A vision for sustainable urban transport

Guy Hitchcock

Smart sustainable cities – opportunities and challenges
Ricardo-AEA

- Internationally-renowned environmental consultancy
- Heritage of world-leading scientific/technical capability
- Client base of international governments and businesses
- Over 400 scientists and technical staff
- Part of Ricardo PLC

Our Mission

*To be recognised internationally as a leading provider of innovative analysis and solutions for the world’s most significant energy and environmental challenges.*
What we do

- **National and international level policy and technical analysis**
  - UK national air quality policy, national emissions inventory and air quality monitoring
  - EC Carbon roadmap to 2050, using our in house SULTAN tool
  - South Africa GHG projections
- **City level analysis and implementation**
  - Low Emissions Strategies for some 10 UK cities
  - Transport emissions model for Toyama City, Japan
  - Climate adaptation in Turkish cities
- **Company level sustainability management**
  - Clean Vehicles Partnership for Heathrow Airport
  - Biomass resource study for Nestle
- **Product development and due diligence**
  - Due diligence work on fuel cell and hydrogen products, Ceres Power
  - Due diligence work on tidal power technology for Scottish Enterprise
  - Ricardo UK engineering capabilities
Low Emission Strategy studies

- Develop and assess an integrated package of measures to reduce emissions from transport activity at the city level

- Stakeholder engagement and partnership working is to developing policies that are effective and have support

- Understanding the emissions impact of the policies
  - Detailed understanding of the impact of measures
  - Local level modelling tools

- Building the business case

- Implementation plans
- Develop GHG emission reduction scenarios out to 2050

- Use of Ricardo-AEA SULTAN model
  - Allows analysis of technology scenarios
  - Also includes mode shift assumptions

- Good data is critical
  - Can be a challenge to get necessary data
  - Assumptions/extrapolation usually needed

- Co-benefits estimated in terms of air pollution benefits

- Key additional measures to existing policies
  - Development of EV fleet
  - Mode shift and demand management policies
Environmental challenges for urban transport

NO2 exposure in European Cities

Air pollution

Climate change
Information technology is a key driver of change

- Social media
- Teleworking
- Ecommerce
- Mobile data services/smart phones
- Passenger information system
- EDI/track and trace/JIT
- Smart cards to access/integrate services
“Halve the use of ‘conventionally-fuelled’ cars in urban transport by 2030; phase them out in cities by 2050; achieve essentially CO2-free city logistics in major urban centres by 2030”

EC Transport White Paper, 2011
New mobility solutions

Information technology

+ 

Low emission transport
Information to manage trips and travel

- Video and audio conferencing
- Trip panning and scheduling
- Real time information
The growth in shared modes

- Car clubs
  - Internet booking
  - Smart card access
  - Low emission vehicles
  - Integrate with public transport

- Bike sharing
  - Mobile data for location and booking
  - Payment by smart card and mobile
  - Velib in Paris/London scheme/Bicing in Barcelona

- Ride sharing
  - Computer based matching service
Selling mobility not vehicles

- BMW I electric vehicle
  - Electric vehicle but added car hire scheme

- Peugeot Mu
  - On line account
  - Rent most appropriate solution

- Daimler’s Car2Go
  - Their own car club
  - Based on smart electric
Urban logistics and consolidation

- Consolidation loads
- Tracking and planning of delivery
- Clean Last mile
Access management and control

- Intelligent traffic management systems
- Low emission zones
- Flexibly access controls
- Charging systems
- Parking management
The route to success

- Understanding your problem
  - Good data on transport activity and emissions
  - Have the ability to model changes
- Engagement and partnership work
  - This will generate good ideas and buy in
  - It will be crucial for delivery
- Technology is playing a key role in our cities
  - Information and communication technology
  - New vehicle technology and mobility services
  - Understanding these and how they can be used will be key
- It’s about improving the lives citizens
  - Health and well being
  - Economic benefit
  - Efficient, attractive and economically viable cities
Smart cities are low emission cities
Thank-you for your attention

Guy Hitchcock
Ricardo-AEA Ltd
The Gemini Building
Fermi Avenue
Harwell, Didcot,
OX11 0QR

T: 01235 753327
E: Guy.hitchcock@ricardo-aea.com
W: www.ricardo-aea.com