

Cynulliad Cenedlaethol Cymru
Pwyllgor yr Economi, Seilwaith a
Sgiliau
Ddatgarboneiddio trafnidiaeth
EIS(5)DT27
Ymateb gan Yr Ysgol Peirianeg

National Assembly for Wales
Economy, Infrastructure and Skills
Committee
Decarbonisation of Transport

Evidence from Cardiff School of
Engineering

About you

Cardiff School of Engineering

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?**

Don't have a view

- 1.1 Please outline your reasons for your answer to question 1**

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

Don't have a view

- 2.1 Please outline your reasons for your answer to question 2**

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

In relation particularly to the decarbonisation of transport through electrification, a whole system approach considering all transport modes (road, rail, airborne and marine) alongside associated electricity infrastructures needs to be applied. To support existing and deliver future mobility needs, these transport modes need to be treated as an integrated system embedded within the electricity energy vector. Drivers for change within the transport system including technology innovation, individual mobility needs and economic requirements for change need to be considered alongside environmental and social concerns for sustainability, considering the role, social acceptance and impact of policies and regulations to reduce emissions. This integrated whole system approach needs to address short, medium and long term time-frame challenges, using a multi-layered approach covering the electricity supply system, future charging and electrification infrastructure (including both wired and on/off-

road wireless charging), and associated vehicle technologies (EVs, AV, rail and electric & hybrid aircraft).

The electricity and transport networks are increasingly interacting in an unprecedented manner with potential to give rise to a new merged industry. The resulting increasing reliance of each on the other can however result in exposure to increased risks for example from electrical blackouts making a detailed understanding of this interaction essential.

Whilst there are a number research projects, universities and networks examining topics such as the design, testing and development of CAVS, charging infrastructure for EVs etc. there is a need to bring together industry, academia and the public sector to identify the challenges limiting current implementation of an electrified, integrated transport system across the automotive, aerospace, rail and marine sectors applying a multi-disciplinary and cross academia-industry approach to address key challenges. More specifically, such an interdisciplinary approach could address challenges such as: driverless cars, next generation services, and, prospering from the energy revolution. Without such a network and collaborative approach, we will fall short of achieving optimal outcomes (e.g., knowledge, technology) within these areas.

To address this Cardiff University has secured funding from EPSRC to build a multidisciplinary network for Decarbonizing Transport through Electrification (DTE) bringing together research expertise to address the challenges of interactions between energy networks, future electric vehicle charging infrastructure (including roadside wireless charging, the shift to autonomous vehicles), electric and hybrid aircraft and electrification of the rail network. The DTE network will bring together industry, academia and the public sector to identify the challenges limiting current implementation of an electrified, integrated transport system across the automotive, aerospace and rail sectors. The network will develop and sustain an interdisciplinary team to solve these challenges, leveraging external funding from both public and private sectors.