The future of mobility in a low carbon economy
Emissions targets
Transport Sector

• The Transport sector is a large consumer of energy and as a result is a significant contributor towards national greenhouse gas (GHG) emissions;

• Transport also represents the sector with the fastest growing greenhouses gas emissions in Ireland; and

• The Transport Sector in Ireland is the largest fuel consumer in the economy (33%), and the sector with the largest share of energy related CO₂ emissions (35%).
Transport Sector

Non-ETS target: 2020 emissions to be 20% below 2005 levels

Kyoto target: Average emissions between 2008 and 2012 to not exceed 113% of 1990 levels

- Transport CO₂
- Kyoto Target
- Non-ETS Target
Transport Sector
Reducing carbon emissions in land transport
Addressing emissions

- Avoid
  - Reduce or avoid the need to travel
    - Land-use planning

- Shift
  - Shift to more environmentally friendly modes
    - Public transport, active travel

- Improve
  - Improve the energy efficiency of vehicle technology
    - Vehicle efficiency, clean fuels
Lowering Carbon Emissions in Transport

Reduce demand for travel
• Better integration of land-use & transport planning

Encourage greater use of sustainable modes
• Make existing public transport services more attractive
• Provide new public transport infrastructure
  • Giving higher priority to sustainable modes on existing roads
  • Providing safe segregated walking & cycling routes
• Change attitudes to walking, cycling and public transport usage
Lowering Carbon Emissions

Transition to Low Emission fleet

• Purchase low emission bus fleet for subsidised services
• Electrify rail fleet
• Regulate commercial bus services to use low emission fleet
• Regulate small public service vehicle industry to use low emission fleet
Reduction in Travel Demand
Reducing the Need to Travel

Destinations further from home increase car use adding to congestion.

Destinations closer to home reduce car use and congestion.
Commuters travel times

- The average commute for those at work rose in 2016 to 28.2 minutes, having fallen between 2006 (27.5mins) and 2011 (26.6mins).

- Counties bordering Dublin had the longest average commuting time at 34 – 35 mins

- On average, workers lived within 15 Km of their place of work in 2016, up from 14.7 Km recorded five years previously.

  Comuter hell: ‘My daily commute is affecting my mental health’

Commuter-belt living is fruitful for some, but the majority are dismayed by transport links
New Dwelling Completions 2019

Source: CSO
Key National Strategies
Key National Strategies
Key Plans & Strategies

City & County Development Plans

- Regional Spatial & Economic Strategy 2019-2031
- Transport Strategy for the Greater Dublin Area 2016 - 2035
Making public transport services more attractive
Technology and integration

- National intermodal online journey planner and app has been completed
- Real Time Passenger Information signs & app available at www.transportforireland.ie
- Integrated ticketing via our Leap card
Public transport improvements

- Additional services
  - 24 hour services
  - Weekend services

- Improved reliability & punctuality

- Improved information at stops

- Integrated customer information
Provide new public transport infrastructure
Other Measures in Strategy

- GDA Cycle Network
- Park and Ride
- Demand Management
  - parking standards
  - parking charges
  - congestion charging
  - road pricing
Planned Outcomes

Mode Share 2011
- 336,000 AM Trips
  - Car: 62%
  - Bus: 22%
  - Foot: 10%
  - Bicycle: 6%

Mode Share 2035 Without Strategy
- 465,000 AM Trips
  - Car: 56%
  - Bus: 26%
  - Foot: 11%
  - Bicycle: 7%

Mode Share 2035 With Strategy
- 467,000 AM Trips
  - Car: 45%
  - Bus: 35%
  - Foot: 10%
  - Bicycle: 10%

Commuting Growth 2011–2035 = 39% More Trips
National Development Plan 2018 - 2027
Key Projects

• BusConnects €2.4bn
• DART Expansion €2bn
• Metrolink €3bn
• Cycling Infrastructure
BusConnects
Core Bus Corridors providing continuous bus priority
Redesign of Network of Bus Services
State-of-the-art Ticketing System
Simpler Fare Structure
Cashless Payment System

Park & Ride facilities
New Bus Livery
New Bus Stops + Shelters
Use of Low Emission Vehicles
BusConnects – Why we need it?

• Address congestion
• Enable population growth
• Allow economic growth
• Reduce emissions
The Benefits it will bring:
For bus users

- **Time Savings:** Bus journey time savings of up to 40-50%

- **Reliability:** Reliable and punctual bus services

- **Capacity:** Increased capacity to carry a 50% uplift on current 140 million passengers per year. Faster journey times means the same bus fleet can operate more services.
Cycling: BusConnects is the single biggest cycling infrastructure plan in the history of the state – 200kms of cycle tracks/lanes will be provided.

Greater Dublin Area Cycle Network Plan: Delivery of the BusConnects corridors will provide the foundation of the overall Greater Dublin Area cycle network plan.

Improved urban environment: More road space made available for walking, cycling & sustainable public transport
MetroLink Project
Transitioning public transport fleet
Rail Fleet

- Currently DART and Luas services are only fully electric rail services
- DART Expansion programme is a key project in GDA Transport Strategy
- Funding in current capital plan of €2bn
- New fleet required to meet growing demand
- Electrify the lines to Drogheda, Maynooth, and Sallins
Current Bus Fleet

- All of the current fleet run on Diesel;

- All vehicles purchased since 2015 meet at a minimum the latest Euro VI standard for emissions;

- As most of vehicles being replaced date back to the early “Noughties” the reduction in emissions especially in terms of Nitrous Oxides (Nox) and Particulate Matter (PM) is very significant.
EU Exhaust Emissions Standards: Buses/Coaches
Dublin Metropolitan Area
Urban Public Bus Fleet (2019)

- Euro VI: 61%
- Euro IV: 15%
- Euro V: 14%
- Euro III: 10%
BusConnects

- Half of the urban public bus fleet in Dublin of approx 500 buses, will be converted to low emission vehicles (LEVs) by 2023.

- Full conversion of the DMA’s urban public bus fleet to LEVs will be completed by 2030.

“Transition to low emission buses, including electric buses, for the urban public bus fleet, with no diesel-only buses purchased from July 2019 [...]”

(Source: NDP 2018-2027)
Urban Buses: Main Technologies

**Series Hybrid**
- powered by **batteries and/or ultracaps** charged via braking & **diesel engine**

**Battery-Electric**
- powered by **batteries** charged via braking & **plug-in charger and/or pantograph**

**Electric**
- powered by **overhead wires** via trolleypole

**Parallel Hybrid**
- powered by **diesel engine OR batteries and/or ultracaps** charged via braking

**(Bio-)Gas**
- powered by **compressed natural gas engine**

**H₂-Electric**
- powered by **batteries and/or ultracaps** charged via braking & **H₂ fuel cell**
Transitioning car transport fleet
Key National Plan

Support growth of EVs to 800,000 by 2030

Support the introduction of up to 200 on-street vehicle charging points
**EVs Under Current License, 2014 - 2019**

- **Total**
- **Private Cars**
- **Goods Vehicles**

Note: 2019 to July only

Source: DTTAS
Other interventions
Future low carbon mobility in cities

- Fueled by electricity or hydrogen
- Vehicles driving at lower speeds
- Electric scooters (if regulated)
- Low Emission Zones
- Travel restrictions on vehicles based on age and/or engine size
Carbon Emissions from passenger transport
Shared Mobility

Study showed that today’s mobility in GDA could be delivered with 2% of current private vehicles.

Keep rail systems & use shared mobility would reduce carbon emissions by 38%
Conclusion
Future Mobility Could Be

• Short journeys to work & education & shops & services

• A significant majority of those journeys are by walking, cycling (e-scooters even) or public transport

• All transport both public & private will be low carbon as a minimum and no carbon where feasible

• Where cars must be used they should be shared and using electric fleet
Let’s be Climate Brave in transport