

ENERGY STRATEGY E-BULLETIN

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WELCOME TO THE ENERGY STRATEGY E-BULLETIN

Welcome to the fifth Energy Strategy update. This edition introduces the topic of energy modelling, an important tool in our understanding of how the entire energy system might interact and contribute to delivering lowest-cost overall energy system transitions. As an economist and an energy geek myself, the development of such a model for Northern Ireland is very exciting to visualise what the future of our energy system might be.

We also welcome the contribution of the Department of Infrastructure to this e-bulletin, who provide an overview of key issues in how we can decarbonise the energy used for transport.



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ENERGY MODELLING FOR THE ENERGY STRATEGY

We need to assess potential pathways to reach a net zero 2050 target for the energy sector. A whole systems approach will be required, which means that we need to think, prioritise, and plan for the energy system across sectors and stakeholders.

Achieving net-zero carbon requires an in-depth understanding of existing energy use and impacts of different policy options, as well as the effects of transition. Whole sector modelling and analysis can help evaluate potential scenarios for energy system decarbonisation and assess their potential impact. Developing this model will provide insights on the costs and benefits of different choices from across the energy sector.

The need for a Northern Ireland model

The majority of UK-wide models either do not account for NI, or apply a simplified approach which does not account for indigenous NI characteristics, such as its geographical position, abundant renewable resources, predominance of home heating oil or our rural population. Therefore, these models are not able to provide optimal solutions for the NI energy transition.

Range and use of models

There are many different types of energy model. Models can focus on topics such as the whole energy system or be limited in scope e.g. electricity; built environment; or transport. Most are used for scenario analysis. A scenario is a coherent set of assumptions about a possible system. New scenarios are tested against a baseline – normally business-as-usual.

ENERGY MODELLING FOR THE ENERGY STRATEGY

Models are only as good as the information supplied but can be extremely useful in providing additional support mechanisms in strategy development.

Creating an Energy Transition Model for Northern Ireland

The Department is working with [Quintel](#) to develop an [Energy Transition Model \(ETM\)](#) for Northern Ireland. This is an open source interactive simulation model that allows users, which could be anyone – from industry to businesses to researchers to the public - to explore future changes to the energy system.

Outputs on key indicators such as costs and CO2 emissions will be used as part of the ongoing discussions on the Energy Strategy.

Once the model is developed and verified, it will be used to assess potential 2050 scenarios for the Northern Ireland energy sector.

All models are wrong, but some are useful...’ – George Box (1978)



KEY ISSUES ARISING IN TRANSPORT

Energy used for transport in Northern Ireland accounted for 23% of greenhouse gas emissions in 2018, an increase of 28.5% from 1990. This is largely due to growth in demand for transport, despite improvements in efficiency of vehicles. Decarbonisation of this sector involves consideration of a range of interlinked policy areas. The Department for Infrastructure has key responsibility for transport and are leading the Energy Strategy Transport Working Group. They have identified the following themes:

Modal Shift

To successfully change behaviour and reduce energy demand from transport we need to better understand the complexities behind behavioural change. This may include how place-based solutions can address connectivity needs, particularly in rural areas. Place-based solutions are those that are tailored to the locality, involve local people and can cut across policy areas. For example, they can address how active travel options can complement clean public

transport as well as the role of community transport.

Electrification

Since 2011, when the first public charging infrastructure network became available, growth in the numbers of electric vehicles here has been slow. Vehicle cost and availability remain a barrier to uptake and early market charging infrastructure could benefit from investment. We need to better understand the Northern Ireland context, how we incentivise the market, and the opportunities for the electrification of public transport and last mile delivery, including how that electrification can be delivered.

Alternative Fuels

There is a need to understand the most suitable alternative fuels for different vehicle and journey types, especially given our relative rurality. Given the emerging UK policy on banning new conventionally fuelled cars we must be technologically neutral in our approach. There is, therefore, a need to

consider how we incentivise markets and enable opportunities from our own natural resources, as well as infrastructure requirements.

Future Mobility

As illustrated clearly throughout the Covid 19 pandemic, the way we are working is changing. There is a need to consider how technology can be used to prevent unnecessary journeys and ensure that the capability to tap into new energy uses, through smart metering, smart charging of vehicles and high speed broadband, can provide equality of opportunity. These may not necessarily be delivered by the transport sector but will be key to reducing demand for travel.

Building on work to date, and through engagement with wider stakeholders, the Transport Working Group are considering policies which address these issues to improve connectivity and deliver the benefits of a decarbonised transport system.