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COVER

Woking's new 'sustainable energy station' - supplies heat, power and cooling to buildings in the town centre. The station includes a 1.35 MWe CHP unit, 1.4 MW of heat fired absorption cooling plant and a 160 m³ thermal store. As well as piping hot and chilled water to local buildings, the station also uses 11 kV 'private wires' laid alongside the heating/cooling mains to supply electricity.

The station is operated by Thameswey Energy Ltd, a public/private sector joint venture company between Woking Borough Council and Hedeselskabet of Denmark.

More details next month. *Energy World's* June issue will also include a look at the energy infrastructure in Finland, where industrial energy users are lobbying for the building of a new nuclear power plant

Viewpoint

Translating good intentions into action



Gaynor Hartnell, coordinator, Confederation of Renewable Energy Associations (CREA)

Renewable energy took a welcome step up the political agenda with Tony Blair's speech on the environment in March. And, with the arrival of a new Minister, Peter Hain, there has been a series of announcements of additional funding and new initiatives over recent weeks. There is certainly plenty for the renewables industry to digest and respond to. The amount of funding

available is always a good measure of political intention, and the money found to supplement the proposed basic Renewables Obligation has now risen from \pounds 43 million to \pounds 266 million over the next three years. This is excellent news, Some of the additional funding has been reallocated from elsewhere within DTI budgets, other money has been sourced from the Capital Modernisation fund, the Performance and Innovation Fund, the National Lottery and MAFF.

Most of this spending is allocated to electricity-generating renewables, although £3 million of the lottery funds has been allocated to small-scale biomass heating and CHP. A PV demonstration scheme has attracted £10 million.

We also hear of a paradigm shift in the way renewables is being viewed by Government. From being considered from the relatively narrow, though important, perspective of climate change mitigation, renewables are now regarded as an important new line of business for UK Plc. The Government wants the UK to have a share in the rapidly expanding global market for renewable energy.

But the industry also wants to get on with building projects at home. Many are sceptical whether the 5% and 10% targets will be achieved, and the UK still languishes at the bottom of the European renewable energy league. A thriving domestic market is essential if these greater aspirations are to be met.,

It was clear from a recent CREA conference focused on 'regional planning targets' that the planning situation for NFFO projects is still a cause for serious concern. However, two very positive things did come from the event. The first was an announcement that NFFO projects which cannot be built, either because of planning difficulties or other reasons, can be relocated without losing the benefit of the NFFO contract.

The second was a suggestion that 'local energy plans', analogous to the 'local mineral plans', could provide the framework essential for implementing the Government's renewable energy targets.

But the main issue for the renewables industry at present is the proposed 'renewables obligation'. We still await publication of the statutory consultation document and draft of the order itself. Many companies are holding back from investing in new projects until the latter is available.

Peter Hain has said that the Renewables Order should be laid before Parliament in time the first period of the Obligation to begin in October this year, despite the implication, buried in the DTI's analysis of responses to its consultation document on the obligation, that the start date could be put back to April 2002. There is still concern in the industry that the timetable might slip.

This is by no means the only significant issue that remains outstanding. The status of energy-from-waste is still undecided, despite overwhelming support for its inclusion in the consultation responses. The options seem to include treating the putrescible content of wastes (on a calorific value basis) as eligible under the obligation, along the lines of the EC Directive definition. Alternatively eligibility could be limited to gasification, pyrolysis and anaerobic digestion technologies, thereby excluding mass-burn methods.

The treatment of waste fuels under the Climate Change Levy has certainly set a precedent for the former approach. Here, energy from waste plant will be regarded as 50% exempt, unless the generator can prove that a greater proportion of the energy content is from non-fossil sources.

Alongside the planning barrier, there is also the issue of accommodating a large-scale increase in the number of renewable generators embedded in the electricity network. The DTI/Ofgem working group on embedded generation noted in its recent report that the current regulatory framework, financial incentives and network design approaches are not conducive to this.

The working group recommended that the structure of regulatory incentives on distribution network operators should be reviewed in the light of their new statutory duty to facilitate competition. This is most welcome, but the timing of the next price control review is too far away in the context of meeting current targets. It is essential that this obstacle be overcome to a tighter schedule.

Meanwhile, the concerns of small distributed generators, that the new electricity trading arrangements (NETA) will harm their projects, were put to Peter Hain soon after his arrival. He seems to have taken these concerns on board and asked the regulator to undertake a review of the initial impact of NETA on smaller generators following the first two months of live operation.

There does seem to be plenty of activity on the renewables front and a genuine will by Government to see things move forward. The additional funding is most welcome, although if the planning climate is not improved, then fiscal incentives to increase renewable energy deployment will not be effective.

The Government also seems to be developing an understanding of the complexity of deploying renewables, as evidenced by the reviews it has initiated with embedded generation and planning targets. What is needed now is for these good intentions to be translated into concrete action. **Contact Gaynor Hartnell on tellfax: 01273 472468, e-mail: ghartnell@enterprise.net**



The US administration's decision to abandon America's commitment to the Kyoto Protocol has created the most serious international environmental policy crisis in many years, according to President of the US-based Worldwatch Institute, Christopher Flavin. The move puts at risk a decade of efforts to craft an agreement to protect the world from climate change.

The American objection to Kyoto is that the Protocol does not treat countries the same, requiring the developed nations to take a lead by cutting just their own emissions of greenhouse gases. Such a move would damage the US economy, says the Bush administration, and leave India and China to continue to emit carbon dioxide and other gases as they wish.

First indications of the US move were contained in a letter from President Bush to four US Senators which said "As you know, I oppose the Kyoto Protocol because it exempts 80% of the world, including major population centres such as China and India, from compliance, and would cause serious harm to the US economy". Vice President Dick Cheney, who heads a task force looking at improving the security of US energy supplies, confirmed the line taken by Bush.

Reaction by European Governments was strong, with the European parliament's green group calling for a boycott of American oil companies. Reactions by environmentalists was even stronger, but many agreed that European and other countries should now carry on and try to ratify the Protocol without participation by the US.

"The world cannot afford to wait for another climate protocol to be drafted", said Flavin. "The Kyoto Protocol isn't perfect - largely because of loopholes insisted on by the previous US administration - but it's all that's standing between us and a future of more severe storms and rising sea levels. It is time for Europe and Japan to call the US bluff and adopt the Kyoto Protocol, perhaps abandoning some of the problematic elements insisted on by the United States".

The US is the key player in the climate problem, accounting for one-quarter of global carbon dioxide emissions and nearly half of the increase in emissions since 1990, according to the Institute. The best way to bring the US into the climate treaty process at this point is for other countries to proceed with Kyoto, says Flavin, leaving the US to join later when political circumstances have changed.

Although President Bush has argued that the Kyoto Protocol could damage the US economy, not implementing the treaty would actually be more damaging, says Flavin. "In the end" he adds "those countries that address climate change earliest will dominate the massive new energy technology markets of the new century - and create millions of jobs in the process."

Attention will now shift to the resumption of talks in Bonn in July, when prospects for the ratification of the Protocol will perhaps clear a little.



The world's largest offshore oil platform, Petrobras' P-36 platform operating at the Roncador field offshore Brazil, sank after three explosions on board killed 10 people. A Commission of Inquiry has been established to investigate the causes of the accident, with early attention focused on the platform's gas venting system.

Power and desalination in the UAE

The Siemens Power Generation Group (PG) is to supply three gas turbines, two steam turbines, five generators, and the electrical and instrumentation and control equipment for the Jebel Ali power plant complex in the United Arab Emirates. The seawater desalination plant linked to the complex is also to be fitted with instrumentation and control equipment form PG.

Meanwhile, the company's Power Transmission and Distribution Group will provide the high-voltage switchgear for the new combined-cycle power plant. The plant will have an electrical capacity of 850 MW and desalinate $230,000 \text{ m}^3$ of sea-water daily. The total value of the orders for Siemens is around EUR140 million.

The purchaser is the Italian power provider Enelpower, which as general contractor is building the entire plant together with the Italian Fisia Italimpanti, the company responsible for the desalination plant.

Jebel Ali is located around 50 km from Dubai and comprises a number of power plant units and desalination plants with a combined electrical capacity of almost 2,000 MW and a daily production capacity of 530,000 m³ of desalinated water.



California blackouts 'to continue in the summer'

California's electricity crisis (see Energy World March 2001) looks set to continue, with US Energy Secretary Spencer Abraham suggesting that summer blackouts in California appear to be inevitable. Electricity market analysts are suggesting that California may experience anything from 20 hours of rolling blackouts to 200 or more hours this summer.

Secretary Abraham's comments came as rolling blackouts again struck California in March. A combination of hot weather and low generating capacity contributed to the blackouts, which affected roughly 500,000 homes throughout the state. Financial problems are at least partly to blame, as many small generating companies are refusing to continue supplying power to the electric grid. Many of these independent power generators - a group that includes the state's renewable energy industry - have not been paid for their power since October of last year.

The crisis in California was caused by a combination of circumstances unlikely to occur elsewhere, according to the International Energy Agency, but the experience has demonstrated that electricity market reform should be about reliable supply and adequate investment in generation and transmission, as well as promoting competition.

California liberalised an electricity system already characterised by tight supply, rapidly rising demand and limited transmission capacity. This was exacerbated postliberalisation by continued rising demand, inadequate investment and lengthy licensing procedures for new plant, and tight controls on retails prices which muffled market signals. When wholesale prices soared, some utilities found themselves in an untenable position, says the IEA, and rolling blackouts were the result.

In an effort to cut power consumption, Californiais state Governor Gray Davis has offered California businesses and homeowners a 20% rebate on their summer electricity bills if they manage to cut their electrical use by 20% compared to last year.

· Meanwhile, the Los Angeles City Council is to purchase sufficient electricity from renewable sources to supply 10% of the city government's needs. The purchase, amounting to 50 TWh electricity per year, is one of the largest ever US purchases of green power. Combined with previous commitments from LA World Airports and the city's water system, Los Angeles government agencies will be buying more than 70 TWh per year of green power.

High voltage generator connects

Power from a new CHP plant at the city of Eskilstuna, central Sweden, is supplied directly to the 136 kV grid, without an intermediate transformer, from a new, high voltage 'Powerformer' generator from ALSTOM. The installation, opened by Swedish Prime Minister Goran Persson, is the first to thermal power application for the technology.

The generator has a speed of 3000 rpm and a rated output of 42 MVA, equivalent to the electricity requirements of 10,000 households.

The first Powerformer, a prototype that was installed in the Porjus hydropower station on the Lule River in 1998, has so far exceeded 11,000 hours of service, says ALSTOM, and two further machines will be handed over this year at hydropower stations in Sweden.

The high voltage generator at Eskilstuna is directly connected to a 136 kV substation on the grid. The whole system is very compact since there is no step-up transformer or medium voltage switchgear, giving greater availability and higher efficiency, according to ALSTOM.

The CHP plant serves the city of Eskilstuna, 90% of the properties in which are connected to the 240 km long district heating network. Previously, the municipal utility had to import all the power that it distributed but the electricity output of the CHP plant (around 180 GWh) will



The 'Powerformer' high voltage generator at Eskilstuna

meet about a quarter of its customers. The plant is fired with biofuel chips - wood cuttings, waste from the local forest industry and sawmills, etc, and this benefits from Goverment subsidies aimed at biomass fuelled CHP.



Around 100 proposed renewable energy developments which have stalled for local planning reasons are to be allowed to be relocated without losing their revenue support, thanks to an intervention by new Energy Minister Peter Hain.

"Relocation of those green energy projects which have been proposed under the Non Fossil Fuel Obligation (NFFO) but failed to obtain planning permission will now be possible, without the developer losing the benefit of their NFFO contract". An independent survey has suggested that around 100 projects, typically wind, landfill gas and hydro, could go ahead as a result. Examples of multi-million pound projects that should now be able to proceed include the £12 million, 15 MW High Moor wind farm in County Durham being developed by National Wind Power and the 6 MW Victory Mill energy crop project being developed by Border Biofuels, says the DTI.

Mr Hain said that the move would: "play a big part in ensuring the uptake of green energy in the next few years and help us to reach our target of 10% of energy supply from renewables by 2010".

The NFFO mechanism obliges electricity suppliers to secure a specified amount of electricity generation capacity from specified renewable sources and compensates them for the additional price by means of a fossil fuel levy. However, the Government decided last year to move away from NFFO to a market-led approach under a 'renewables obligation' which will provide an assured market for renewables until 2026. The Government has completed a preliminary consultation on the proposed obligation, the principle policy mechanism for achieving the 10% target.

Meanwhile, added Hain: "The green energy agenda is moving forward rapidly. New freedom for NFFO projects, combined with the introduction of regional strategies and targets ensures that renewables projects can be brought on stream more rapidly while still paying closer attention to local concerns".

Peter Hain has also announced proposals to streamline the consent process for new offshore windfarms, with a 'one-stop-shop' at the DTI replacing existing arrangements under which developers have to make up to seven different approaches to gain the consent they need. The proposals mean that DTI will produce a single application form for the offshore consents and help to seek solutions to any problems that developers come across as they try to gain consent.

Offshore wind - 18 proposed new wind farms were announced as Energy World went to press. Details next month.

THINK @bout London: electric cars for the city

London's roads should see a new fleet of 15 electric cars by this summer as Ford launches its 'TH!NK @bout London' pilot sustainable mobility programme in partnership with Friends of the Earth and TransportAction PowerShift. The programme will be part of a larger partnership initiative to study the future of what Ford calls sustainable mobility.

The company is now looking for creative and innovative businesses and organisations based in central London to take part in the programme. These organisations will be offered one of 15 TH!NK City electric cars at a highly attractive rate and be asked in return to provide feedback on how the vehicles are used, ways in which they help to solve city transport problems and report on the car's general performance. The two seater TH!NK City car is silent, produces zero emissions in use, has an acceleration of 0-50 kph in less than seven seconds and a top speed of 90 kph.

Ford's Jakob Alkil explained: "The marketing strategy is to target cities rather than countries because the TH!NK City is designed specifically for use in urban traffic. Its polyethylene body offers scratch and dent resistance, it is small, under three metres, quiet and has no emissions. In short, it's the perfect city car. We would envisage that a typical application of the vehicles would be light delivery work or intra-office transfer. The cornerstone of the programme is that the electric vehicle usage will repla reliance upon a traditionally fuelled vehicle"

 Ford also launched what it calls "the first hydrogen powered car to be driven on British roads" at the same event.

Already on the streets of London is this five tonne electric vehicle being tested by Parcelforce Worldwide.

Offshore contract 'secures 4,000 jobs'

A £300 million contract involving AMEC and Shell to build an oil-processing module for Nigeria, the largest ever overseas offshore contact won by British contractors, will deliver a major boost to UK manufacturing, create over 4,000 jobs and inject £100 million of work in the UK supply chain, says the DTI.

The building of the module is part of the \pounds 1.6 billion deepwater Bonga development which will process 225,000 barrels of oil a day. It means, adds the DTI:

- I,000 jobs at AMEC's Wallsend yard on Tyneside;
- 1,100 employed by subcontractors in the North East, including up to 750 at Heerema's yard in Hartlepool;
- 1,600 jobs in small and medium-sized contractors and suppliers throughout the country; and
- 300 jobs in London in engineering and project management.

The jobs include highly specialist electrical and mechanical engineers and draughtsmen, as well as platers, pipefitters, welders, electricians and instrument technicians.

Trade and Industry Secretary Stephen Byers stressed the strategic importance of the contract, for the first major development in deep waters offshore Nigeria: "It will put the UK in an excellent position when it comes to winning future contracts in the country, as well as other deep water projects because we will have the relevant technology and expertise".



Durham County Council is one of the latest recipients of a 28 kWe MiniGen CHP installation from Advantica, formerly BG Technology. Powered by a Capstone Microturbine rather than a reciprocating engine, the unit produces 28 kW of electricity, with turbine exhaust heat being used to produce 50 kW of medium pressure hot water to supplement the output from the existing central heating boilers.

Available in a range of configurations from 30 to 500 kWe, the MiniGen package can be applied in single unit or multi-pack unit configuration across a wide range of public and private sector applications including offices, leisure centres, educational establishments, hotels, hospitals, retail premises, and horticulture, says Advantica.

The company projects reductions of up to 20 tonnes per year in emissions of carbon dioxide in Durham, and energy cost savings of some £5000 per year.

UK 'could exceed its renewables target'

The UK could exceed its target to generate 10% of electricity from renewable Sources by 2010, according to Forum for the Future's Professor Paul Ekins, speaking at a conference organised by the Royal Institute for International Affairs in March.

His research suggests that the UK could achieve 13% of its electricity generation from renewables by 2010, and 30% by 2020, at a cost of less than 4.3 p/kWh. This would reduce carbon emissions by 4.6 million tonnes of carbon (mtC), more than 3%, by 2010, and 23.1 mtC, more than 14%, by 2020.

According to modelling by FFF, the technologies which would make the main contribution are onshore and offshore wind, energy crops and agricultural and forestry waste, while new industries also develop in extracting power from wave and tidal currents. By 2020 offshore wind would generate more electricity than coal and nuclear power combined.

However, the most significant result was that this huge growth in renewable electricity would actually yield a modest increase in economic output, rather than be a drain on the economy. Using the economy-energy-environment model of the UK, managed by Cambridge Econometrics, the research shows that output in 2020 would show a small increase (0.01%) because of the renewables programme.

The conference concluded, said Ekins, that renewables "could deliver" both technologically and economically in the UK, but it is still not clear whether if there is sufficient political will to fashion the necessary policies. Alternatively, the

Government could fail to meet

its 10% target unless it encourages the development of more coal mine methane projects, according to Dr Cameron Davies, launching a new Association of Coal Mine Methane Operators (ACMMO). The Association represents 13 companies involved with the extraction of methane from disused coal mines for use in power generation.

Dr Davies said that the young industry was already supplying sufficient methane for 30 MW of distributed electricity generation at five sites across the East and West Midlands and Yorkshire and, as a result, capturing emissions equivalent to the removal of about 160,000 cars from the roads.

Another eight projects are expected to come on stream by the end of the year, while there is scope, says ACMMO for up to 750 MW of capacity by 2005.



Installed at Sainsbury's distribution depot in East Kilbride, Scotland, this 600 kW machine is Britainís first fully commercial, non-subsidised on-site wind turbine, according to developer Next Generation. The company builds, owns and operates the turbine under its 'merchant wind power' scheme, with Sainsbury buying the power generated at a no-premium



Axonometric of the proposed design for a new Eco Centre park-and-ride facility planned by Sefton Borough Council for Southport's sea front on the north west coast. The crescentmoon shaped building, which will include an 'energy tower' housing a wind turbine, PV and thermal solar panels, will generate as much energy as it consumes, according to architects Cass Associates in Liverpool. It will use an importexport electricity grid connection to balance generation and use. The main south-facing facade is fully glazed (with lowemission double-glazed units) to give clear views of the buses, good natural light and solar exposure. Excessive solar gain is controlled by an overhanging canopy, which also shelters passengers, and by a south-east orientation, which maximises solar gain in the morning but minimises peak inputs. The north facade has a concrete block internal leaf, which provides thermal capacity and structural stability. The building has been designed to have a very low energy consumption. Roof and wall U- values are 0.22 and 0.28 w/M²K respectively.

Forty climate change agreements; no State aid objections to Levy

UK energy intensive industry sectors have now

signed more than 40 agreements with the DETR to cut carbon emissions, largely concluding the negotiations for climate change agreements. The DETR announced the first 15 sectors in mid February.

Industries covered by the agreements are eligible for an 80% discount in the rate of Climate Change Levy, which came into force at the start of this month. The 80% discount is designed to protect the competitiveness of the energyintensive sectors while giving them an incentive to improve energy efficiency further.

Almost all the eligible sectors have now signed agreements, including the largest energy users such as steel, chemicals, paper and cement, with just three sectors still to conclude deals.

The Climate Change Levy package is expected to lead to savings of five million tonnes of carbon per annum by 2010. Half of this is expected to come from the Climate Change Agreements and the targets energy intensive industries have set to cut emissions.

Energy Minister at DETR Lord Whitty said: "In total, this commitment means that by 2010, the agreements will represent cuts in carbon emissions of over 2.5 million tonnes of carbon a year. Not only will businesses be helping to protect the environment, they will also reap the financial benefits of using energy more efficiently and cutting their energy bills. This is a win, win situation for businesses and for the environment."

At the last moment, just days before it came into force, the European Commission has decided not to raise objections under the EU State aid rules to the main elements of the Climate Change Levy.

The Commission decision not to raise objections to the four types of exemptions either because they are not deemed to be State aid (exemption for electricity from renewable sources and for 'good quality' CHP) or else because they are compatible with Article 87(3) of the EC Treaty (exemption for public transport and rail freight, exemption for companies entering into Climate Change agreements).

However, on one point, the Commission has decided to open the formal State aid investigation procedure. Under the current UK legislation, energy used partly for fuel purposes and partly for non-fuel purposes, for example in a chemical reduction, will be exempt from the CCL. The Commission wants to consider further whether this exemption constitutes State aid and, if so, whether it is compatible with the Community's State aid rules.

 Ofgem has published a list of 396 renewables generators deemed to be eligible for examption under the Climate Change Levy.

Education and training - key priorities for us all

Education, education and education - the first priorities of the present Government, as spelled-out in the run-up to the last election. A key priority for the Institute too, as articles on the next four pages will show. This feature illustrates the Institute's forward thinking and subsequent leading position as a sign-poster to, and deliverer of, education, training and professional recognition. And not just for degree-educated engineers, but for a very wide range of people working in, or close to, the energy industry.

'Getting back into the habit of training'

When the Secretary and Chief Executive of the Institute of Energy Louise Kingham asked Environment Minister Michael Meacher how he envisaged business putting these words, which were his words, into practice recently, his response was to ask for the Institute's help.

Louise Kingham had asked the question of the Minister in a full auditorium at a recent conference. Mr Meacher was giving a keynote 'Kyoto' address when he made this important statement. Louise pursued the point partly because she was surprised to hear the reference to training being made by the Minister, but most importantly, because education and training, in all senses of learning, are key priorities for the Institute of Energy, to support its members and society.

On the down side, today's learning opportunities are fragmented, to say the least, with the continuous reorganisation of learning institutions, their agendas and a sometimes perceived 'heavy hand' of Government influencing key strategic change in the education system. The up side is that we now have diversity, flexibility and choice as individuals, to take responsibility for our personal development or, as employers and educationalists to be responsible for the development of others.

This, of course, is with the proviso that we are all aware, and understand the choices available to us - a point where many of us fall down, even those who spend their days within the education world. Corporate universities, various onestop shop websites, Learning Skills Councils and the University for Industry, among others, are all either sign-posting or directly offering learning opportunities. These are in addition to the opportunities more traditionally accepted and understood, offered by colleges, universities and adult education centres.

So what is the response and the role of a professional body such as the InstE within this new education world? The answer our traditional services must be reinvented and new ones introduced to accommodate this new diversity and flexibility. If we try to impose the rigidity of days gone by, we will no longer be relevant. The key point here is that this can be done without compromising professional standards. Some of the other articles in this feature begin to indicate how this is achievable.

The Institute is an impartial facilitator and sign-posting organisation as well as a training and education provider. As a result of the clear thinking of its home grown expertise in this area, the Institute has been commissioned, by the Energy Efficiency Best Practice Programme, to undertake a study of the provision of energy efficiency training and education in the UK. The results from this will begin to support the Minister's quest to get business 'back into the habit of training' by clearly defining the roles we all have to play and clarifying the current availability and future needs for training and education in this one discrete, but critical, subject.

If you would like to know more or participate in the study, please contact my colleague Tracey Fisher by email at tfisher@instenergy.org.uk

Student membership: more than just a magazine

Student membership of the Institute costs just £15 for the entire duration of your undergraduate studies, so you could be paying less than £4 a year for all the benefits that your professional body can offer. But just what are those benefits? Maybe ten issues of *Energy World* each year are enough to keep you happy, but there's an awful lot more that the Institute could be doing for you, even before you've embarked upon your career as an energy professional.

You might have read in the Institute's

literature that it "promotes the cost effective and environmentally responsible provision and management of energy in all its forms". But how does this relate to you as an individual member? The answer really lies in Professional Development, and the support that InstE provides in this area. It's by looking after the needs of the individuals who make up the energy sector that the Institute can contribute to that sector's overall effectiveness.

By studying an accredited or approved course, you have already taken the first

step to professional recognition. But this 'educational base' is just one of three pillars on which InstE membership and Engineering Council registration rest. The others are Initial Professional Development (IPD) and responsible experience.

The Institute will support you throughout your IPD - the first two years or so after graduation - by providing a logbook in which you can record and have your development verified by a mentor. This is supplied to all members when they upgrade from Student to Graduate. Of

Where there's a will there's a way

Professional bodies are not renowned for being the most flexible of organisations, perhaps with good reason. After all, much of their work is concerned with upholding the standards of the professions that they represent. Thus those who do qualify for membership can be properly regarded as having met certain criteria of knowledge, skill, commitment, and so on. This constitutes a major part of the value of belonging to an organisation like the Institute of Energy.

But the Institute sees itself as a progressive body, and although it is committed to upholding the standards of those working in various energy-related disciplines, it does not want to erect barriers on the path to membership and the resultant professional recognition. The importance of where one qualified is diminishing, whilst that of competence is increasing. This is why there are a number of 'non-standard' routes to membership open to those who may not come from a 'traditional' academic background.

Take, for example, Bob Olding CEng MInstE. Bob is the Senior Building Services Engineer at Bournemouth Borough Council, where he's worked for the last twenty-one years. He started his career as an electrician in the early eighties, and over the course of four years, gained a number of City & Guilds certificates in disciplines including Electrical and Electronic Craft Studies and Electronic Servicing. By the mid-nineties, Bob had worked his way up to the position of Illuminations and Lighting Engineer.

But it wasn't only at work that he had been progressing. Bob had taken his professional development seriously, and

course we'll also provide any individual advice that you need on how to meet the standards for whichever grade of membership or registration you're aiming for. Just contact the Membership Department with any questions.

And once you have your IPD under your belt, the same support is available during the time in which you are gaining the requisite responsible experience. The Institute can always advise on how to meet spent eight years studying for an Open University BSc, which he was awarded in 1995. Anyone who has studied by distance learning will know that this is no mean feat. What it illustrates is that even if you didn't go to university straight from school and thus embark on your career path as a graduate, with commitment and enthusiasm you don't have to be at any disadvantage as a professional.

Bob's BSc allowed him to join the Institute as an IEng AMInstE in 1998, so you might think that this was the end of a successful story. After gaining his undergraduate qualification, however, Bob went on to study for an MSc in Building Services Engineering at Brunel University, prior to which he completed a foundation course for entry onto the programme. He was duly awarded his Masters in 1999, and via the Individual Case Procedure (ICP) route, was elected to CEng MInstE last year. Through a combination of undergraduate and postgraduate modules, he satisfied all the educational requirements for Corporate Membership and Chartered Engineer registration. Although it took time and effort, his case demonstrates that this level of professional recognition is attainable no matter what your starting position. As a footnote to Bob's case, it's worth pointing out that all of his training was sponsored by his employer as part of its commitment to CPD, and that as a result of his efforts he was nominated for the Council's Trainee of the Year Award.

The distance learning degree route isn't the only way for those who didn't attend university to gain professional recognition and the designatory letters that denote it.

the prescribed standards whilst ensuring that the career path you're taking is providing for your own personal development too.

If you want something more structured than one-off advice, you might like to investigate the Institute's CPD Planner, or for those working in the relevant field, the CPD Manual in Managing Energy. Both of these products will help you to identify goals, plan ways of achieving them, and In its efforts to provide routes to membership for all energy professionals, the Institute has established itself as a delivery centre for the level 4 National Vocational Qualification (NVQ) in Energy Management. Although it's difficult to draw direct comparisons between vocational and academic qualifications, it's widely accepted that a level 4 NVQ is equivalent to an undergraduate degree in terms of the level of understanding and knowledge required.

For this reason, the Institute has determined that those who successfully complete the NVQ will satisfy the academic requirements for membership at AMInstE level. In addition, the evidence submitted may well demonstrate that they meet some of the additional requirements for relevant experience and professional responsibility.

Two people who have certainly demonstrated these qualities are Dave Robertson, Energy Manager at ScottishPower's Longannet Power Station, and Dave Wood of Rolls-Royce. Both have recently been awarded their NVQs. The external verifier commended the quality of Dave Robertson's portfolio, and suggested that it should be used as an exemplar for new candidates on the scheme. This is all the more impressive, given that Dave completed his qualification in just six months: an Institute record!

So if you feel that your competence as a professional isn't being recognised as it should be, there are ways to put this right. Contact the Membership Department at membership@instenergy.org.uk or on 020 7580 0077 for advice relating to your particular situation.

then record your progress, in a continuing cycle. You can also look at the CPD pages on the new InstE web site, for both general advice and details of events or activities that may be of benefit.

So, much as Energy World is a valuable resource for younger InstE members, don't just sit back and wait for information to come to you. Be proactive, develop yourself, become more employable, and let your Institute support you all the while.

Fellowship - what's it all about?

hat vision does 'Fellow of the Institute of Energy' conjure up for you? A learned professor of energy? A senior Chartered Energy Engineer with many years of industrial experience? Both are examples of Fellows within the InstE but they are not the only people you'll find in fellowship. You may be surprised to learn that the criteria for fellowship requires individuals to be a minimum age of 33 years, with an education to honours degree level and five years experience in a position of superior responsibility in an energy related role. Of the 650 Fellows in InstE membership, 40% are involved in the political, legal, financial, economic and management aspects of energy.

John Reynolds, Head of Utilities with Credit Suisse First Boston, is a perfect example of one of the Institute's new young Fellows. At just 34 years of age, John is responsible for all matters pertaining to European and Asian utilities within his organisation. He first became involved with the InstE as one of the keynote speakers at the 2000 Energy Policy Conference. John was invited into fellowship via the Eminence Route - the invitation route for those senior energy professionals who satisfy the Fellow criteria. provides the individual with professional recognition for their achievements in the energy world, but also offers them the opportunity to put something back into the profession by working with the Institute in many areas of activity. For example, they might provide technical or professional development case studies or articles for publication. They might speak at events, conferences and seminars. They might participate in InstE standing committees or develop and deliver education and training materials and courses.

Jeff Scott CEng FInstE is the Director of Market Development for NGC plc and responsible for NGC's role in delivering the new electricity trading arrangements (NETA). It is in this capacity that Jeff has worked with the InstE to develop the programme for a soon to be announced conference on the fallout from the introduction of NETA, planned for the autumn of this year. He also agreed to join the Executive Committee in order to contribute to the future strategy and direction of the Institute.

A new route into fellowship, for which the InstE has just been awarded a license, is the Senior Route to Chartered Engineer registration. This, again, is an invitation route into fellowship, designed for those senior energy engineers of at least 45 years of age, working at or near board level, having gained a minimum of 20 years experience in an energy engineering environment, seven of which have been in a position of superior responsibility. These individuals have previously been unable to gain Chartered Engineer registration because they do not possess the traditional academic qualifications. However, this new Senior Route enables the invited individuals to be awarded CEng status by virtue of their senior experience and responsibility.

The InstE very much welcomes the opportunity to work with, and benefit from, the expert knowledge and experience of the energy professionals within its fellowship. If you would like more information about the opportunities available for Fellows to contribute to the development of the energy world, or would like to know more about either joining or transferring to the grade of Fellow, please contact Tracey Fisher, the Institute's Deputy Secretary & Chief Executive, at tfisher@instenergy.org.uk or on 020 7580 7124.

Fellowship of the InstE not only

We are all energy managers

You don't have to be an Energy Manager to be an energy manager. Confused? Don't be. In fact, we all manage energy all the time: in our homes and our workplaces. It's just that most of the time we don't realise that we're doing it. But the Institute is helping to make all sorts of people more aware of energy management and energy efficiency issues through its workforce training programmes. To the dedicated Energy Manager, much of this sort of material might seem like little more than common sense, but most of us don't have any explicit responsibility for energy in our job description, so it's little wonder that we don't give it as much thought as we could.

The efficient use of energyis , of course, especially pertinent at the moment.

The Climate Change Levy has raised energy to the top of business agendas across the UK. This means that a huge number of people now have to consider energy issues in order to help their organisations to meet their Negotiated Agreement commitments. As last month's Viewpoint from Philip Ward noted, every organisation that has signed an agreement with DETR has to nominate somebody to take responsibility for energy, and must also develop a plan to make continuous energy efficiency improvements.

Workforce training can play a big part in such plans, and is already doing so in those organisations which have taken up the offer of help from the DETR EEBPpfunded and InstE managed workforce projects. Workshops are being run and materials disseminated to help nonspecialists to identify and reduce energy use and other resource waste. And, of course, support is available from the InstE for these non-specialists. They can join the Institute as Associates and keep abreast of all that's current on the energy scene. Or for those with some relevant qualifications and experience, the new Technician Member (TMInstE) grade can provide the same professional recognition afforded to other membership grades and, if appropriate, offer registration as an Engineering Technician as well.

But it's not only organisations affected by the Levy that can gain from workforce training. The Energy Efficiency Best

The 'individual case' route to CEng

by Stephen Butler MinstE

This article describes the experiences of an Open University graduate who successfully achieved both corporate membership of the Institute and chartered engineer status, under the old SARTOR 90 requirements. Since the Open University does not offer a specialist degree in fuel science or energy engineering, there is no automatic qualification for corporate membership of the Institute - cases are assessed using the 'individual case' procedure.

Open University students are usually mature students in full-time employment who are studying part-time and this was the case with me. During my studies I was encouraged by the understanding that both the Institute of Energy and the Engineering Council accept that the Open University has an important role to play in the education of professional engineers - a role which complements the full-time study route undertaken by most engineering students who achieve chartered engineer status.

My energy/engineering experience began with 22 years working in the electricity supply industry, where I was the Electrical/Instrument Maintenance Engineer at Belfast West Power Station. After accepting a voluntary severance package I have spent the last five years working for DD Butler Ltd, a local instrumentation sales company. My current project is a joint venture on energy management with the former REC, Northern Ireland Electricity.

In general terms, for corporate membership of the Institute I had to meet its requirements for academic qualifications, training and responsible experience. Also, all three elements had to conform to the

Practice Programme/InstE 'Learning Toolkit' has raised awareness of energy matters in organisations as varied as the Royal Borough of Kensington and Chelsea, Rolls-Royce and South Yorkshire Police. The components of the 'Toolkit' range from simple discussion-starters like the 'action agenda' sheets on heating, lighting, water and compressed air, through to full-day interactive workshops during which staff can really explore the possibilities for streamlining their operations, and leave with a framework within which they can continue to do so.

The possibilities for workforce training

requirements of the Engineering Council before I could be nominated for registration as a chartered engineer. Additionally Open University students must pass T401 Technology Project, the successful completion and reporting of this major project being an essential requirement in this route to chartered status.

Note that the Institute of Energy will give guidance on the Open University degree profile that should be followed in order to obtain membership, including the implications of the new SARTOR 97 requirements. Also, it is strongly advised that you submit the technology project for assessment - this is to ensure that the project is likely to be acceptable. I found the staff at the Institute most helpful in discussing these matters.

By 1999, I was ready to apply to the Institute for corporate membership, and to the Engineering Council for chartered engineer status. By this stage I had completed an Open University BSc (Hons) degree, including the T401 project entitled: Automatic combustion control on a travelling grate boiler, using oxygen analysis as a control parameter.

Incidentally, my academic background

are as varied as the range of organisations using energy. The Institute can design a package to suit your staff's level of expertise, your products and processes, your premises, and your needs. A small investment in your people could pay huge dividends when it comes to your bottom line, and your responsibility to the environment and society. All you need to do is help people to realise that we're all energy managers.

To find out more about workforce training and awareness, contact Rob Wall at education@instenergy.org.uk or on 020 7580 7124. on entering the Open University in 1992 was an HND in electrical/electronic engineering. After studying a number of technology based subjects, including the T401 project, I graduated with BSc (Hons) in 1998.1 then decided to continue studying to MEng level, which I completed in 2000. Even though I qualified under the old SARTOR 90 requirements and did not require MEng, I felt the additional work involved to be very worthwhile.

In November 1999 I was invited to attend the professional review interview, at the Institute's head office, in London. The interview panel consisted of two representatives from the Institute and a third person representing the Engineering Council. The interview was conducted in two stages - the T401 Project and then the professional interview for the grade of Corporate Member.

The interview lasted for two hours and covered an in-depth examination of the T401 project along with a more general engineering discussion, in order to determine my knowledge and ability and level of responsibility expected for corporate membership.

Let me at once reassure potential the interviewers who immediately put me at my ease.

I am pleased to report that I was recommended for Corporate membership of the Institute and registration as a chartered engineer with the Engineering Council.

In conclusion I would encourage Open University (and other mature/part-time) graduates, as well as those currently studying, to continue to make use of the ëindividual caseí procedure route for chartered engineer status. It can be a long road, but one well worth travelling.

Training to tackle fuel poverty

First steps to help thousands of West Midlands householders were taken recently as energy company npower, the retail brand of Innogy plc, launched a new training programme to be delivered to an initial 2000 Birmingham and

Wolverhampton NHS Trust health visitors.

The training is part of the £10 million Health Through Warmth (HTW) scheme currently running in the West Midlands and is being delivered by a partnership of npower, NEA (National Energy Action charity) and Birmingham and Wolverhampton NHS Trusts.

The training teaches npower and NHS staff how to identify those most at risk from cold-related illness caused by living in cold and damp conditions and what action can be taken to bring relief. It will also provide course participants with information on the grant aid available and advice on paying for fuel and fuel debt problems.

Once NEA had trained npower Health Through Warmth staff, the npower staff



began an 18 month programme of training on average 15 NHS health visitors each week.

Last year, employees of npower became the first utility employees in the country to receive National Vocational Qualifications (NVQs) for providing energy efficiency advice and information. NVQ training was also carried out by national energy charity NEA.

Seven npower Energy Efficiency Advisers have specialised in offering energy-saving advice in visits to their clients' homes.

Assessing school energy use

The DETR's Energy Efficiency Best Practice programme has launched a new tool - ASSESS - to give students practical experience of undertaking an energy audit and survey of a school.

ASSESS is a set of guidance notes which can be incorporated into the final year of university courses of undergraduates whose studies include building services or building surveying. It has been developed to address two separate needs:

- a teaching module describes the topics that should be covered during an energy survey and also contains advice for reviewing energy bills and calculating benchmarks, and
- a student module contains guidance for students to carry out real audits of schools. The students produce a report for each school that is surveyed, and this includes practical energy saving

recommendations with estimated payback periods. Appropriate Energy Efficiency Best Practice programme (EEBPp) literature is available to the students for inclusion as an appendix to these reports.

ASSESS has been approved by the DfEE and piloted by Coventry University working with Coventry City Council. The pilot proved to be a great success with the students providing useful information and positive feedback to the Council and the schools. Students benefited from the practical experience of auditing schools, the university gained from the use of training material and the benefits of student participation within the community, and the schools benefited by receiving a free audit.

The preliminary sections of ASSESS focus on an analysis of historic fuel consumption for the school. These exercises are desk based and include comparisons of calculated school performance indicators with good practice benchmarks, and a range of other statistical techniques to identify priorities for the site survey. The second stage is the site survey. The guidance notes for the surveys have been produced as a set of modules. These cover a range of headings such as boiler house controls, lighting loads, and savings through small power use.

It is intended that the audits are carried out by a group of between 4-6 students who determine between themselves how they work together to complete a full survey of a school.

For further information about ASSESS, contact the Environment and Energy Helpline on FREEPHONE 0800 585794

Higher gas prices rescue coal; future may be in gasification

What is the future for British coal? The outlook is brighter than many people think, concluded a recent seminar, and may brighten further if coal gasification projects begin to take off. Here, Steve Hodgson reports from the Wakefield seminar, Andrew Cox describes a gasification project planned for the north east, and we also describe a coal-bed methane project.

Curiously it is the currently high price of natural gas which has revived the fortunes of UK coal to the point where the industries now faces opportunities, rather than challenges, said Michael Clapham MP, chairman of the UK Parliamentary Coalfield Group, who chaired the morning session.

Subsequent speakers were remarkably consistent. Last yearis hike in gas prices had put coal back into economic contention and, anyway, coal has to have a major presence in the UK scene to supply the diversity of fuels required by Government. The mantra which is a summary of the Government's overall energy policy: "to ensure secure, diverse and sustainable supplies of energy at competitive prices" was regularly referenced.

The sticking point is still the environment, or sustainability, or, to simplify things - coal's carbon content and potential contribution to global warming. Speakers were less consistent here, but the merging consensus seemed to be that large-scale gasification of coal, possibly carried out *in situ*, underground, could be the way forward.

But first, the RJB side-show. The seminar was held just a week after chief executive Richard Budge had suddenly left the company named after him, leading to considerable speculation as to what his departure meant.

Standing-in for Richard Budge was RJBis Director of Generator Sales, Nigel Yaxley, who started out by saying he would deliver pretty much the same paper as Budge would have done, but: "perhaps with less panache".

The UK power station coal burn rose by 14% in 2000 due to higher gas (and oil) prices, said Yaxley, showing that coal could, and had done, pick itself up off the floor.

Coal would confound the projections in the DTI's Energy Paper 68 that gas would account for 75% of the electricity generation market by 2020, he added, on fuel diversity grounds. Neither the nuclear nor renewables industries could deliver diversity in the short-term, said Yaxley. Britain and Europe's nuclear capacities are falling as existing plant is retired and no new plants are scheduled; while the best renewables could possibly do by 2010 is to achieve 10% of UK electricity.

The increased use of indigenous coal would also help cut energy imports to Europe, which already stand at 50% of total demand and are projected to rise to 70% by 2030.

But to achieve a greater coal burn demands cleaner plants, with carbon capture and sequestration in the longerterm. Clean coal needs Government support, said Yaxley, but this does not have to be in the form of capital grants. RJB suggests a 'clean coal obligation' which would require electricity suppliers to purchase a specified percentage of coal.

As well as pressing for a new generation of cleaner coal plants, RJB has stepped up its use of coalbed methane, said Yaxley, and also supports the use of coal gasification to feed combined cycle gas turbine power plants. The company has a design, based on Texaco technology, ready to be built at its Kellingley site.

But the shadow of Richard Budge loomed large over proceedings. Wasnit his departure the most important thing to happened to UK coal in recent months, notwithstanding rising gas prices and the EU Green Paper on the security of energy supply (see below), asked someone from the audience? After all, Budge had always been committed to keeping the biggest possible coal industry alive, had wanted to expand into power production, even open new mines.

Not at all, said Yaxley, RJB had never been a one man band and others in the company were coal champions too. Yet the feeling among many in the room was that the company would fight less hard now to keep mines open, preferring to concentrate on developing its considerable land assets to the benefit of shareholders.

The DTI's Director of Coal Policy, Rob Wright, threw no light on the RJB situation, but spoke of the support Government was currently giving to coal. The latest coal subsidy scheme, designed to help "those elements of the industry with a long-term future to overcome short-term difficulties", had been approved by the EU, he said, and the DTI also supports clean coal research and plans a new programme to support underground gasification of coal.

UNDERGROUND GASIFICATION

Why underground gasification? As a potentially cost-effective alternative to deep mining; to exploit otherwise inaccessible coal measures (particularly offshore); to lessen the environmental impact at the surface; to remove the problem of solid waste disposal; and to provide gas for power generation, for chemicals manufacture and, potentially, for hydrogen production, said Wright.

Underground gasification has been studied for decades, he added, and the UK Coal Authority had evaluated the UK potential in 1998 before transferring the initiative to the DTI. A five-year, £11 million Government programme is now underway as part of the DTI's wider Clean Coal programme (the future course of which will be reviewed this year), and a contractor to manage the programme should be engaged soon.

Coal has a key role to play in energy policy, summed-up Wright, particularly in terms of fuel diversity, but to do this, will have to improve its environmental performance.

Looking wider, at the European picture, Pedro de Sampaino Nunes, EC Conventional Energies Director, described the background to a new Green Paper on security of energy supply. Demand for energy in Europe is growing while indigenous energy production is falling, and efforts to increase renewables and energy efficiency are producing almost insignificant results. The result could be Europe importing 90% of its oil and coal, and 60% of its gas supplies by 2020. Clearly there is a potential problem with security of supply here.

Thus the Green Paper, which suggests energy conservation, or demand management is crucial - each kWh saved does not have to be mined or imported. Meanwhile the growth of energy use for transport has to be brought under control, and renewable energy has to be expanded. But remember, said Nunes, that even if the highly ambitious target of 12% of EU electricity demand to be fuelled from renewable sources by 2010 is met, 88% still has be generated from conventional sources - fossil fuels will remain the base of the European energy economy for some time to come.

So what does this mean for coal? The Green paper talks of the importance of maintaining access to EU coal reserves, by keeping a number of collieries active so as to retain the expertise necessary to expand production substantially should this become necessary through the disruption in the supply of other fuels.

The UK coal industry is in a good position, said Nunes, with what remains of the industry following restructuring now "largely viable and ready to compete", partly helped by rising gas prices.

Nunes also talked of gasification, saying that the integrated gasification combined cycle (IGCC) concept is the most promising. Once a gasification plant is built, it can be fed with Orimulsion, even wastes as well as coal and, fuelled by coal the process cuts carbon dioxide emissions by 25% compared to coal burning. Add sequestration of carbon dioxide and the process becomes emission free.

Environment minister Michael Meacher then produced what appeared to be a heartfelt expression for the UK coal industry, to which Meacher "remains very committed", particularly, for fuel diversity reasons. Meacher is also committed to flue gas desulphurisation which, said Meacher: "can not only make coal cleaner, but if anything can, can guarantee the future for coal".

EXPORTING CLEAN COAL

Meacher then produced an interesting analysis of the future for clean coal technology. The availability of gas for electricity generation in the UK means that clean coal cannot compete on an environmental level here. However, particularly in the very largest coal-using countries - China and India - its advantages over conventional coal plant could make at substantial difference to global emissions. This is the export opportunity for the UK coal industry.

However, in Britain, the Government is committed only to 'reviewing' the case for a demonstration clean coal plant, added Meacher.

So how close are large scale gasification plants in the UK? Peter Whitton of Progressive Energy is in the business of, he said: "generating green electricity from coal" using gasified coal to fuel combined

Gasification plant proposed for north east

by Andrew Cox, editor, UK Coal Review

Key elements of a proposed new clean coal technology (CCT) generation project for the north east are contained in a report released in February from Wansbeck Borough Council (located in south east Northumberland). The proposed scheme includes a coal gasification plant and a power plant able to run on both natural gas and gas synthesised from coal.

In previous decades, Wansbeck's economy was dominated by coal mining and to lesser extent by coal-based electricity generation at Blyth power station and the Alcan aluminium smelter. Local deep-mining has been reduced to only one large underground mine, the Ellington Colliery complex (operated by RJB Mining). Whilst the closure of Blyth power station in January this year has left the power station at Alcan as the only large coal consumer in the area. In order to safeguard remaining local jobs in the coal sector the Borough Council joined forces with other partners (local authorities, companies and The Northern Energy Initiative) to establish in 1996 a local energy management company - the Wansbeck Energy Company - which has received funding from the European Union's SAVE programme.

A key element of the new company's activities was the Wansbeck Generation Project. This work aims to develop a new coal-fired power station (primarily as a replacement for Blyth power station). A concept has been developed using a simple coal gasification flow scheme - which produces a plant design having a relatively low capital cost and which is capable of achieving relatively high thermal efficiencies and plant availabilities.

The design is based on a conventional combined cycle gas turbine adapted to run on a combination of synthesis gas from the gasification plant and natural gas in an ëintegrated gasification combined cyclei (IGCC) process. The dual-fuel capability will improve flexibility and increase availability of the plant. Consultants to the Energy Company have proposed a 450 MWe power station (in comparison Blyth A & B power stations had a combined capacity of 1180 MWe). The 450 MWe plant could create up to 200 jobs, an important consideration in an area of high unemployment.

The report to the Council indicated that the coal-burn of the proposed plant would be 400,000 tonnes per year (less than half the output of the nearby Ellington Colliery) - with a further 400,000 tonnes of other fuels making up the balance of the feedstock. Petroleum coke has been highlighted as the preferred other fuel source as this is suitable for gasification and could be available on long-term contract at a low price. The petroleum coke could be imported via Redcar (Teesside) or cycle gas turbine (CCGT) plants.

Britain is going to need lots of new electricity generating capacity as nuclear and large conventional coal stations, even early CCGTs, are progressively closed down in the next few years. Most of the new capacity will be gas-fired CCGTs so that gas does begin to dominate the generation mix. But with rising gas prices and a heavier reliance on imported gas, gasified coal could become the fuel of choice for these CCGTs.

Introducing any new generating technology needs external support, said Whitton, and IGCC is no exception. So the time is now, given four to five year lead times to build IGCC plants, for the Government to start priming the pumps.

Echoing the theme repeated by many speakers, Whitton concluded that the UK has lots of coal, it needs fuel diversity and IGCC could deliver on the environmental front.

And gasification plant could also be used to produce large quantities of hydrogen - giving a kick-start to Britain's hydrogen economy. Papers from the conference are available for £10 from Roger Kojan at Wakefield MDC, tel: 01924 305822, e-mail: rkojan@wakefield.government.uk

Coal mine methane power for Yorkshire

Octagon Energy has started electricity generation based on coal mine methane at its Hickleton site near Barnsley, South Yorkshire. The 5 MW plant is the first in a series of power generation developments being undertaken by Octagon, which specialises in environmentally-friendly coal mine methane technology - the £2.5 million plant will burn gas that would otherwise have been vented to the atmosphere. Electricity from Hickleton is being sold to Enron and distributed to industrial and commercial users. Octagon aims to have 50 MW of generating capacity in operation by the end of 2002 with all of the plants fuelled by coal gases.

Methane escaping from abandoned coal workings is some 20 times more potent as a greenhouse gas than carbon dioxide. However, given its clean burning qualities, the potential for small-scale power generation is being increasingly recognised.

Last year, Octagon Energy awarded a £7.5 million contract to Deutz Energy to supply, operate and maintain power stations up to a total of 30 MW. Powered by four 1.4 MW Deutz gas engines, Hickleton is the first plant to come on stream under this arrangement.

Octagon Energy has also been awarded 11 petroleum licences for the exploitation of coalbed and coal mine methane.

Hunterston (west of Scotland) in capesize vessels or, alternatively it could be transshipped to the nearby Port of Blyth in smaller vessels.

The generation project will require a firm natural gas supply. The volume of gas required justifies a connection to the national transmission system which is available nearby. It is believed that the provision of this gas supply to the site will also facilitate further industrial development in the area.

The overall project economics can be improved by reducing the net feedstock price by seeking other industrial wastes suitable for gasification and for which gate fees can be obtained for their disposal. The consultants to the Wansbeck Energy Company believe that the opportunity exists to do this.

In addition, the study showed that, in principal, it would be possible to improve the overall project economics marginally by the use of steam, raised from the mass burn of municipal solid waste, in the power station turbines. However, the use of municipal waste as a fuel source for any generation project would undoubtedly cause significant opposition to the project and would be strongly opposed by some local Borough and County Councillors.

The report from Wansbeck Borough Council also highlights some speculative elements in the proposed generation project.

The use of minewater in the project is being considered and, if incorporated, could help reduce a threat of environmental pollution to watercourses in the area as the water levels in the former underground coal workings would be stabilised below the surcharge danger point. The minewater problem is a pressing issue in south east Northumberland as pollution of some watercourses could occur by 2003 unless some form of pumping is introduced.

The report also notes that the Wansbeck Generation Project offers potential for the economic capture of carbon dioxide and, provided a suitable offshore sequestration site can be found, it holds out the prospect of generating electricity from fossil fuels with minimal emissions of the main greenhouse gas.

The design of the generating project as a combined heat and power (CHP) scheme could also mean that it is partially exempted from the climate change levy. Although such a project design would require an adequate heat load being located in close proximity to the CHP plant.

Discussions with the project's consultants have indicated that they would try and find markets for the sulphur that would be removed from the synthesis gas and also for a portion of the hydrogen produced.

The Wansbeck Generation Project appears to be slowly inching forward. The next stage of the work will optimise the project on the preferred site and determine the basis under which the development may proceed. Following this, and subject to a satisfactory outcome, the development consortium will be assembled. This phase of the work is expected to be achieved by mid-2003.

Biomass electricity

by Geoff Loram

The February issue of Energy World included an article on the generation of electricity from biomass at the Ely straw fired plant, April's issue looked at two new gasification plants and here, in the third article of the series by Geoff Loram, these two themes are combined in an account of the biomass gasification plant at Eggborough in Yorkshire which marches under the name of the ARBRE project. ARBRE is an acronym for ARable Biomass Renewable Energy.

The project is led by First Renewables; its partner in the venture is TPS Termiska Processor AB of Sweden. TPS designed the gasification equipment and ARBRE have been responsible for finishing the construction of the plant following the demise of the original turnkey contractor, the Royal Schelde Group of the Netherlands.ARBRE will operate it in place of the Schelde subsidiary that was awarded the original contract.

The project is aimed at commercially demonstrating the generation of significant quantities of electrical power from energy crops which are acknowledged not to be a commercially viable proposition at today's fuel prices. It is supported by a grant from the EC's Thermie Programme as well as being paid a premium price for its power under a NFFO contract. The short rotation coppice (SRC), wood which will form the major part of the plant's fuel supply, is also grown with the aid of a subsidy from the MAFF. There are good reasons for expecting that future, larger plants would be more efficient and, therefore, more economic.

The ARBRE plant is the fruit of a great deal of R&D work; TPS and others have been developing fluidised bed gasification for many years in Sweden and the growing and harvesting of SRC has been the subject of much work in the UK over the past decade.

THE FUEL

The main fuel will be some 43,000 tonnes per year supplied from forestry sources and SRC - in early years predominantly from the former. The SRC will be three year old willow coppice grown under contract and harvested and stored so that it dries naturally to less then 30% moisture content before delivery to the plant. In addition ARBRE has a local holding store which holds up to a month's supply providing a buffer against interruptions to supply caused by harvesting difficulties and so on.

The SRC can be supplemented or partially replaced by chipped roundwood forestry wastes; this is the 'lop and top' from forestry harvesting which is allowed to dry and shed its needles - they return nutrients to the soil - before being chipped and supplied to the plant.

THE PROCESS

Fuel is brought from a holding store and



Rear of the ARBRE plant

- the ARBRE project

delivered into twin reception hoppers with sliding floors which moves the fuel onto a central screw conveyor that feeds an elevating conveyor that deposits it into the large two-day buffer store via a screen which removes any oversize material.

From the buffer store the fuel is conveyed to a rotary drum dryer the heat for which is supplied by some of the boiler exhaust gas, this is at 160°C. The spent gas from the dryer rejoins the remainder of the boiler exhaust gas on its way to the natural draught stack; having been scrubbed before going into the gas turbine, the gas needs no further treatment before discharge to atmosphere. The dried fuel, now at 10% MC, is conveyed to two daybins that provide a short term buffer and from these it is augured into the gasifier.

The fluidised bed gasifier is a tall cylindrical vessel in which a bed of sand is fluidised by air supplied by a compressor at 1.3 bar; once the bed is up to operating temperature the fuel feed is started and the start-up burners shut off. The air supply is sub-stoichiometric and the principle is to burn the fixed carbon in the lower part of the bed to provide the heat to gasify the volatile content.

The complex chemical reactions that take place produce a certain amount of tars and these can give rise to problems if the gas is cooled below their distillation temperature. It has been found that these can be cracked catalytically to simpler compounds in the presence of dolomite. This process is carried out in the tar cracker - a duplicate of the gasifier but with a dolomite bed and fluidised by part of the gas stream - to which the gases pass after removal, in twin cyclones, of any carried over ash and bed material. The calorific value of the gas produced - usually known as syngas - is 5.4 MJ/nm³, a figure towards the lower end of the normal range of syngas CVs, though it is difficult to make comparisons as the material gasified may have a significant effect on the CV.

Because the gas is not clean enough to be used directly in a gas turbine, it is

passed through bag filters and a wet scrubber but in order to do that it has to be reduced in temperature. As the gas emerges from the tar cracker at 900°C that would seem, at first sight, to entail a considerable loss of useful energy; however, by an elegant piece of engineering, all the heat is recovered.

After passing through another pair of cyclones the gas is sent to the syngas cooler which has three sections: the first is the evaporator stage of the boiler in which high pressure hot water - 280°C at 60 bar - is evaporated into steam and returned to the steam drum of the boiler. The middle section acts as the economiser and the third section heats the boiler water feed water. The returning feed water from the de-aerator is first passed through the low temperature heater - placed after the bag filters which remove the fly ash - and then through the high temperature cooler. In this way all the heat that is removed from the gas in order to clean it is returned to the system.

PLANT EFFICIENCY

The ideal size ratio of the gas and steam turbines in a CCGT plant is 2:1, but the comparatively small size of this plant meant that the optimum size of gas turbine was not available on the market. The result is that the gas stream is split after the scrubber with one stream driving the 4.5 MW Alstom Typhoon gas turbine and the other by-passing it to be fired in the boiler.

This arrangement, imposed on the ARBRE plant by its modest size, adversely affects the efficiency in three ways: firstly it is manifestly less efficient to burn the gas in the boiler than using it in a gas turbine with the hot exhaust generating steam in the steam boiler. Second, the by-pass gas is cool and, third, both turbo-generator sets are less efficient than they would be in a larger plant. The overall energy efficiency of the ARBRE plant will be 31% but it is calculated that a larger plant of, say, 30 MW capacity would have an efficiency of over 40% with a very beneficial effect on the economics.

Steam from the boiler feeds a 6 MW

condensing turbine; river water is readily available so the condenser cooling water is circulated through twin cooling towers with the condensate being pumped from the de-aerator to the LT and HT coolers as previously described

The plant has a gross generating capacity of 10.5 MW and a net output of 8 MW; the power is generated at 11 kV, transformed on site to 66 kV and connected to a nearby leg of Yorkshire Electricity's grid.

PROCESS CONTROL

With the gasifier fuel input being of a reliably homogenous nature, a steady fuel supply is aimed at and the main control variable is the gasifier temperature; this is controlled by varying the air supply to combust more or less of the fuel in the gasifier.

As would be expected with a first off, commercial scale plant with an important development function, the instrumentation is comprehensive; not only is there the need to monitor the flue gases to comply with emission regulations, but it is also necessary to monitor the gas supply to the turbine to ensure that it complies with the turbine manufacturer's specification. The control room, however, is a model of simplicity with three computer monitors providing all the control data that is required.

ECONOMIC ASPECTS

Because the fuel for this technology has to be bought like any other commercial fuel albeit a fairly cheap one - the economics are centred upon employing a CCGT generating system. The essential balance to be struck is offsetting the higher capital cost, compared with a conventional combustion system, by the higher efficiency.

As an aside here, if the overall supply of cheap oil begins to diminish in the next five to ten years, dragging the price of coal and gas as well; then many renewable energy technologies currentaly close to the market level may become truly competive with fossil fuels.

Domestic solar hot water -

by Trevor J Price

Solar power in the UK is under-utilised. This article, by Trevor Price, looks at several ways in which UK householders have been encouraged to install solar hot water systems. It also analyses the success of the approaches and makes recommendations as to how the increased use of solar hot water systems should be encouraged. While Trevor manages the Somerset and South Gloucester Solar Club, views expressed in this article are his alone

The UK has an abundance of

■ indigenous renewable energy resources - up to around 1000 kW/m² of solar radiation falls upon Britain. One way to tap into this plentiful resource is by using solar hot water (SHW) heating systems. In 1977 there were more than 70 manufacturers of solar collectors in the UK. However, now, there are only around 40,000 SHW systems currently in use within the UK. With a population of some 56 million people, living in 20 million dwellings, there is considerable scope for growth.

THE HOMEMADE APPROACH

Apart from a few experimental and/or demonstration SHW systems, the deployment of large numbers of SHW systems has been hindered by relatively cheaper, mass-produced traditional heating systems and the relatively low cost of fossil fuels. There has been little proactive UK government support for SHW systems, when either integrated into newly-designed dwellings, or when retrofitted into existing housing. This has led to the economics of domestic SHW systems remaining unattractive, as cheap, mass-produced SHW systems remain difficult to obtain in the UK.

As a result, individual dwellings require customised systems constructed from the most suitable (but not necessarily specialist-solar) components typically used within conventional household plumbing systems, such as wet central heating. Such components must then be hooked-up to a solar panel, typically shipped-in from a remote and little-marketed supplier. As well as requiring extensive research in sourcing materials and components, this rather Heath-Robinson approach is only attractive to minority environmentally-dedicated, relatively wealthy and skilled craftspeople: people who need confidence, money and know-how to design, build and install a



SHW system with minimal industrial or government support.

During 1995, a study partly-sponsored by ETSU analysed which renewable energy technologies where most appropriate for use within UK housing. The study concluded that SHW systems would be one of the best technologies to encourage. As a result of this, the Solar Club concept was developed by two charities; Environ, based in Leicester and the Centre for Sustainable Energy in Bristol. The Solar Club sought to circumnavigate the problems of cost and lack of knowledge on the part of the householder when designing and installing a SHW system. The barrier of a lack of know-how was addressed by providing training in solar system design and installation.

The high-cost barrier however, was harder to tackle. By being a group of potential customers for solar system components, the Solar Clubs had some leverage when successfully negotiating with manufacturers for discounts (of up to 30%) on some solar components accessible only to Club members.

Solar Club members take the following steps:-

- Receive an e-mailed or paper-based infomation pack.
- 2.Either:

purchase (for £25 in 2001) a site survey whereby a Solar Club staff

the DIY approach

member visits the proposed site and assesses its suitability along with determining the householder's likely future demand for hot water; or receive a free paper-based questionnaire that aids the householder in assessing the potential site and future hot water demand.

- 3. If the proposed site is suitable, participate in a one-day training course. The course fee, in 2001, is £95 + VAT, for which two people can attend. Once the training has been completed, participants receive a certificate which gives them access to manufacturers' discounts.
- Design, build and install a customised solar system. So as to share experiences, this would ideally be with the help of fellow Solar Club members.
- 5. For a fee of £30 (in 2001), receive a commissioning check from a qualified heating engineer. Upon completion of the check, the member's Solar Club certificate is signed and dated. This is intended to prove to third parties that the SHW system, although installed as a homemade project, has been certified as safe and fully-functional by a qualified professional.

There are currently 19 Solar Clubs throughout the UK.

COMMERCIALLY DESIGNED AND INSTALLED SYSTEMS

There are two types of organisations seeking to entice homeowners to buy a fully-installed SHW system: commercial and non-profit-making.

Some companies exist who employ salespeople to visit potentially-suitable dwellings and use doorstep selling techniques in an attempt to persuade the house owner to buy their system. The prices quoted for these systems generally range from £4,000 to £6,000 - almost treble the cost of homemade SHW systems that utilise professionallymanufactured solar panels.

In contrast, a scheme supported by East Hertfordshire District Council has trained a plumber in all aspects of SHW system installation. Potential customers are referred directly to the plumber who will then install one of four different solar thermal systems for between £2,000 and £2,500. This covers all the capital, staff and the direct costs of installation.

The difference in performance between homemade and commercially-installed SHW systems is negligible. Therefore, the extra costs involved, and hence the detrimental effect that will have on the financial return of the commercially-installed system, is hard to adequately justify.

CHALLENGING TIMES

During 2000/01 some Clubs have experienced dwindling numbers of people who, after making an inquiry for information about solar power, are prepared to undergo a training course. Why is this so?

The majority were put-off the training course due to the £95 fee, indicating that a fee of between £20 and £50 would be more acceptable. Similarly, the location and the date of the training course proved to be a big factor in people's decision to participate.

Out of those that have received training (via the Somerset and South Gloucestershire Solar Club) on how to design and install a SHVV system, only two have actually installed a system. The remaining have been unable to install a system for a mixture of reasons, from waiting for planning permission or building work to be completed, to lack of time or problems with suppliers,

CONCLUSIONS

The long payback periods associated with SHW systems in the UK have stimulated those who wish to encourage the use of such systems to explore novel ways of supporting SHW system deployment. However, by targeting those who can afford to build and install their own partly prefabricated systems has highlighted other barriers to implementing such systems. The added cost of being trained to build a solar system seems to be too much of a burden, especially when added to the relatively high capital outlay of the solar components. The fear of the complexity in building a SHW system is also off-putting to many people.

To counteract these, and other barriers to the wider implementation of SHW systems in the UK, the following is needed.

Financial support for the fledgling UK solar thermal industry aimed at cutting the current high cost of solar collection systems that are suitable for the UK. Future Government stimulation efforts should be integrated into the Climate Change Levy.

Hand-in-hand with support for the industry, stimulation of the domestic solar hot water market is needed. One way to achieve this would be to force housing developers to overcome the short-sighted necessity to compete to provide the lowest possible initial price for housing. Local Authority plans should stipulate that all newly-built dwellings - especially those situated on greenfield sites - have a proportion of their energy demand supplied by on-site, or nearby, renewable energy systems. Solar hot water systems are best suited to rural areas that have a widespread population at the outer boundaries of national energy-supply networks. It is in these areas where other fuels tend to be relatively sparse, that solar hot water schemes should, at first, be encouraged.

More vigorous support for the Solar Trade Association, (STA) as the industry watchdog, to police the industry, especially solar installers - some of which have given the industry a bad reputation by employing aggressive-selling techniques. The STA should also be encouraged to take the lead in solar-related development and research.

Within the UK, the national pastime of home improvement should be tapped. For example, nationwide training courses should be encouraged that provide detailed training on how uncomplicated domestic solar hot water heaters can be built and used. Good guide books are already available.

Professional trades courses, eg plumbing and electrical installation courses, should all incorporate appropriate renewable energy elements. Contact Trevor Price at the Centre for Sustainable Energy, tel: 0117 930 4097, e-mail: t.j.price@cse.org.

Events

May 2001

Inst Energy South Wales & West of England Branch event **Automotive fuel options** Talk by Roger Martin, 6 May, Chepstow Details from John Whitehead, e-mail: jwhitehe@uk.packardbell.org

Agriculture and renewable

energy Conference, 6-8 May, Amsterdam Details from EMM Ltd, tel: 01805 625 500, e-mail: *land@emml.co.uk*

Small-scale CHP

Course 8-9 May, £355 Details from the Institute of Environmental Engineering, tel: 020 7815 7675, e-mail: fuadp@vax.sbu.ac.uk

Sustain 2001

Exhibition and conference, 8-10 May, Amsterdam Details from Amsterdam Rai, tel: +31 20 549 1212, e-mail: sustain2001@rai.nl

Inst Energy South Coast Branch event Edling Tide Mill Visit followed by AGM, 9 May, Southampton Details from Chris Wilson, tel: 01252 374663, e-mail: cwwilson@ntlworld.com

Inst Energy Midlands Branch event Ellis Memorial Lecture By Anna Walker, DTI, 9 May, Solihull Details from Details from Harry Freeman, tel: 0121 353 2397, e-mail: hfreeman@talk21.com

Relieving the pain of the Levy ESTA seminar, 9 May, Nottingham, free Details from ESTA, tel: 07041

492049, e-mail: conferences@esta.org.uk

The growing market for CHP and distributed generation Symposium, 9-10 May, Amsterdam

Details from website: www.2ndchpsymposium.com

Furnaces Italy 2001

Exhibition, 9-10 May, Milan, Italy Details from DMG World Media, tel: 01737 855145, e-mail: hannahwebb@uk.dmgworldmedia .com

Relieving the pain of the Levy

ESTA seminar, 10 May, London, free. Details from ESTA, tel: 07041 492049, e-mail: conferences@esta.org.uk

Inst Energy North West Branch event Annual dinner and ladies evening. II May, Haydock Details from Eric Curd, tel: 0151 625 6744, e-mail: eric.f.curd@btinternet.com

Well-to-wheels 2001 Conference, 14-16 May, Portland, Maine, USA Details from Intertech, tel: +1 207 781 9617, e-mail: jscheld@intertechusa.com

Radiation dose management in the nuclear industry Conference, 14-16 May,Windermere. Details from the British Nuclear Energy Society, tel: 020 7665 2315, e-mail: sue.frye@bnes.org.uk

Relieving the pain of the Levy ESTA seminar, 15 May, Manchester, free Details from ESTA, tel: 07041 492049, e-mail:

Efficient use of electricity in buildings.

conferences@esta.org.uk

Course, 15 May, London, £245. Details from Mid career College, tel: 01223 880016, e-mail: course@mid-careercollege.ac.uk

Inst Energy South Wales & West of England Branch event **AGM and talk on automotive fuel options.** 16 May, Chepstow Details from John Whitehead, e-mail: *jwhitehe@uk.packardbell.org*

Emissions management strategies

Conference 16-17 May, London, £829 + VAT Details from Global Business

Network, tel: 020 7291 1030, e-mail: info@gbnuk.com

Distributed power - turning vision into reality

Conference 16-18 May, Nice, France Details from Intertech, tel: +1 207 781 9800, e-mail: olmstead@intertechusa.com Inst Energy Midlands Branch event Drakelow power station tour and AGM 17 May Details from Harry Freeman, tel: 0121 353 2397, e-mail: hfreeman@talk21.com

Relieving the pain of the Levy ESTA seminar, 17 May, Leeds, free Details from ESTA, tel: 07041 492049, e-mail: conferences@esta.org.uk

Inst Energy Yorkshire Branch event AGM and annual dinner 18 May Details from Andrew Mallallieu, tel: 0113 276 8888 ext: 2324

Relieving the pain of the Levy ESTA seminar, free 22 May, Birmingham,

22 May, Birmingham, Details from ESTA, tel: 07041 492049, e-mail: conferences@esta.org.uk

Electricity demand forecasting under NETA Conference, 23-24 May, London, £1099 + VAT Details from IIR Ltd, tel: 020 7915 5055, e-mail:

registration@iirconferences.com

Energy in the UK and across Europe

John Hall Associates conference, 23-24 May, Birmingham, £485 + VAT Details from Commercial Seminars Ltd, tel: 01572 757751, e-mail: bookings@commercialseminars.co .uk

20



Relieving the pain of the Levy ESTA seminar, 24 May, Bristol, free Details from ESTA, tel: 07041 492049.

e-mail: conferences@esta.org.uk

Power-gen Europe 2001

Exhibition, 29-31 May, Brussels Details from PennWell, tel: +1 918 831 9160, e-mail: powergeneurope@pennwell.com

Westfield biomass plant

Institute of Energy seminar, 31 May, Fife. Details from John Currie tel: 0131 455 2253, e-mail: j.currie@napier.ac.uk Thermal mass in buildings Course, 31 May, London, £35 Details from Oxford Brookes University, tel: 01865 483413, e-mail: vmkwalker@brookes.ac.uk

Inst Energy Northern Ireland Branch event, **AGM and wine tasting.** 31 May, Belfast Details from David McIlveen-Wright, e-mail: dmcilveenw@aol.com

June 2001

Institute of Energy **Annual Policy Conference** 5th June, CBI London Details from Suzanne Cooper tel: 020 7580 0077 e-mail: events@instenergy.org.uk

Coaltrans Asia

Conference, 4-6 June, Sydney, Australia. Details from Coaltrans Conferences, 0207779 8945, email: coaltrans@euromoneyplc.com

Electricity in Europe

Conference 5-8 June, Amsterdam Details from ICBI, tel: 0207 915 5174, website: www.icbi-uk.com

Solar electric PV on buildings

Workshop, I I June, London Details from ABS Consulting Ltd, tel: 020 7378 0006, e-mail: Irowan@absconsulting.uk.com

Utility convergence for the domestic market Conference, 19-20 June, London, £1099 + VAT Details from IQPC, tel: 020 7368 9300, e-mail: convergence@iqpc.co.uk

Institute of Energy Scottish Branch presents the Annual Scottish Energy Lecture 14th June 2001

The Scottish Engineering Centre, Teacher Building, St. Enoch Square, Glasgow

The 2001 event promises to be an exciting 'Question Time' style discussion and debate around the issues relating to energy and climate change.

Speakers include:

Alf Young (Chair) Deputy Editor The Herald

Hugh Morrison Chief Executive Scotch Whisky Association

Phillip Ward Director of the Energy, Enviroment & Waste Directorate, DETR

For further information and a registration form, please contact: John Currie Tel:0131 455 2253 email: j.currie@napier.ac.uk NETA the experience -How was it for you and and where do we go from here?



A one day Conference organised by the Institue of Energy, October 2001

The New Electricty Trading Arrangements, which came into effect on the 27th March 2001, were heralded as the biggest shake up of the electricity industry since privatisation. The effect of the reforms, which radically change the way in which electricity is traded, will be felt across the industry during the forthcoming months.

The Institute of Energy is please to announce that, in order to facilitate industry in understanding the full impact of the reform, and to give organsiations an opportunity to have their say on how NETA has affected them, a one-day conference will take place in October 2001 in London. Key-note speakers will include Jeff Scott of the National Grid Co as well as generators, customers and government representatives.

If you would like further information on this land-mark event, please contact Suzanne Cooper, Events Officer on 020 7580 0077 or email: events@instenergy.org.uk

NEW MEMBERS

NORTH EASTERN Mr I G Goss Graduate

George Birchall Ltd

NORTH WESTERN

Mr S A Bennett AMInstE Corus Colours Mr J Evans Graduate BNFL

LONDON & HOME COUNTIES

Mrs T E Fisher MInstE Institute of Energy Mr S O Jenfa Associate St. Christopher's Housing Association Ms C B Ramsay Graduate Association for the Conservation of Energy TEAM Software (Energy Auditing Agency Ltd) Group Member

SCOTTISH

Miss C Ford Student Napier University Mr J McColl FInstE BP Energy Ltd Mr G D Phillips MInstE RMIM Scotland

SOUTH COAST

Mr C N Dansoh AMInstE RM Consultants Ltd

SOUTH WALES AND WEST OF ENGLAND

Mr P A Hancock AMInstE Seabank Power Ltd Mr C Piddington Graduate Cardiff University Mr D Thomas Graduate Cardiff Business School

YORKSHIRE

Mr P R Barton Student Leeds University Mr R J Best Student Leeds University Mr N J Spencer Student Leeds University

EAST MIDLANDS

Mr B E Tynan AMInstE N E Lincs Council

MIDLANDS

Mr R Chicken MInstE Alliance and Leicester

OVERSEAS

Mr A A Adebolu Student University of Ado-Ekiti -Nigeria Mr C J Amoah Student Ho Polytechnic - Ghana Seneca College of Applied Arts and Technology Academic Affiliates - Canada Miss A Yetade Student Federal University of Technology - Nigeria

COUNCIL REPORT MARCH 2001

The Institute's Council, chaired by Brian Chamberlain CEng FinstE, met on 15 March to discuss and progress InstE business against a full and varied agenda. The work of the Hawley Group, to determine the best way forward to represent and serve the engineering community, was the first significant report discussed. Members were advised that the Mr Chamberlain and Mrs Kingham had fully participated in this work, and as a result Louise Kingham had been selected to serve on the 'Governance working group' for the new Engineering Technology Board. The PEI network was due to close on 31 March and the future coordination of regional engineering activities remained open for discussion.

Financial reports showed that the Institute had managed to steer a steady path and maintain budgetary targets for the year, although the Investment Funds had suffered anticipated losses due to the volatility of the stock market in the last quarter of 2000. Membership figures for the year 2000 showed another annual increase in total membership, although not as steep as the previous year. These figures, which will be included in the Annual Report and Accounts 2000, provide the baseline for growth in 2001. Members in the branches were working hard to bring members regional programmes of interest, and some reported increases in attendance at certain events. However, more members are always welcome and you should be reminded that these events often provide valuable information and contribute to your CPD commitment as an energy professional.

A number of necessary operational and practical changes to the byelaws and Royal Charter were discussed in outline and it was agreed that a SGM would be held on 24 April to review detailed proposals. The changes would not make any major differences with regard to the Institute's purpose, objects or status. Members are welcome to contact the Institute's Secretary & Chief Executive for further information if they wish, or confirm attendance at the SGM in writing to the Institute's offices. Finally, the Council was very pleased to approve the nomination of Sir John Browne FRENG to receive the 2001 Melchett Medal and the nomination of John Blackhall CEng FlnstE as President Elect with effect from the conclusion of the AGM in June. Watch out for further details of the event in *Energy World*.

Over experienced? Over qualified? Why not up-grade your level of membership?

Contact the membership department on Tel: 020 7580 7124 or email: membership@instenergy.org.uk Have you changed your e-mail address? Or have a new one? The Institute would like to know, so we can keep our records up to date. Please forward any changes or new addresses with 'e-mail' as the subject to membership@instenergy.co.uk

SITUATIONS VACANT / WANTED

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A bespoke Introduction Service, operating across all Engineering & other appropriate Institutions.

PAYE Candidates to Potential Employers. Freelance / Ltd. / Corporate Suppliers to Clients. Under no obligation, enquire in confidence to Steve Howe B.Sc., M.B.A., C.Eng., M.Inst.E. Email : line8@energy121.com

Climate Change Levy

Are you minimising it's impact ? Help is available from Energy Practitioners :Freelance / Limited / Corporate -Providers.Enquiries in confidence to Steve Howe. Email : line7@energy121.com

Commissioning Engineer

Required for Contract, One to two months duration.

Bagasse fired Water Tube Boiler, located outside of UK . Profiles in confidence to Steve Howe.

Email : line9@energy121.com

Technical Seminar co-sponsored by Westfield Biomass Plant, Fife, 31 May 2001



A Technical Seminar hosted by Energy Power Resources Ltd (ERP), and co-chaired by the Institute of Energy, will take place at the Westfield Biomass Plant on 31 May 2001 between 10am and 4pm.

The event co-incides with the official opening of the plant, which offers an environmentally friendly solution to the disposal of chicken litter resulting in the production of both electricity and fertiliser.

It is the first biomass energy plant in the world to use a fluidised combustion system to burn pountry litter and is a reference site in the EU Thermie Programme. The seminar papers will include:

- * Westfield Biomass Plant: an overview
- *Poultry litter as a fuel
- * The fluidised bed boiler
- * Overview of biomass conversion to energy
- * Engineering & construction of the plant
- * Plant start up
- * Sustainable energy in the UK

There will also be an opportunity to tour the plant. Places are limited therefore early registration is advised. For further information or to register for the event, contact Kay Nicol, Cadogan Consultants tel: 0141 270 7060 fax: 0141 270

7061 or e-mail: k.nicol@cadoganconsultants.co.uk

Freelance Energy Consultants Wanted To carry out energy audits and other energy management projects nation-wide. In addition to suitable engineering and energy management training and experience, excellent written and verbal communication skills are required - plus an ability to view all matters from the client's perspective. Please reply with CV to Barry Francis at: bfaenergy@lineone.net

Linden Consulting Partnership,

A progressive Energy and Environmental Consultancy, is seeking to recruit experienced energy consultants to undertake a varied portfolio of energy consulting assignments including energy audits. The candidate should be a member of the Institute of Energy and have experience in the industrial and commercial sectors. Midlands or South East based. Please write with CV to: Emma Jones, Linden Consulting Partnership, 11a Bird Street, Lichfield, Staffordshire, WS13 6PW Email: mail@linden-consulting.co.uk

SERVICES DEPARTMENT

EN VIRONMENTAL HEALTH ENERGY EFFICIENCY OFFICER



SCALE 4/5/6/SO1 (£13,299 - £20,364 per

annum) Subject to Job Evaluation (Progression to SOI dependent upon relevant Essential Car Allowance Qualification and exeperience)

Would you like to make a positive difference to the lives of residents in Arun?

As part of the Private Sector Housing Team in Environmental Health, you could be the key player to help the Council achieve improvements in energy efficiency required by the Home Energy Conservation Act.

Tasks will include liaison with commercial organisations and local authorities to develop initiatives which result in improvements in energy efficiency. Advising officers and residents of grants available, how best to secure cost effective savings in the use of energy, collating information, maintaining databases on improvements in energy efficiency, assisting in the Housing Investment Programme reporting process to the DETR on energy efficiency achievements.

You will have a high level of initiative, be innovative, dynamic, have an ability to communicate at all levels, have highly developed IT skills, be able to work both autonomously and as part of a Team, use both practical abilities and technical knowledge to achieve objectives.

Ideally you will have a Degree in an energy related subject or educated to a Degree level with an energy management background. Persons with a relevant Science Degree and highly developed IT skills will also be considered.

For an Application Form and Job Description please contact the Personnel Section, Resources Dept., Arun District Council, Arun Civic Centre, Maltravers Road, Littlehampton, West Sussex. BN17 SLF.

 TELEPHONE:
 01903
 737500/737583
 FAX:
 01903
 713606

 MINICOM:
 01903
 732765
 VISIT
 OUR WEBSITE
 ON:
 www.arun.gov.uk

 CLOSING DATE:
 FRIDAY,
 18TH
 MAY 2001
 VISIT
 VISIT

INTENDED INTERVIEW DATE: TUESDAY, 5TH JUNE 2001

Arun has a commitment to equality of opportunity in employment. If you have a disability which makes it difficult to complete our application form, please contact the Personnel Unit, who will assist you with your application.



The EIB, the financial institution of the European Union, is currently seeking for its Energy Division, in the Energy, Telecommunications and Waste Management Department, Projects Directorate in Luxembourg a (m/f)

Energy Engineer

The Projects Directorate is responsible for the technical, economic and environmental appraisal of projects. Formed of multi-disciplinary teams of engineers and economists, the Directorate is sectorially organised and supports the Bank's lending activities in and outside the EU.

Duties: The successful candidate will report to the Head of the Energy division and work in close contact with the other professional staff of the Department. He/she will be required to: • Analyse the technical & financial viability of capital investment projects and programs in the energy sector, both in the EU member states and in the other countries in which the Bank operates. • Contribute, as a member of a team, to the overall appraisal of loan proposals. • Contribute to sector studies and other analyses. • Monitor the implementation stage of projects being financed.• Cooperate with the Lending Directorates and assist in the identification of investment opportunities.

Qualifications: • Advanced academic qualifications in engineering with an excellent technological knowledge in the fields of power generation, transmission and distribution. Additional particular knowledge in renewables and waste to energy would be appreciated. • At least 8 years of practical energy sector experience including: feasibility studies, project design and implementation, cost analysis, procurement, environmental impact, profitability and risk analysis. • Practical experience gained internationally within and outside the European Union. • Experience in issues of market liberalisation, privatisation and regulation. • Excellent knowledge of English or French and a good command of the other. The knowledge of other European Union languages would be appreciated. • Proficiency in computer applications.

Skills: • Good interpersonal, team-working and communication skills. • Good analytical and reasoning skills with capacity to provide sound judgement concerning the issues in his/her area of responsibilities. • Ability to operate in international environments, including those of developing countries. • Capacity to plan and organise his/her work. • Capacity to co-ordinate projects across departments and directorates. • Ability to draft clear and concise reports. • Result-orientated. • Ability to work under pressure.

Applicants must be **nationals of a Member State of the European Union**. The EIB offers attractive terms of employment and remuneration with a wide range of benefits. The EIB is an equal opportunities employer.

Applications should include a cover letter **quoting the relevant reference number** and a curriculum vitae in **English or French**, together with a recent photograph, and be sent to:

EUROPEAN INVESTMENT BANK, Staffing Division, Ref. PJ01EGW03, L-2950 LUXEMBOURG. Fax: + 352 4379 2545. E-mail: jobs@eib.org

Applications will be treated in strictest confidence. They will not be returned.

Personal data are protected by Community Regulation.

For further particulars about the EIB, its remits and how it operates, visit the EIB's website: http://www.eib.org





Seventh Grove Fuel Cell Symposium Commercialising Fuel Cells: The Issues Outstanding

11-13 September 2001

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or contact Sarah Wilkinson at the conference secretariat: Tel: +44 1865 843691 Fax: +44 1865 843958 Email: sm.wilkinson@elsevier.co.uk

Redefining energy policy: junking the meter

The Institute of Energy is pleased to announce that the third Energy Policy conference will be on TUESDAY 5 JUNE 2001 CBI Conference Centre, London



The conference offers an exciting programme which aims to challenge conventional thinking on energy policy and how we, as energy professionals, perceive what constitutes true 'energy policy'. To make energy services accessible, available, and acceptable to all (the goal endorsed by the World Energy Council) we need to redefine and expand energy policy itself, to identify and respond more effectively to the challenges and opportunities now before us. Speakers include:

Walt Patterson FInstE, Royal Insitute of International Affairs Anna Walker, Director General Energy, DTI John Chesshire FInstE, SPRU John Thompson, Vice President, Enron Peter Atherton, Director, European Equity Research Schroder Salmon Smith Barney

Sessions include:

Redefining Energy Policy Widening policy: consumer expectations, tax regimes, policy levers

Redefining Energy Investment

Reshaping risks and rewards; new valuation procedures and financial structures

Redefining Energy Analysis

New indicators, indices, value structures

Energy Policy Redefined Transforming language and concepts to match policy

objectives and processes; rethinking energy in human society

Redefining the Energy Customers Needs

Customer needs long term contracts and short term opportunities

Redefining the Energy Company

Longer term contract provision and long term relations between companies and consumers

Redefining Energy Governance

Changing policy levers; tax regimes, company law, regulation, standards

Registration form

Please return your completed form with payment to: Events Officer, Institute of Energy, 18 Devonshire Street, London WIG 7AU tel: 020 7580 0077 fax 020 7580 4420 or email: events@instenergy.org.uk. Please complete one registration form per delegate. This form may be photocopied if necessary.

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Cancellations: Cancellations received in writing before the 4th of May 2001 will be subject to a 25% administration charge of the total remittance. No refunds will be made for cancellations received after this date or for non-attendance. However, we are happy to make substitutions at any time before the event. Confirmation of booking: we are not able to confirm any bookings until after payment is received. Terms and condition: The Institute of Energy reserves the right to alter the programme without prior notice.