

ENERGY MANAGEMENT GROUP

NEWSLETTER WINTER EDITION

DECEMBER 2003

ENERGY NEWS

HANS BLIX TO BE THE FIRST CHANCELLOR OF THE WORLD NUCLEAR UNIVERSITY:

The world nuclear university was inaugurated at the world nuclear association annual symposium held in London on 4 September. As well as the WNA its other founding supporters are WANO(World Association of Nuclear Operators), the IAEA(the International Atomic Energy Agency), and the OECD Nuclear Energy Agency. (report from Sone newsletter).

ENVIRONMENTAL COMPARISON:

A major EU funded research programme undertaken over the last 10 years has shown that if external costs such as damage to the environment and to health are taken into account the cost of producing electricity from hydrocarbons would escalate. For the UK the report gives the external costs of electricity generation in EUR-cents per kWh as wind 0.15, nuclear 0.25, biomass 1.0, gas 1-2, oil 3-5, coal 4-7. These results show that the damage to the environment and human health from burning biomass(although less than from gas firing) is up to four times greater than from a nuclear plant. The DTI has issued a consultation document on changes to the Renewables Obligation which are designed to further encourage the burning of biomass. Responses to the Consultation should be sent to the Renewable Energy Policy Unit, DTI, Bay 110, 1 Victoria street London SW1H 0ET or by e-mail to: info.trro@dti.gov.uk

HYDROCARBON COSTS AND AVAILABILITY:

A new BNFL study has noted that regarding the UK hydrocarbons availability the situation is not encouraging. Most economically deep mined coal is likely to be exhausted within 10 years; by 2006 the UK will be a net importer of gas most of which will come from sensitive regions such as Algeria, Kazakhstan and Russia; by around 2010 the UK will become a net importer of oil. The report goes on to paint the frightening scenario that by 2020 the UK could be dependent on imported energy for three quarters of its total primary energy needs. (from Nuclear Issues vol 25 Sep 03). A report in the Evening Standard has also highlighted this situation with a prediction of a bill for imported gas of £4.5 billion by 2009. Sone newsletter records this and asks the question of how Britain will pay for this gas? It notes that imports will require new or reinforced pipelines and with little or no storage for gas, 48 hours compared with 70 days for France..

FRANCE TO BUILD NEW EUROPEAN NUCLEAR REACTOR:

France is to build a euros 3bn demonstration unit of the Framatome European Pressurised Water Reactor as soon as possible. The announcement was made by Nicole Fontaine the French industry minister. She said the advantages of the 1600 MW reactor were "incontestable, ten times safer, 10% more competitive and producing less waste". The development is a result of Franco-German co-operation. It is also reported that the Finnish utility TVO will probably select the Framatome PWR for its fifth nuclear power reactor to be built on its Olkiluoto site. (report Nuclear Issues).

BP SOLAR: The New Scientist of 8 November reports that amid a world shortage of Silicon, a material used for the manufacture of solar cells, BP Solar has announced it is ending its thin film programme.

WIND POWER:

The International Energy Authority renewables web site gives the wind power output for the UK in 2001 as 965 GWh generated from 427MWe of plant. This gives an efficiency of 25.8%. The Energy White Paper(EWP) predicts that to supply 10% of electricity supply from renewables by 2010 will require 10 000 MW of renewables capacity. To generate 10% of electricity supplies which is about 35TWh of energy a load factor of 40% would be needed. This contrasts with the UK 2001 figures(down on 2000) of 25.8%. (see N Issues Nov 03).

ELECTRICITY PLANT DEMAND FOR EUROPE:

Eurelectric has estimated that some 300GW of new capacity, at a cost of about euro250bn, will be required by 2020 to compensate for closed plant and to meet growing demand for power in Europe. It stressed that an investment friendly regulatory framework is needed to maintain environmentally clean generating options, and a continuing role for nuclear power. (NIA Industry Link Nov 03).

UK NEW INTERCONNECTORS:

Business reports that the UK is to spend £1bn in the construction of new interconnectors connecting East Anglia to both Norway and the Netherlands. The government has approved plans for National Grid to lay the worlds longest sea bed electricity cable. The Norwegian government is expected shortly to give formal approval to plans for a 460 mile cable under the North Sea carrying 1200 MW. The cost is to be split with Statnett the Norwegian grid operator. National grid is also working with TenneT in Amsterdam to lay a second 124 mile cable. A budget of euro400m has been agreed with a 1300 MW cable. (report in Business 03).

1GW of ELECTRICITY PLANT SET TO RETURN TO THE GRID

Power UK reports that more than 1GW of plant is set to come out of mothballs in time to meet the winter peak demand. Three generators have indicated that they are bringing back mothballed plant. They are RWE Innogy, Powergen, and International Power. The decisions have been taken in response to rising wholesale prices against the background of concerns over security of supply. However IP noted that although wholesale electricity prices in England and Wales have recently shown some improvement, they remain well below a level which provides an adequate return to power generators. (Power UK Issue 116, 22/10/03).

FEATURE

Why nuclear power is good for you-radiation hormesis. Richard Bloodworth.
EMG committee.

Nuclear power stations are coming to the end of their lives in the UK and in a decade or so may well mostly have disappeared. If this happens, we will have lost a safe and reliable energy source which has served us well for the last forty years and is still being widely used elsewhere, for example France. I am not sure the reasons for this but widespread feeling amongst the general population that the technology is dangerous and unreliable have not helped. Disasters such as Chernobyl have accelerated the effect despite the fact that the death toll was about the same as a year on the UK roads! Basically the idea that of hormesis is that LOW levels of radiation can stimulate cell repair mechanisms and produce enhanced protection against virus infection, for example. It is well known that high levels of radiation are harmful, the idea that low levels might be beneficial is less well known. A 30 year follow up of 1155 radium dial painters in 1925 showed they had fewer cancers than the general population and lived longer. In the Manhattan project to build the atomic bomb mice were raised in an atmosphere of uranium dust. It was found they lived longer than the unexposed control group. In 1957 the Windscale fire released 20 curies of I-131 into the atmosphere. Thousands of predicted thyroid cancers never happened and no biological effect was ever detected. In 1963 the AEC confirmed lower mortality rates in guinea pigs, rats and mice given those doses. In 1964 cows exposed to 150 rads after the Trinity A bomb test were quietly euthenised. More recently follow up studies of A bomb survivors of the Hiroshima and Nagasaki bombs do not refute the idea of hormesis.

Other epidemiological studies have been done for example workers in the nuclear industry and populations living in areas of high natural background radiation, for example radon. Radon is a radioactive gas coming from the ground produced by natural processes. A study by Cohen in the US looked at lung mortality rates in different states and compared this to levels of radon. The results seem to support the idea that mortality rates tend to fall as average radon levels increase, you seem to have a better chance of avoiding lung cancer if there is more radon about! In the Journal of Radiological Protection 18 (Sept 1998) increased immunity to virus infection is mentioned as one effect of hormesis. The IRPA Hiroshima Congress on May 14-19 2000 also dealt with the same ideas and there is much evidence in a similar vein.

The conclusion to this is that hormesis should be more widely known so that it can be evaluated. Statistics can prove anything up to a point but the evidence so far at least deserves our attention. Maybe if those responsible for decisions about nuclear power were more aware about hormesis, we would not be in the situation where in ten or twenty years there will be no nuclear power in this country.

INTERNATIONAL ENERGY FLOWS:

At a time when the war in Iraq seems to be getting worse it is interesting to remember that Iraq is the worlds second largest oil producer and that the Iraqi oil is now, through BP, flowing back to the US. This at a time when it is well known that US dependence on imported oil is increasing rapidly.

Russian hydrocarbon resources have also been in the news this year. Earlier this year the Daily Mail noted that on the very day Mr Blair had his high profile visit to Moscow, Russia announced a new hydrocarbon oil pipeline, not to Europe, but to China! China is set on a large expansion of nuclear power but this will take time and in the mean time China is concerned that the increasing presence of the US in Iraq and the Middle East could give the US too much leverage over oil resources in the region, bearing in mind that China imports 60% of its oil requirements from that region.

China hopes that the new linkage with Russia will negate this possibility. What with Russian hydrocarbons going to China and a considerable fraction of its large resources being kept for its own internal uses just how much gas will be available to power the UK electricity gas generators remains to be seen. (from various press reports).

DAIRY DATES

ENERGY CHOICES CONFERENCE 4 DECEMBER 2003

The third joint British Nuclear Energy Society/Nuclear Industry Association conference will be held on 4 December at the Church House Conference Centre, London SW1 when the keynote speaker will be Stephen Timms MP the Minister for Energy at the DTI. Other speakers will include Tony Cooper Chair of the Nuclear Industry Association, Bill Tynan MP Chair of the all party Parliamentary Group on Nuclear Energy and John McDougall Immediate Past President of the IMechE. This will be a major energy conference. Enquiries to Catherine Carte on 020 8542 7622/8223.

HOUSE OF LORDS SCIENCE AND TECHNOLOGY COMMITTEE INQUIRY INTO THE PRACTICALITIES OF DEVELOPING RENEWABLE ENERGY.

Lord Oxburgh chair of the sub committee undertaking the inquiry said that while the economic aspects were considered in the White Paper the practical engineering and other aspects were not. He said that the purpose of this enquiry was to establish how what is being proposed can be done.

The plan is for a series of hearings open to the public from Jan to March, with a report published in June. The committee are particularly interested in cost effective technologies that are available now and in the next ten years for renewable energy. Also the number of sites available for such technologies and the obstacles to taking these up in terms of: planning and other consents, manufacturing and installation capacity, providing the supporting infrastructure such as access roads and extensions to the electricity network.

STORAGE OF RENEWABLE ENERGY: 27 November 03

The EESG board of the IMechE together with the Power Industries Division are holding this seminar at the IMechE headquarters in Birdcage Walk Westminster. This all day seminar will address intermittency problems and integration into the electricity system, explore pumped storage, examine small embedded and kinetic systems and identify integration of storage with standby and links. To register contact Tina Churcher t_churcher@imeche.org.uk or tel: 020 7973 1258

ENERGY FROM WASTE: 2 December 2003

The IMechE EESG with the Power Division are also holding a one day seminar on energy from waste to be held at the IMechE in Birdcage Walk, Westminster. It will focus on EU/UK directives on power from waste, legislation from industry perspectives, local authority and the constraints placed on them, Gas Turbines and Reciprocating Engines, problems from the legislation. To register contact Tina Churcher as previous.

UPDATE ON INDIAN OIL AND GAS INDUSTRY: 25 NOVEMBER 2003

This meeting will take place at the Energy Institute, 61 New Cavendish Street, London, W1G 7AR starting at 6pm with tea at 5.15pm.

SEMINAR REPORT: SUSTAINABLE ENERGY SOLUTIONS, 11 NOV 03.

The Energy Management Group held a very successful multi subject energy seminar at the Institute where the Rutherford Lecture Theatre was well filled. The seminar was organised by Patricia Thornley and chaired by Terri Jackson. Mr Rob Wright of the DTI gave a summary of the government white paper on energy and this was followed by a lecture on fusion power and its prospects by Dr Jasmin Andrew of Jet. Following this Dr Peter Tanner a founding member of the Energy Management Group gave a talk on his new research on thermionic energy conversion. The final lecture of the morning session was delivered by Rupert Blackstone of Arup on bioenergy generation in the UK.

Following the lunch break Geoff Dutton of the Rutherford Appleton Laboratory spoke on Hydrogen, the fuel of the future, David Infield of the Crest Centre at Loughborough University covered the problems of integrating renewables into the grid system and finally Andy Brown of Progressive Energy covered Clean coal technologies. For those interested in the material covered it is hoped all the presentations will soon be available on the group web site at www.iop.org/IOP/Groups/EG/

BOOK REVIEW by SIMON ROBERTS

Hubberts Peak, the impending world oil shortage by Kenneth S Deffeyes.(Princeton 2001. ISBN 0691090866 £18)

The name of M King Hubbert, an American geophysicist (1903-1989) is attached to a key feature of overall oil production "Hubberts Peak". He observed that oil production in any region follows a bell shaped curve. Initially almost everyone in the oil industry rejected his analysis. Now as oil starts its decline it is seen that Hubbert was right. The critical point is when the peak in the Hubbert curve will occur. Kenneth S Deffeyes summaries recent analysis in his 2001 publication in which he develops the bell shaped approach and uses a plot of growth rate versus production. His vertical axis is the new oil produced in one year as a percentage of the cumulative production up to that year. A logistic behaviour is converted to a straight line by this means, and he obtains a plot of world oil production and discoveries since 1983 as a straight line. The prediction is for the peak to be in 2004 or thereabouts. Very soon the industrialised nations will be bidding against each other for the dwindling world oil supply.

COMPANY SNAPSHOT: CRESTPORT SERVICES LIMITED (CPSL).

Crestport Services Ltd is engaged in providing consultancy and management support services, including interim management, particularly within the energy and energy intensive industries worldwide. CPSL specialises in Strategic Studies, the development of Management Systems and the facilitation of Business Process Management methodologies particularly Business Process Mapping, Analysis and Improvement and when necessary Business Process Re-engineering.

In recent years CPSL has worked especially with oil and gas production companies including Shell(UK, Brunei, and on/offshore Sarawak), British Gas(on/offshore) and Petroleum Development Oman. Apart from CPSL's mainstream work, assignments have ranged from participation in emergency response exercises (Conoco UK & Amoco UK) to providing phased restructuring plans for ADCO's Safety department in Abu Dhabi.

CPSL works in a variety of ways to best meet our clients needs. Increasingly CPSL's consultants become interim members of the client's management team. The company is often invited to participate in assignments being undertaken by other consultancy organisations for their clients. Similarly CPSL has arrangements with individual consultants and consultancy companies to secure specialist assistance when required.

Contributed by Peter Gill the Chairman and Managing Director of CPSL and committee member of the Energy Management Group. Peter can be contacted by telephone on +44 (0) 1306 711120, by fax on +44 (0) 1306 713332, by e-mail at crestport.services@virgin.net or by post to CPSL, Lakeside, Vann Lake, Ockley, Surrey
RH5 5NT.

CONTACT DETAILS: if you are interested in joining the Energy Management Group then please get in touch with either the chair Terri Jackson jacksont@utvinternet.com or the Hon. Sec Patricia Thornley thornleyp@dunelm.org.uk Alternatively contact the Group Officer at the Institute Leah Zeto leah.zeto@iop.org The next issue of the newsletter will be published in the early Spring.