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The road to net zero

Northern Ireland Safety Group, Thursday 9th November

Ian Campbell, Director of Operations, Translink

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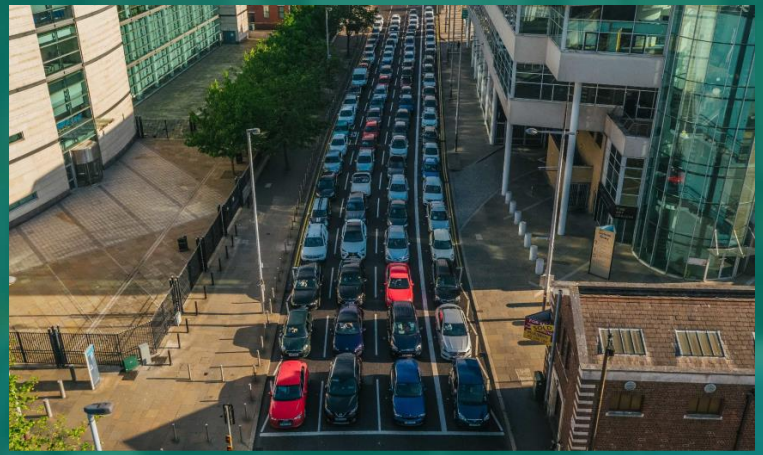
The Need for Change

Climate: Transport emits 20% of NI's total GHGs, an increase of 22% since 1990, the biggest contributor is cars

Energy: Transport consumed 30% of NI's total energy in 2019, mostly imported fossil fuel

Health: Poor air quality is the biggest environmental risk to public health in the UK, contributes to 800 deaths a year in NI

Economy: Transport is crucial to connecting society and the economy



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Climate Action

The Race to Zero

50%
reduction in emissions by 2030 or sooner

Net Zero
by 2040 or sooner

Climate Positive
by 2050 or sooner

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Translink Zero Emission Bus Programme

3 Hydrogen buses for Belfast - live Dec 2020

80 Electric buses and 20 Hydrogen for Belfast – live March 2022

New Foyle Metro and Coleraine minibus Electric - went live Summer 2023

100 Electric buses for Ulsterbus and Metro – go live 2024/25

Alternative Technology – Battery Electric Vehicle

Wrightbus Electroliner

Vehicle Charging Hubs

How does a BEV work

VEHICLE CHARGED OVERNIGHT

ENERGY STORED WITHIN BATTERY

DRIVES ELECTRIC MOTOR

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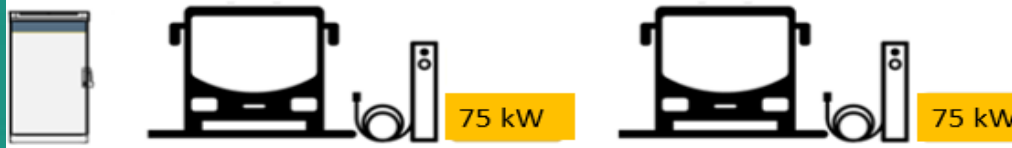
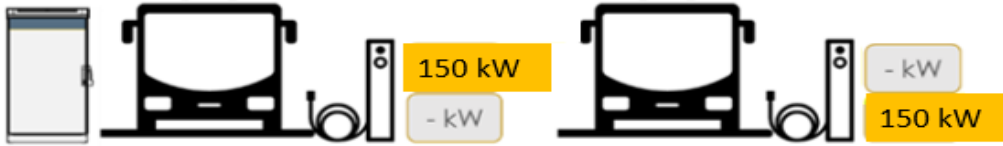
Charging

Option 1: Charger can power 1 output @ 150 kW power

Option 2: Charger can power 2 outputs @ 75kW each



Option 3: Charger can power 2 outputs @ 150kW alternately



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Alternative Technology – Hydrogen Fuel Cell Electric Vehicle

Wrightbus Streetdeck Hydroliner

Hydrogen Refuelling Station

How does a FCEV work

- Bus is fuelled when required
- Hydrogen is stored within tanks at 350Bar
- Bus drives electrically – electric motors
- Fuel Cell recharges the battery
- Water is the only Emission

How does a FCEV work

VEHICLE REFUELLED WITH HYDROGEN

HYDROGEN CONVERTED TO ELCTRICAL ENERGY

DRIVES ELECTRIC MOTOR

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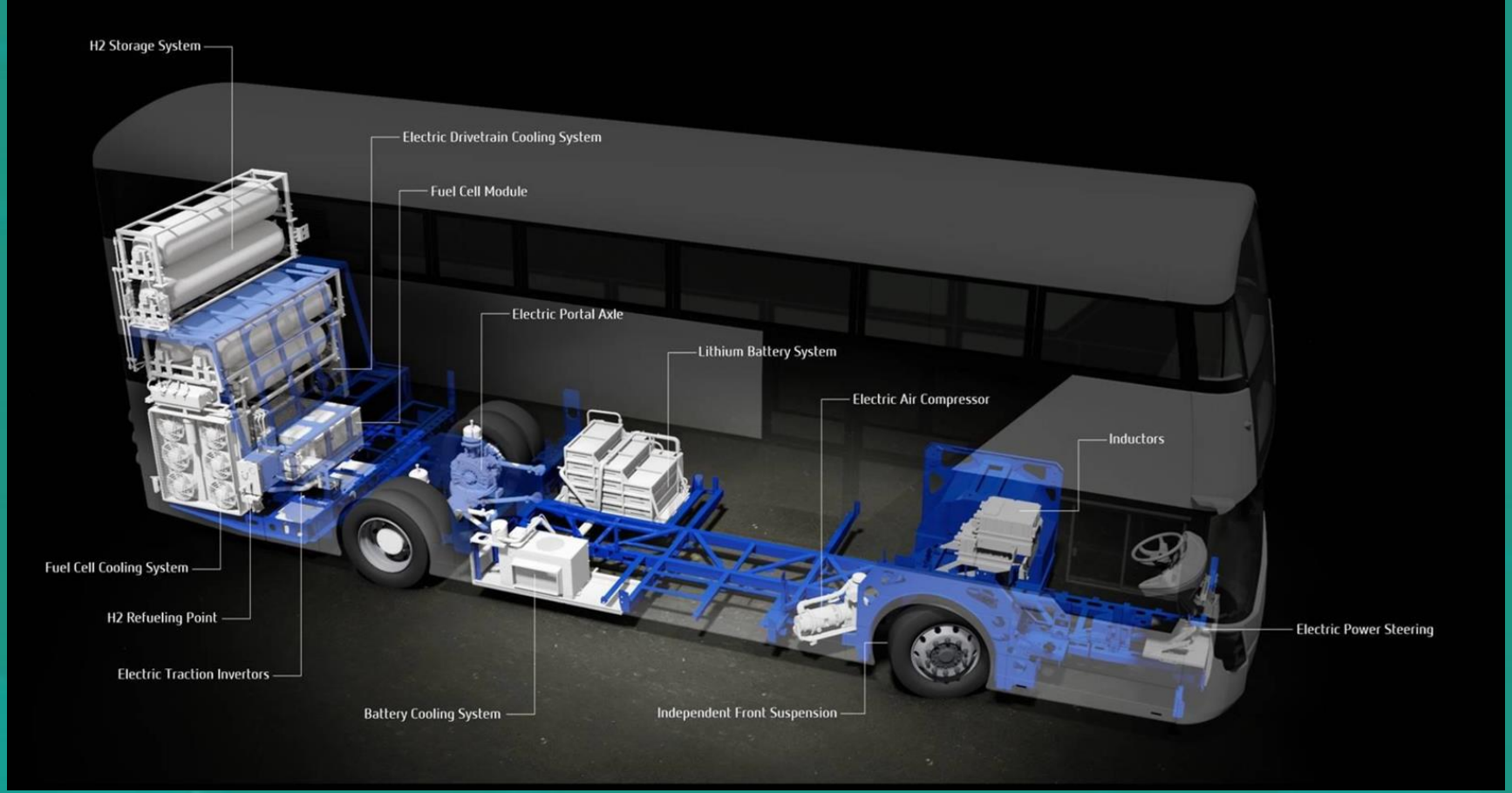

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Hydrogen Refuelling

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Business Change – it's all about people!

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Safety Assessments/Equipment/ Standards:

Operations:

- Charge Management
- Route Risk Assessments
- Revised FUSC & Defect Reporting
- Emergency Plan Procedures (engage
- Revised Business Continuity

Engineering:

- ATEX Certified Equipment
- DSEAR Zones
- Safe Systems of Work
- Risk Assessments

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Training and Staff Competency:

+700 Drivers trained on:

- Vehicle Familiarisation
- Electric Vehicle Driving Style
- Safety features (e.g., AVAS, Brake Toggle)

+70 Engineers trained on:

- ILM Level 1 and 2 (Electric Vehicle Safety)
- Battery Electric Vehicle Maintenance
- Hydrogen Vehicle Maintenance

+40 Operational Support Staff

- ILM Level 1 (Electric Vehicle Safety)
- Electric Vehicle Charging
- Hydrogen gas refuelling

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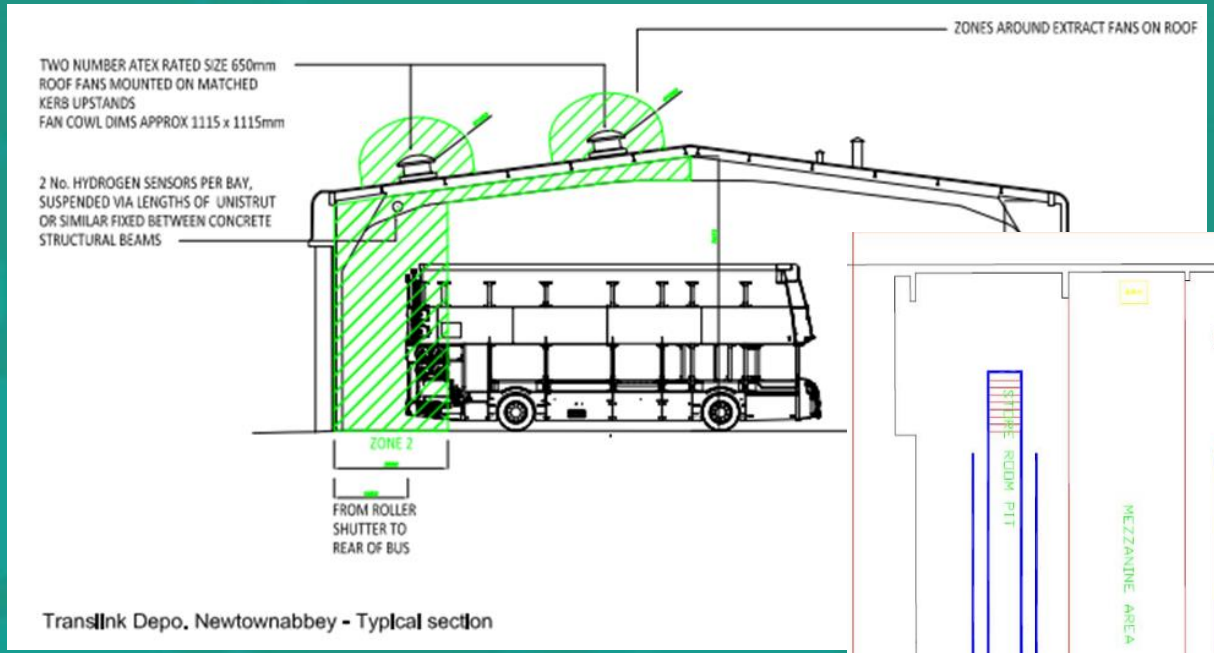
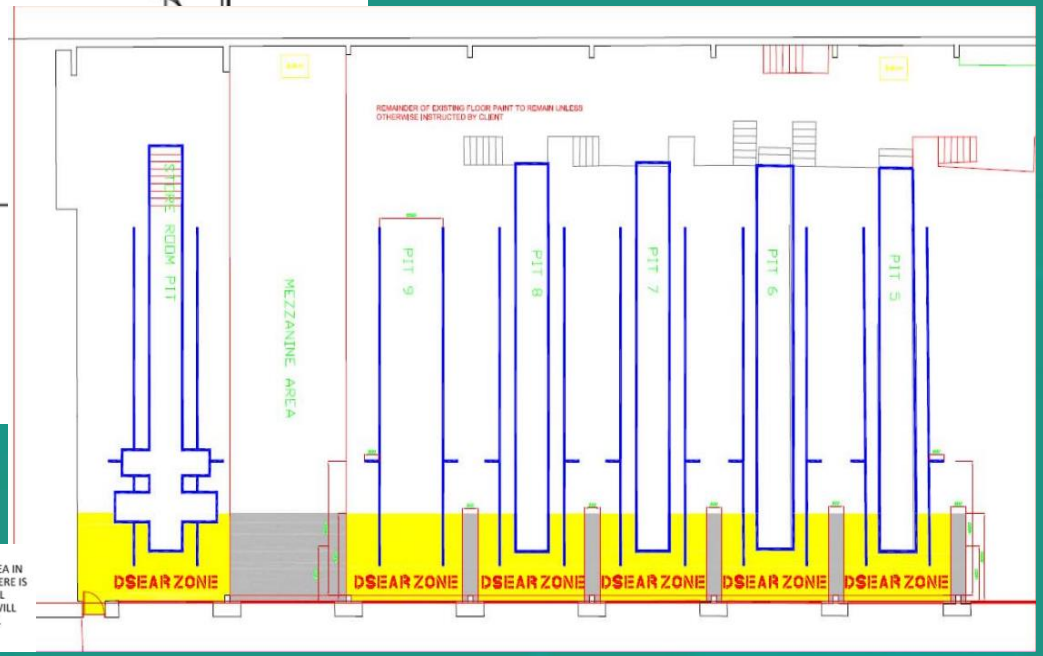
Hydrogen Fuel Cell Bus maintenance



Translink Depo. Newtownabbey - Typical section



ZONE 2
THAT PART OF A HAZARDOUS AREA IN WHICH A FLAMMABLE ATMOSPHERE IS NOT LIKELY TO OCCUR IN NORMAL OPERATION AND, IF IT OCCURS, WILL EXIST ONLY FOR A SHORT PERIOD.
APPARATUS GROUP: IIC
TEMPERATURE CLASS T1

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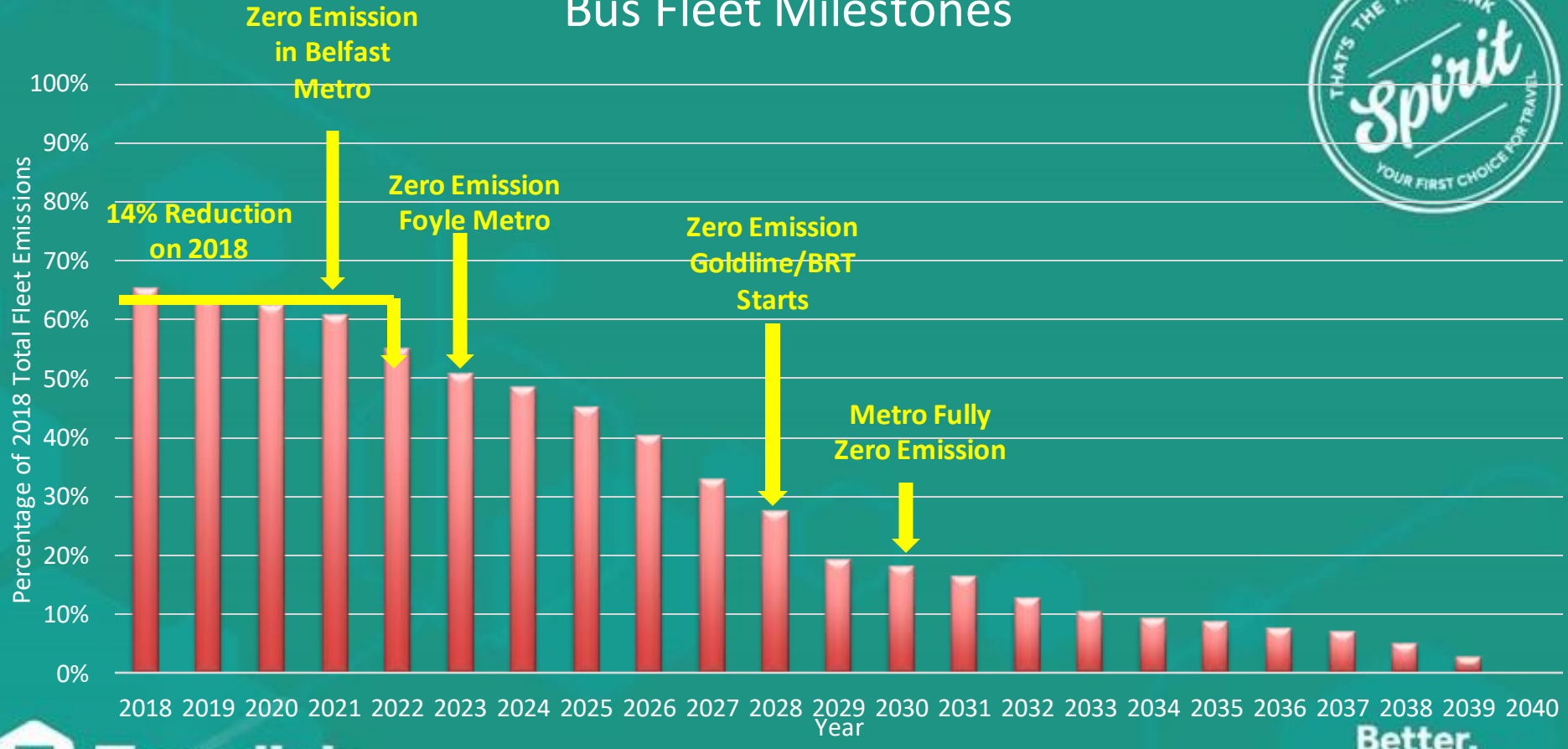
Bus Fleet Milestones



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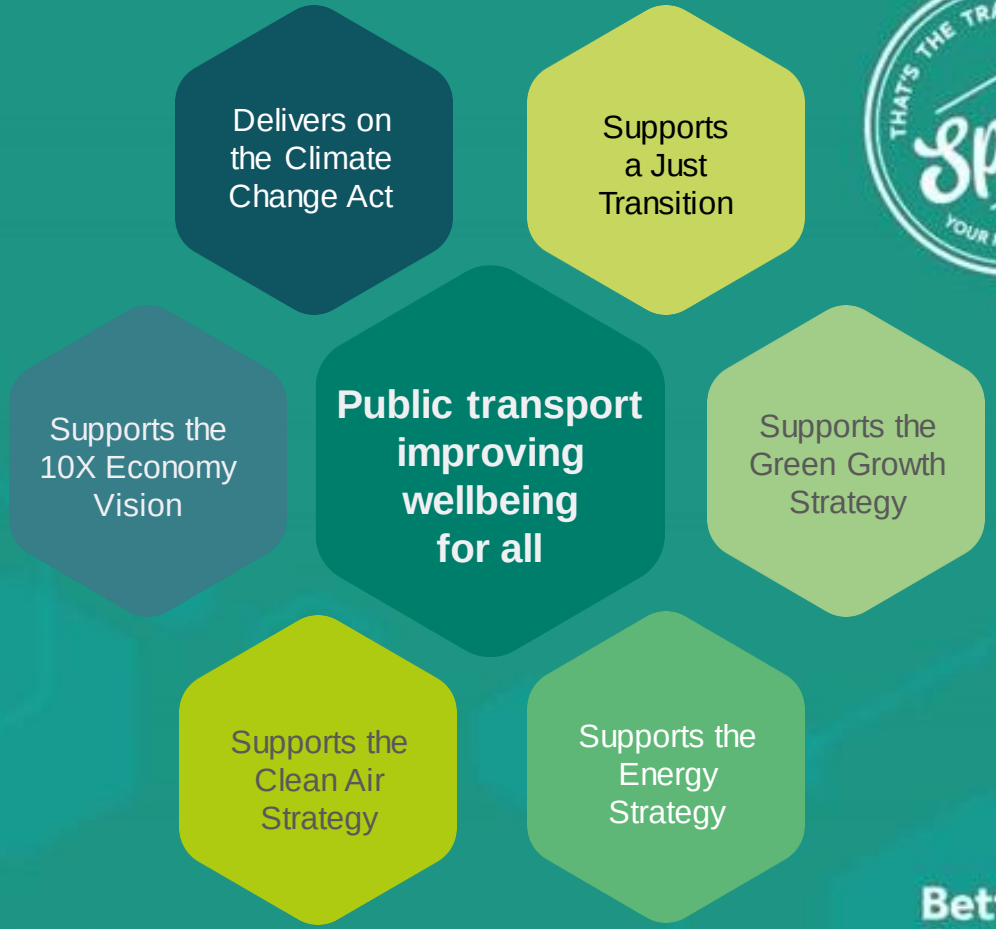
Public Transport delivering for Northern Ireland



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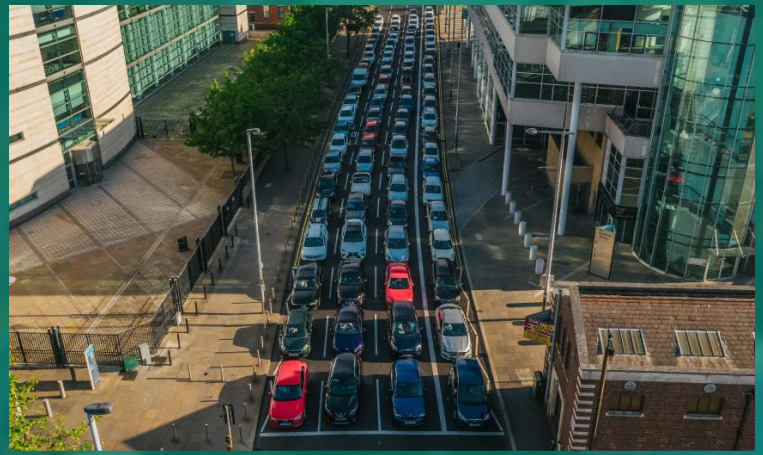
Critical Actions Now (Transport Strategic Plan)

Climate: Modal shift away from cars to mass transport (public transport)

Energy: Decarbonise public transport- continue to invest in bus and rail fleet transition to renewable energy

Health: Create clean air zones in major cities and towns – encourage active travel

Economy: Extend public transport support for young people, people with disabilities, low income families, employees/employers.



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Thank You

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