

## **General overview of the conference debate session**

### **Can the speakers respond to the claims of the pro-nuclear lobby that energy efficiency and renewables together will not be enough to alleviate climate change?**

John Gilliland – Energy security (especially important in N.I as 90% of energy is imported) and mix of energy supply – more efficient use of fossil fuels, renewables and energy efficiency - are sufficient without using nuclear. There are too many issues, and uncertainties, surrounding nuclear and need addressing before nuclear can be backed by SDC.

Patrick Waterfield – No, we will still need something else, but should start with energy efficiency.

Stephen Stretton – There needs to be clearer facts on capacities as switching playing fields can conflict figures. Capacities of renewable energy at a reasonable costs (7p per kwh for nuclear). The carbon problem is serious and a mixture of supply is required.

John Gilliland – Hard to establish figures such as 7p per Kwh for nuclear power and therefore hard to compare different energy production costs. Should start with EE, and then look at renewables.

### **Supplementary question – How can the cost of nuclear production be estimated when disposal of nuclear waste is not factored into the equation? How can the cost of a power station be justified when home owners are expected to pay for renewable technology themselves. (I) suggest government spends money on installing PV panels on all south facing homes – to the equivalent cost of a power station – then there would be a resource provided by government.**

SS – There is an independent committee tasked with finding a solution to nuclear waste. Nuclear waste could, in the future, become a resource itself. Regarding transparency of costs: Cost is for new build rather than decommissioning old power stations.

PW – There are practicality and control issues with government telling people what energy source they must use. Scandinavian countries have a stricter approach and tell people you must use the local CHP scheme but this approach may not work in the UK.

John Chesshire – Two points: There is suggestion that the nuclear industry is the one technology that internalises all of its external costs, whereas coal fire stations emit carbon emissions and these costs aren't claimed in production. The problem is the private sector won't insure nuclear power station, so the nuclear industry is not unique as costs could be so high it can't be insured. The second point is regarding capital allowance, access to capital money at a low rate and carbon tax which can all affect the cost estimated for producing all the energy production methods.

### **Do we have time to wait before making decisions on nuclear energy?**

PW – Firstly we need answers to the questions about the real issues with nuclear energy and if there is a viable alternative to low carbon economy. Tidal (and deep sea) technology is still being explored and has huge potential in providing a proportion of renewable energy supply.

JG – The first nuclear power station won't be open until 2025, with a new power station opening once a year or so from then on. Carbon capture and renewable technology such as tidal power are a long way from commercial viability but could provide enough energy for N.I.

SS – Serious situation and like war time efforts, need people to work together. We know that there will be affects from climate change and compared to the potential risks of nuclear they are insubstantial in comparison and are only theoretical risks.

### **Supplementary question – Could you give some indication about economic benefits of the various energy production methods?**

JG – Wind turbines require some planning but after erection they require little intervention, whereas the likes of biomass technology require constant interference and maintenance.

SS – Nuclear energy, in Eastern countries, is important for providing jobs and therefore a boast to the local economy.

### **(To SS) As mentioned in your presentation there are constraints on uranium availability, what affect would these constraints have if a number of countries went**

**down the nuclear route and there was a nuclear resurgence? What extent would uranium reserves last? What extent would we be likely to be dependent on more new or radical technology such as fusion?**

SS – There is a lack of development in finding resources of uranium as there hasn't been a requirement in previous years. There is 50-70 years of supply in the ground, comparatively more than fossil fuels such as oil, but should there be a resurgence there are more novel forms of reactors such as extracting (fishing) uranium from water and burning nuclear waste.

JG – Current uranium resources could deliver a programme, but the main concern raised by the SDC is where uranium is found – in countries that are less political stable – which poses security of supply issues already found with gas supply from central Europe.

PW – Risk of terror attack.

JC – Comments on fusion: There are problems with fusion; obtaining high temperatures the shorter the holding time, containment of fusion, no private investment only international collaboration – no commercial backing, no insurance.

**There are a number of questions related to widening vision to a global scene, such as if we were to develop renewables in the west wouldn't these technologies be more readily available for deployment to the third world?**

JG – Commonly asked question to SDC: Why should do anything for climate change when countries such as China are opening coal fired power stations every week? Anaerobic digestion is a technology that China is far more advanced in, whereas we are developing clean coal technology. So the issue is for international collaboration; an international exchange of knowledge, including strengths and weaknesses of all technologies.

PW – There may be a misconception that an exchange of knowledge would be one way and we can not criticise countries such as China until we are doing everything we can do improve our own situation.

SS – International collaboration is vital, but we need to take a low carbon route. There isn't enough renewable technology in this county to power an island this size with wind power alone – we need more secondary technology like electric cars, heat pumps etc to achieve this.

JG – Liquid fuels for transport: There are social and ethical issues in meeting demand for bio fuels. The UK has a non-competitive market, but America and other countries, with larger land mass, have seen a huge dash to grow crops for bio fuels. Some countries are clearing forests for crop growth to keep up with demand with obvious consequences for the environment. Controversially this has caused uproar as land should predominately be use for food production to maintain food security.