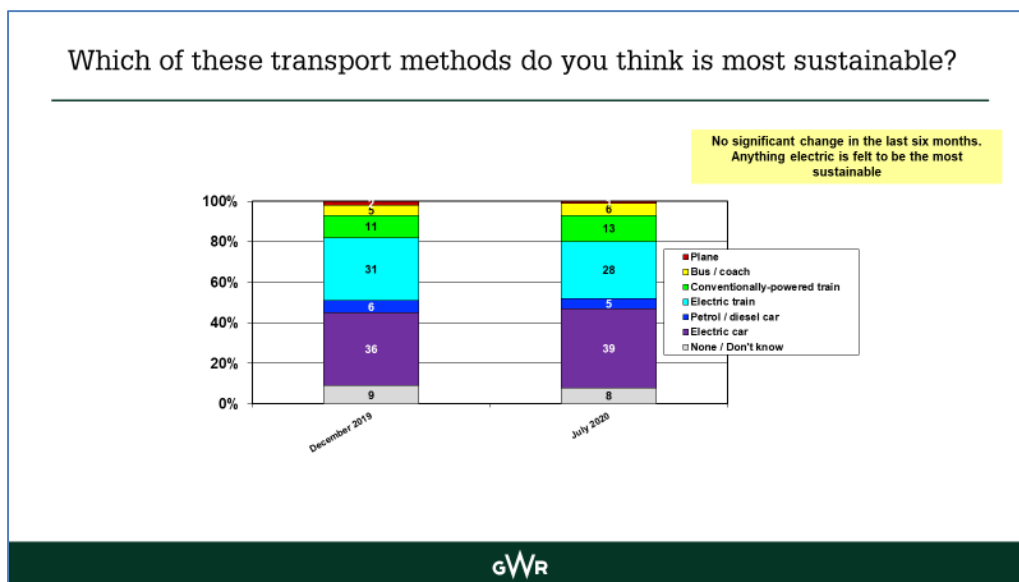
We are identifying Local Authorities with Local Air Quality Plans across the GWR network, and where GWR services run e.g. North Downs line. We will outline how our services can play a part in supporting modal shift and reducing car use. Rail travel remains one of the lowest carbon transport options, moving more passengers per kilometre than any other mode. As economic activity begins to recommence post Covid-19, and more people return to work, GWR will use all communication channels to restore passenger confidence in using public transport, enticing back customers who prefer private car use. Despite record low pollution levels during the Covid restrictions, current research suggests car use will be the preferred mode of transport through the Covid recovery period. An overreliance on cars will result in an increased carbon output and congestion on the road network which will hamper Local Authorities achieving their air quality improvement objectives.

Rail plays a vital part in maintaining a strong economy, now more than ever as we adapt to the post-Covid world. We recognise the impact of recent events on our communities, regions, local businesses and employees and are committed to playing our part in the economic recovery. We are aware of the challenges ahead to entice the public back to rail travel and fully appreciate that the rail industry will never return to its previous state, however these unprecedented times offer an amazing opportunity to adapt our offering and position ourselves once again as an essential part of society allowing

people to travel in a carbon efficient way.

Our responsibility as a provider of sustainable transport goes wider than our own network. As we see an increase in leisure travel, we have a huge opportunity to attract the 'staycation' market, meaning we play a significant role in reducing global carbon emissions as people holiday in the UK rather than flying abroad. GWR is lucky to cover some of the most beautiful parts of the UK with many of the communities we serve are heavily dependent on tourism. We will be working with destination companies to showcase the locations accessible by rail and deliver our part in sustainable tourism.

There are, however, customer perception and attitudinal barriers to overcome to translate this aspiration into a reality. Research work GWR conducted in November 2019 identified that away from the individual there is strong sentiment to support actions to help the environment and build greater sustainability. However, when this action is related to personal action around 33% are willing to make more of their journeys by public transport, with only just over 25% of respondents are willing to reduce how much they their use of the car. There is also a gap in the perception of an electric train's sustainability versus that of an electric car.



Source of above data: GWR Brand tracking December 2019 and July 2020 n=705 per study; users & non-user/non rejectors in GWR franchise area.

This evidence shows there is much work to be done to motivate and nudge greater degrees of behavioural change to adopt more sustainable travel habits. At the time of writing the Covid-19 'avoidance of public transport' has set this attitudinal change back.

For further information or discussion please contact

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