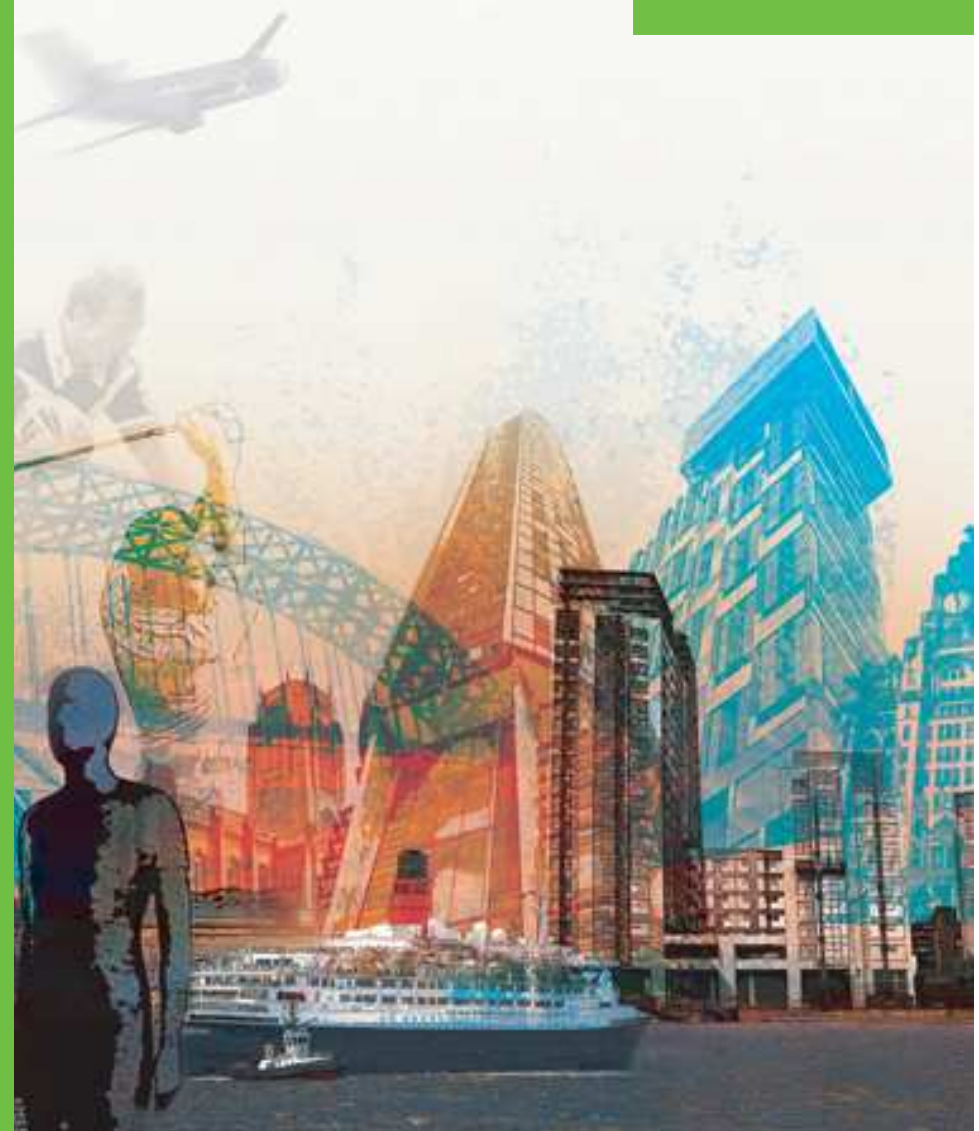


## Developing the infrastructure to support a Low Carbon Economy

Mark Knowles  
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The Mersey Partnership



# Why does the Liverpool City Region need a Low Carbon Economy?

- We have national targets to contribute to:
  - 80% CO2 reduction by 2050
- There are real opportunities to create more “green jobs”:
  - Over 8,000 EETS-sector jobs already in the City Region with significant growth potential
- It is a valuable and growing contributor to the economy:
  - EETS sector valued at over £1.2bn and growing
- Established companies need to adapt to and take advantage of climate change opportunities

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# What will the City Region look like in 50 years?

- The climate forecast for the City Region is now complete. Liverpool's climate in 2060 will be like that of ????

# Best Case / Worst Case



# What are the basics of the Network Infrastructure?



- The network covering the Liverpool City Region is operated by Scottish Power
- Electricity distribution networks do not tie up neatly to administrative boundaries
- The network is interconnected with three other networks and the National Grid's transmission system
- The Distribution System consists of approximately 21,000 circuit km of 132kV, 33kV and HV overhead line
- Predicted system maximum demand for FY09/10 is 3,588MW and is forecast to rise despite the recession
- Demand follows a seasonal profile peaking on winter weekdays and falling in summer

# How is the energy mix changing?

- On shore wind turbine developments along the Estuary from Liverpool John Lennon Airport to Seaforth including the new Alexandra Dock turbines
- Major off-shore wind developments at Burbo Bank and other Irish Sea sites
- Energy from Waste developments in Knowsley
- Pilkington to launch a £44m Photo Voltaic production facility in St Helens
- Fiddlers Ferry co-firing with biomass



# What do we have to plan for?

- Tidal energy options for the Mersey
  - Further on-shore and off-shore turbine developments
  - Further waste to energy and biomass plants
  - Increased use of decentralised energy and on-site generation
  - Increased energy use derived from greater economic activity
  - Changes of land use and resulting energy requirements
- 
- These developments will alter the network infrastructure requirements for the City Region both geographically and in capacity

# What is the impact of renewables on network infrastructure?



- Network provision required in new areas often with environmental sensitivities
- Requirement for multiple geographically diverse connection points
- Intermittency of generation
- Power flows
- Voltage regulation and system instability

# What will need to be addressed?

- How is the requirement for network adaptation to be funded?
- How does the network development timetable compare to the development of generation assets?
- How do we forecast geographic demand for network provision?
- What are the new technologies emerging in network provision and which should be adopted?
- How do we set priorities?
- Can we streamline processes?



# Why are TMP involved?

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- Because it is potentially the most significant new wealth and jobs creator in the next ten years
- Because it has the ability to create sustainable jobs across sector and skill sets
- Because our members and stakeholders are actively engaging with the issue
- Because the issue needs a city region-wide lead and response

# Who needs to be involved?

- Network Operators
- Energy Supply Companies
- Public and Private Sector Developers
- Local Authorities
- NWDA
- City Region agencies
- Consultants

# Can we make the change?



# Can we make the change?

- **Without a fit for purpose network, development opportunities will be missed**
- **Long-term strategic planning is required**
- **Stakeholders from many sectors have to have a common vision**
- **New and innovative technology and solutions must be embraced**
- **There is significant first-mover advantages and risks in transforming the network**
  
- **We can have:**
  - Zero carbon Electricity Grid
  - Zero Carbon Public Transport
  - World-class renewable energy industry
  - Significant economic growth with a reduced carbon footprint
  - Sustainable jobs in emerging industries that will become mainstream

# Thank You.

