Renewable Energy in the New Millenium

Executive Summary:

Power Point Presentation: Text supplement

1. To draw attention to the inherent dangers of the 'all eggs in one basket' energy supply lines and other downsides of our fossil fuel economy:

· Oil & natural gas liable to be turned off at the whim of an unstable supplier in a politically volatile world

· Fossil fuels will not last into the indefinite future; alternatives will need to be put in place

· Greater waste associated with highly centralised energy supply systems (70% at the power?station via Cooling Towers + 10% in heating up the wires. NB up to 60% can be lost with green energy systems)

· Need to reduce C02 releases into atmosphere by industry, transport & domestic users (Kyoto Protocol, NFFO)

2. To raise awareness about the many new clean green energy sources coming on stream, albeit slowly,

due to:

· High cost (classical 'chicken & egg' issue)

· Resistance to new, untried technologies which, at the pioneering phase, can look unattractive (aesthetics)

3. Looking at specific developments for a sustainable energy future:

· This would 'ditch' conventional, brown energy systems in favour of a Hydrogen Economy

· Supply continuous renewable energy for the world's electrical, thermal & transport energy needs

· Store energy in hydrogen tanks via electrolysis, whenever there is a surplus of electricity from renewable sources (wind, solar biomass, biogas, hydro etc)

· When the wind doesn't blow, the sun doesn't shine, etc. energy can then be drawn from a reliable storage system via reverse electrolysis using fuel cell technology

· Groundbreaking work at West Beacon Farm in Leicestershire, UK, (Prof T.Marmont) represents one of the very few installations in the world that can demonstrate the integration of these technologies in action

4. "To show that electricity flows will be local and balanced out as part of a 'mixed technology local, embedded generation system' approach and not backed up from the grid & centralized power generation which will become more unsustainable or non?existent in the future" (Woking project ?Surrey, UK ? Allan Jones).

Even if the long?term environmental impact of nuclear waste is ignored, nuclear energy can only address the UK's electricity needs, not the UK's thermal and transport energy needs. Only fuel cells and hydrogen can deliver all three of the UK's primary energy needs.

The barriers to a secure, sustainable, low carbon emission energy future are not technical but regulatory, attitudinal and vested interest.

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Other relevant research work:

CREST (Centre for Renewable Energy Systems Technology, Univ of Loughborough

HARI Project (Hydrogen and Renewables Integration), West Beacon Farm, Leics, UK

WOKING project (Allan Jones, Woking County Council, Surrey, UK)