Low-carbon transport systems and related policies in destinations.

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Contents

Transport's contribution to GHG

- Transport is responsible for 25% of EU GHG emissions
- Over 70% of transport emissions are from road vehicles
- EU target to reduce GHG emissions by 60% over 1990 levels by 2050
- Currently GHG emissions remain above 1990 levels

Two key approaches to reduce GHG emissions

1. Modal shift from car:

- Active modes of transport
- Public transport with less CO2 emissions per pass km

2. Technical Solutions:

- Adoption of electric mobility (e-mobility).

This presentation will focus on e-mobility

Electric Vehicles

- E-mobility:

  ‘vehicles that use one or more electric motor for propulsion, are recharged externally and primarily obtain their energy from the power grid.’
- Vehicles can be purely electricity powered or combine an electricity motor with a combustion engine (‘hybrids’).

Three Levels of adoption

1. MACRO LEVEL: Public Transport

- Metro Rail
- Electric Buses

2. Personal Level: Private car

- options for sharing economy or car hire

3. MICRO LEVEL: Private micro transport

- mopeds, electric cycles, micro scooters

MACRO: Metro Rail

- Appropriate to large urban areas and cities.
- Under construction at one partner destination Thessaloniki
- Low GHG emissions per pass km (30grams CO2
- Reduction of vehicular traffic (bus and car)
- 54,000 passengers per day
- Reduced travel time.

Thessaloniki Metro Rail

- Planned opening 2020
- Integrate the network: with public transport (bus) and with park and ride (3,700) spaces created
- Reduce Thessaloniki's GHG emissions by an estimated 5,000 tons a year.

Electric Bus

Personal: Sharing economy - car

Personal: Sharing economy - car

- Important option for visitors and residents.
- Potential to reduce levels of car ownership and therefore car use by locals
- Potential to remove older more polluting vehicles.
- Tourists can join on-line and access through an app
- GOTO Malta (50 shared cars)

Micro personal transport

- A much under researched area.
- The potential to see novel micro modes of transport as a leisure activity
- The creation of multi modal hubs can encourage modal shift
- Can encourage social spaces within destinations

Micro Hubs


co bikes
electric


MOTORBIKE STATION
FOR
RENT
MOTORBIKE
FOR
RENT

E-mobility: Low Base Start Point

1. Electric vehicles (EVs)

- 1.5% of all new EU car registrations (2017)
- 9% of all urban bus registrations (2017)

- EVs are starting from a low base
- There are significant barriers to overcome to achieve mainstream adoption.
- Most appropriate for use in urban areas

Benefits: 1. Reduced GHG emissions

- Cars : 20 – 30% reduction in CO2 emissions over whole life costing based on current European electricity generating mix.

- Reductions increase as share of renewables increases in European electricity generating mix

Reduced GHG emissions-Bus

- Hybrid buses produce around 40% less CO_2 emissions than traditional diesel buses
- Electric Buses produce additional savings
- Significant reductions in CO2 emissions for Diesel with the introduction of Euro 6
- Significant reductions (95%) in in Nitric oxides (NOx) emissions

Benefits 2: Air Quality

- Transport emissions are a main source of air pollution
- Cost of traffic pollution: Euro 67 billion p.a.
- 500,000 deaths p.a.
- Electric vehicles produce no tailpipe emissions
- Health costs from car externalities
- £15 pa(Electric):£37pa(petrol):£258pa (Diesel)

Air Quality -

- Ultra Low emission Zones are a key driver for the accelerated adoption of electric vehicles.
- By 2020 all single deck buses in central London (300) – Zero emission. Electric or hydrogen
- By 2020 all double deck buses in central London (3,000) - will be hybrids
- Electric double deck vehicles being trialed later this year.

London - Fleet

- Fleet: 9396
- Hybrid: 3420:
- Electric: approx 250 Electric
- Hydrogen: 10

Waterloo Garage
408 tonnes CO2

Sharing economy - car

Micro Hubs


co bikes
electric


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Barriers to EV Adoption

- Cost
- Range
- Infrastructure
- Public Perceptions

Cost - Car

- High capital cost low operating costs (perhaps 2.5 p per mile for cars).
- Falling Government grants and subsidies
- Operating model requires high vehicle utilisation

Cost - Bus

- Capital cost of bus purchase is high copared to conventional vehicle
- Bus costs require significant set up infrastructure costs at depot.
- Chargers around £2,000 (AC) - £20,000 (DC)
- Maybe some scope to recoup income selling power back to the grid at peak times.

Range

- Not suited to long haul traffic
- Charging points are increasing in number but still variable in some regions
- Concerns from some EU projects that chargers are less frequent as one moves further from city centre (EV Energy)
- Lack of EU standardised power charging platform (AC).

Strategies

- Costs are falling
- Technology is ever changing
- Clean air legislation is gaining momentum as a catalyst for change in urban areas
- Government grant schemes operate for the construction of charge points as well opening opportunities for cash strapped local authorities to progress agenda

Strategies

- Charging points can be an inefficient use of land and achieve a poor economic return in cities.
- Widespread adoption of e-mobility is inevitable in urban areas, so embrace opportunities.
- However e-mobility alone offers few solutions to congestion and the high land take of private cars – so plan and monitor

Thank you

- ANY QUESTIONS ?

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