



Strategic Transport Forum

19th June 2020

Agenda Item 3: Pathways to Decarbonisation

Recommendation:

It is recommended that the Forum:

- a) **Endorses the Pathways to Decarbonisation report**
- b) **Agrees to adopt an approach that supports Pathways 2 and 4 as the mechanism for decarbonising of the transport system in the Heartland region by 2050**
- c) **Considers and agrees to the implications of supporting Pathways 2 and 4.**

1. Context

- 1.1. The Strategic Transport Forum has been consistent in its ambitions for the draft Transport Strategy to be bold in its approach to environmental priorities, including our response to decarbonisation.
- 1.2. In January 2020 the Forum agreed that further work was needed to ensure that the EEH draft Transport Strategy is ambitious in its approach to decarbonisation and in defining the role that the Strategy needs to take in order to adhere to legal requirements set out in the Climate Change Act 2008 (amended 2019) and Cities and Local Government Devolution Act (2016).
- 1.3. As a result, the Forum approved the proposal to work with the collaboration of universities, led by the Environmental Change Unit at the University of Oxford. This collaboration was already working together on the National Infrastructure Systems Model (NISMOS) and Data & Analytics National Infrastructure platform (DAFNI) projects. Working with them enabled EEH to leverage the already extensive research program in order to deliver a regionally-specific project exploring our Pathways to Decarbonisation.
- 1.4. The Forum's ambition for driving forward the decarbonisation agenda is particularly noted by Government. The Department for Transport is encouraging STBs to develop their approach to decarbonisation, particularly building on the opportunity presented by changes in travel behaviours during the COVID19 Pandemic. Through the Pathways to Decarbonisation project, and our general approach to decarbonisation, EEH is demonstrating leadership and ambition to the government and is well placed to the national framework that is evolving.

2. Pathways to Decarbonisation - final scenario/strategies

- 2.1. The Pathways to Decarbonisation report for the Heartland region, produced by the Environmental Change Institute, Oxford University is attached at Appendix 1.
- 2.2. As reported to the Strategic Transport Forum in May 2020, the report considers five pathways to decarbonisation. A summary of the five pathways is set out in Appendix 2.



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- 2.3. For all pathways (except business as usual), the research methodology assumes that 100% of motor vehicle traffic in 2050 is made up of zero carbon vehicles (based on a modified 'Shift to ZEVs' Scenario and CCC Net Zero 'Further Ambition' and 'Speculative' scenarios). For these analyses, it has been assumed that there are differences in the rapidity of change, vehicle efficiencies and capacity utilisation, depending on the pathway.
- 2.4. Each agreed pathway compiles a variety of strategic actions to delivering decarbonisation by 2050, each with a different focus. Where possible the pathway assumptions have been developed using peer-reviewed academic papers, as well as sub-regional and UK government data sources. Any assumptions and/or professional judgments that have been made are clearly outlined and explained within the draft report of the study.
- 2.5. In addition, and reflecting the requirements of the Strategic Transport Forum, the report includes additional "way points" at 2020, 2030, 2040 and 2050. This provides an opportunity to assess the indicative performance of each pathway option at key dates through to 2050.
- 2.6. The report presents some striking conclusions, particularly the scale of the reliance on other sectors to enable this transition; a point that needs to be considered in the context of both EEH's approach and the draft Transport Strategy.
- 2.7. The project outcomes from this work have underpinned the development of the policies on decarbonisation set out in the draft Transport Strategy, building on advice from the research consortium leading this project.
- 2.8. As a result, the draft Transport Strategy had already taken on board many of the implications arising from the Pathways work. However, the outcome of the report enables the Forum to identify a preferred Pathway as a way forward. The recommended approach, we believe, will allow us to achieve the Forum's ambition for the draft Transport Strategy to be bold in its approach to decarbonisation.

3. Recommended Approach

- 3.1. In considering the outcomes of the study, it is clear that the most effective approach for this region to respond to our decarbonisation ambitions is a combination of two of the pathways tested: Pathway 2 (Highly Connected) and Pathway 4 (Behaviour Shift (policy-led)).
- 3.2. Pathway 2 "Highly connected" focuses on the deployment of super-fast connectivity on the Region. This enables better transport information provision to the public, better management of the transport network, the rapid deployment of CAVs and, enables changing work patterns and the technologies that will be required to facilitate them. The additional economic and societal benefit of this pathway is clearly significant. Connectivity enables access to services, employment and new and emerging markets. The EEH region is home to high-tech businesses, providing high value employment. Digital connectivity plays a key part in growing this aspect of the regional economy. It facilitates the transition to a truly modern, post-pilot transport ecosystem
- 3.3. Pathway 4 "Behaviour Shift (policy-led)" focusing on the impact of policy levers applied at a local or regional level to reduce the number of car trips made on the network. The delivery mechanism used to deliver this uplift in costs to the driver within a locality is not specified but could be assumed to models such as a Pay-as-you-go, Workplace Parking Levy, a Congestion Charge in urban areas or more simply a National Road Pricing initiative. This pathway also assumes softer behaviour change measures to support this: these may in part be reliant on better data as inherent in Pathway 2 and will encourage more active travel and low carbon modes (assuming there are local alternatives).
- 3.4. A combination of these two pathways presents a feasible route to decarbonisation for the Heartland, reflecting the knowledge and innovation capabilities that exist within the region, and the potential of this approach to deliver significant co-benefits to the economy.



3.5. The proposed approach is deliverable and viable. It reinforces EEH's long term driver to have digital connectivity as a key part of the long term infrastructure and connectivity solution for the region. Significantly, in light of the potential long term financial implications of the COVID19 pandemic on public finances, it also provides an affordable alternative to traditional, large-scale road projects that take many years to plan, fund and deliver.

4. Implications and Delivery

4.1. Adopting an approach that combines Pathways 2 and 4 is a viable way forward to achieve zero carbon in the transport system by 2050. It will require a wholesale change to the way we view and plan connectivity and will require a shared commitment and vision at the national, regional and local level.

4.2. Subject to approval by the Forum, the draft Transport Strategy has been amended to reflect the policy changes required in order to achieve these pathways. Most significantly:

- policy T3 (prioritising investments where they contribute to a reduction in single occupancy car journeys of 20% (of total traffic flow) by 2040 (compared with 2020); and
- policy T20 (setting the expectation that infrastructure owners must ensure that all new strategic infrastructure investment is designed as digitally enabled corridors)

These policies, supported by stronger narrative throughout the draft Transport Strategy provide the framework for delivering the preferred Pathway to Decarbonisation.

4.3. At the national level, we will need to work across Government to streamline investment: creating modally-neutral funding which in some cases will stretch beyond just a single Government Department.

4.4. Support at the national level will also require a different approach to assessing value for money to ensure the true cost to the public, environmental costs as well as financial costs are accurately reported and accounted for.

4.5. At the regional level, deeper and more targeted engagement with asset owners and the telecoms sector will be required to accelerate the provision of digital infrastructure, particularly insuring that the business case for better connectivity and data in delivering a better transport system is captured.

4.6. Supporting the pathways will also require the region to better plan its power supply to ensure sufficient power is available to respond to the rise in electric vehicles and the demand for charge points.

4.7. To succeed, the recommended way forward will rely on the provision of local low carbon enabling infrastructure and services, both digital and physical, to allow users choice and reliable alternatives in the way that they access employment, services and opportunities.

4.8. The draft Transport Strategy sets out the vision and need for an east-west 'smart spine'. In time this will form the backbone of a highly connected, intelligent transport network across the entire region.

4.9. Alongside the provision of enabling infrastructure, delivery of the recommended Pathways may require national and regional demand management policies for private road transport to be introduced. However, these alone they will not deliver the required change in travel patterns. In parallel, wide-scale behaviour change will be required through the promotion of active travel, shared mobility and the development of the infrastructure to deliver these services/facilities.

4.10. Subject to Forum approval, EEH is well placed and committed to working with partners to deliver our ambitions for decarbonisation of the transport system. The implementation plan for the transport strategy provides the right framework to do this:



- The proposed approach to future strategic transport planning (through the connectivity studies process) will consider and prioritise strategic investment decisions across the principles of the EEH Transport Strategy, which have decarbonisation at the forefront;
- The need for digital connectivity as a first principal will be a key area of focus, as will the provision of low carbon enabling infrastructure – delivering choice and equitable access to Heartlands residents;
- And the proposition for creating England’s Economic Heartland as a statutory STB, previously considered by the Strategic Transport Forum, will ensure the final Transport strategy has the right legal framework for delivering these ambitions.

James Golding-Graham
Project Lead
June 2020

Five Pathways to Decarbonisation

Summary of Pathways Used in the Project

The pathways that were being taken forward for study by the Consortium were:

Pathway 1: Business as Usual (BaU). The 'Business as Usual' pathway acts as a 'baseline' and is based on recent trends in transport demands. The baseline year for the model is 2015. This pathway assumes that by 2050, 46% of car and 25% LGV mileage is powered by zero emission technologies (based on DfT TAG Data Book 2019 estimates).

Pathway 2: Highly Connected (tech-led solution). This pathway is focused on the increasing use of digital communications to enhance the operation of transport systems, with a high and increasing level of embedded technology within vehicles and transport systems, connected to technologies in homes, businesses and mobile devices.

Pathway 3: Adapted Fleet (tech-led solution). Rapid technological development allows wide-ranging modernisation of the vehicle stock for all modes at a faster rate than for the 'Highly Connected' Pathway. Increased engine efficiencies reduce energy consumption for all types of vehicle. Electrification is extended across the existing rail network and through the development of new tram and trolleybus networks. Extensive deployment of hybrid transmissions and regenerative braking also reduce fuel consumption.

Pathway 4: Behavioural Shift (policy-led solution). The focus of this pathway is to achieve behavioural change away from single occupant car driving towards more car sharing and use of public transport. The approach is likely to be a combination of road pricing measures and education measures to promote more sustainable transport models and active travel. This will be assessed in the first instance through an increase in the cost of car travel by 50%, although this may be modified as results are scrutinised.

Pathway 5: Behavioural Shift (results-led solution) This Pathway is related to Pathway 4, but rather than implementing policies of pricing and behavioural shift, we assume that societal change takes place (regardless of the policy being implemented). This results-led Pathway is then assessed to determine how closely it aligns with other Pathways.