The impact of Electric Vehicles' Growth

May 2011, London

As part of its energy talk series and in collaboration with the Network for Energy Technology, **Access for Women in Energy** (AccessWIE) organised a roundtable dinner discussion, on the impact of the electric vehicles (EV) growth. The event was hosted by Barclays Capital at their offices in London on 11 May 2011.

Cars can travel ten times further on petrol-diesel than electric which means that the future of EVs will be on short journeys in the city

Key Highlights

- The 20th century was one dominated by oil while the 21st will be electric.
- One study suggests that 30 per cent of the world's vehicles will be electric within 15 years – most being in China and India.
- A key driver is that China is committed to being a major EV producer to reduce city air pollution and the need to import oil. A target of 40 million electric vehicles by 2035 is set.
- China's commitment to EVs will mean a big increase in numbers and economy of scale over the next 15 years. Such cars are more likely to be used in cities because of air quality concerns. Long-distance car travel will probably involve more dual fuel and hybrid cars. Heavy lorries will switch to other fuel options such as compressed gas.
- Technical advances in conventional cars mean that EVs should be exceptional to compete in terms of energy efficiency.
- Electric advantages have no local emissions and is 70 per cent fewer in moving parts and therefore less maintenance.
- EVs offer very good acceleration but there is no good way of storing electricity.
- Cars can travel ten times further on petrol-diesel than electric which means that the future of EVs will be on short journeys in the city. Currently, an electric car range is restricted to 100 km.
- EVs are also expensive because of the cost of batteries that also add weight and take up space.
- Hybrids offer the best compromise allowing a switch between electric and diesel.
- Carbon subsidies are part of a political mix encouraging a move towards EVs but policies can change as was the case with solar power in the UK.
- The cost/weight issues make electric propulsion inappropriate for large lorries. Small electric trucks might be used in cities to meet air pollution concerns.
- EVs often rely on dirty electricity from coal or oil in China and therefore do not contribute to carbon reduction. In France, which has major nuclear capacity in electricity, however, such cars make a positive gain.
- Lack of infrastructure with charging points are a disadvantage however charge induction plates might be part of the answer to easy home charging.
- Smaller LNG powered cars are strong competition to electric while the Italian-developed FIRE technology is now widely used as a very energy efficient engine.
- Cost and effectiveness of EVs will benefit from economies of scale and investment with lower production costs and more efficient batteries.

THE IMPACT OF ELECTRIC VEHICLES' GROWTH

- Companies with fleets serving urban areas and lifestyle choice with personal drivers may be the major users of EVs in the West.
- European legislation – Euro 6 – may have the unexpected effect of increasing air pollution from lorries.
- If there is a major switch to EVs then there will need to be a corresponding increase in electricity generating capacity.
- A big challenge to EVs comes from development of dual fuel cars using 70 per cent gas with high mileage per tank. The possibility of solar charge panels on cars is being considered.
- Another technical development from the Appleford Laboratories in Oxford is a method of storing hydrogen at ambient temperature in a solid state which could make fuel cells more attractive.