



Wind power for Sainsbury's Smart energy purchasing InstE presidential review



Institute of Energy 75th Anniversary 1927 - 2002





IMPORTANT ANNOUNCEMENT

The Institute of Energy aligns with Institute of Petroleum (IP) and Institution of Gas Engineers & Management (IGEM) merger discussions.

Prior to IP and IGEM 'engagement' in merger discussions last year, both organisations had independently identified the Institute of Energy as a potential partner.

The Institute of Energy has recently discussed future strategy with IP and IGEM and an exciting opportunity now exists, which each organisation's Council has undertaken to review to determine the possibility of a three-way merger.

This opportunity could create a combined Royal Chartered Institute, with real technical depth in fuels, covering all aspects of the energy industries. Financially very strong, it could have some 16-17,000 individual members and more than 500 company members – a very influential body of expertise.

Business as usual continues for all three organisations as this work evolves. However, early communications to all members simultaneously has been welcomed in the continuing spirit of the open discussions between IP and IGEM to date. We will work together to bring you more news at every opportunity and seek your views as this exciting development evolves.



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2

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Viewpoint

NEWS	
Home news	3
International news	6
Institute news	22

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FEATURES

Chris Bowden	8
Green electricity at brown prices - how one borough cou	ncil makes it work
Plus: green power league table	
Bob Olding	10
Recent regulatory issues - an I&C perspective	
Aubrey Bourne	12
Monitoring for energy - electricity, gas and compressed a	ir 14
InstE Presidential review and statement of financial activi	ities 15

DIARY 20 **Events**

COVER

Green electricity supplier Ecotricity's first 'merchant wind power' (MWP) initiative was to install a wind turbine to supply nearly half the power used at a Sainsbury's distribution depot in East Kilbride, Scotland. Sainsbury's pays a market price for the green electricity proving, says Ecotricity, that wind power does not require the support of Government subsidies or premium prices.

More on buying green energy on page 10.

Viewpoint

Decommissioning in partnership

Beth Taylor, Head of Corporate Communication, UKAEA

n November last year the Government announced the results of its 'quinquennial review' of the United Kingdom Atomic Energy Authority (UKAEA) and proposed a new approach to the management of the UK's civil nuclear liabilities. Though it excited little interest in the media (but see Energy World February 2002), the proposals will undoubtedly have a major impact on the UK nuclear industry, and particularly UKAEA and BNFL as the current owners of the civil nuclear liabilities.

For over forty years UKAEA led the development of civil nuclear energy in the United Kingdom. By the late 1980s, however, it was clear that the need for a significant programme of nuclear research and development was coming to an end. The Government concluded that fast reactor technology was no longer viable and our last major operating reactor, the PFR at Dounreay, closed in 1994. This reactor joined others already shut-down at Windscale in Cumbria; Harwell, Oxfordshire; and Winfrith, Dorset.

It was at this time that UKAEA's role turned primarily to that of decommissioning our redundant nuclear facilities and restoring our sites. When we set about the task we pioneered a new approach. Instead of adopting the traditional path of using in-house decommissioning teams we separated the planning and procurement from the actual implementation work. Private sector involvement is maximised through competitive tendering for decommissioning contracts.

We believe that this policy has worked well. We calculate that competition has saved up to 30% of costs to the tax-payer. It has avoided internal conflicts of interest by eliminating the potential for the business interests of an in-house implementation team to influence decisions on the timing and nature of the decommissioning programme. Lastly, it has also brought more companies into the UK decommissioning market, giving them the experience to compete for contracts in a growing market overseas.

The Government has endorsed our approach. Patricia Hewitt, the Trade and Industry Secretary, emphasised the importance of competition when she announced her proposals for the Liabilities Management Authority. This new body will take ownership of the public sector civil nuclear liabilities in the UK and develop an overall strategy for decommissioning and clean-up. Over £40 billion of liabilities are currently held by UKAEA and BNFL. The liabilities include much of the BNFL Sellafield complex and Magnox power stations, while UKAEA's include 13 reactors and over 20 major radioactive facilities.

UKAEA's decommissioning tasks are often challenging and complex because they involve some the earliest nuclear facilities. Windscale Pile One, for example, contains a legacy of damaged fuel resulting from the fire in 1957. This fuel has to be removed and the core dismantled. Similar challenges are replicated at our other sites. At Dounreay, radioactive wastes will be retrieved from a shaft

licensed as a disposal facility in the 1950s. At Harwell land contaminated with chemicals and low level radioactive waste is being systematically cleanedup for public use.

nuclear plant.

Detailed plans for each site's restoration are already in place. The Dounreay Site Restoration Plan involves some 1,500 activities and most of the major hazards will be removed within 25 years. Further south at Harwell and Winfrith the transformation is already well underway and science and technology businesses are taking over from the

Decommissioning is an expensive, long-term task but we and our contractors are bringing new ideas to bear to make the process more cost effective without compromising safety.

Eventually, of course, all the facilities will be dismantled and the radioactive waste packaged for storage or disposal. Radioactive waste management is a vital part of the process of nuclear site restoration. It is also an issue which generates considerable controversy.

The debate on a national strategy for intermediate level waste, currently being led by the Department for Environment, Food and Rural Affairs (DEFRA), is clearly a pressing and nationally important issue. It is essential that the consultation process for these decisions is carried out in a transparent and open way in which the public will have confidence. But the process must not be allowed to drift. Firm milestones must be achieved to reach a clear decision on the way forward.

It may well be that radioactive waste management will be part of the role of the Liabilities Management Authority. If so, I would support that move in the belief that the strategy for dealing with the wastes must be considered alongside that of decommissioning the sites - both are integral parts of the nuclear site restoration process, and should be managed in an integrated way.

The Government's proposals for civil nuclear liabilities management should give much needed focus to a nationally important task. DTI has already set up a Liabilities Management Unit, to shadow the arrival of the LMA. Although we welcome these moves, we recognise that the introduction of the LMA will be a tremendous challenge for UKAEA. Initially, we and BNFL will retain the responsibility for managing our sites. But we will need to earn the right to do so in the longer term.

We have achieved a great deal since the mid 1990s in developing our approach. But we know that we have to continue to improve our performance if we are to achieve our aim - to become the supplier of choice to the new Liabilities Management Authority.





Climate change will appear sooner and be sharper

Environment Secretary

Margaret Beckett has warned of a sharper and sooner-thanpreviously-expected impact across the UK from climate change in coming decades.

Mrs Beckett was commenting on the findings of a new set of scenarios prepared by the Hadley Centre for Climate Prediction and Research, Tyndell Centre for Climate Change Research and University of East Anglia and published by DEFRA.

Mrs Beckett said: "Today's report looks a long way ahead into the 2080s, but it's telling us two key things. One is climate change will be earlier and sharper than we thought and that some of that change is already built in. We're taking a lot of action, but unless we continue to take stronger action, these are the kind of problems we will face. Increased risk in the UK of droughts, heavy rainfall and floods could have major consequences for land use, planning, water resources, infrastructure, insurance, tourism and many other sectors across society."

Mrs Beckett urged British business to start planning ahead now to reduce greenhouse gas emissions, or face the possibility of insurmountable problems running a business in years to come: "Some of the impacts of today's report we will not be able to avert".

The key findings of the report are:

- · The country's climate will become warmer. Annual temperatures averaged across the UK may rise by between 2 and 3.5°C by the 2080s. The degree of warming will be different in different parts of the UK and will depend on the level of global greenhouse gas emissions. Warming will generally be greatest in parts of the south east, where temperatures may rise by up to 5°C in summer by the 2080s.
- Winters will become wetter and summers may become drier across all of the UK. The largest relative changes will be in the south and east, where summer precipitation may decline by up to 50% by the 2080s.

Heavy winter precipitation will become more frequent, but the amount of snow may decline by 60% or more in parts of Scotland and up to 90% elsewhere by the 2080s, depending on region and scenario.

- · Sea levels are expected to rise around the UK. In line with previous predictions, levels could be between 26 and 86 cm above the current level in south east England by the 2080s. This means that, at some east coast locations, extreme sea levels that currently have a 2% chance of occurring in any given year, could occur between 10 and 20 times more frequently by the 2080s.
- The Gulf Stream may weaken in future but it is unlikely to completely 'switch off', or lead to a cooling of the UK climate within the next 100 years.
 The scenario results are published in a Briefing Report and a fuller Science Report, both of which can be found at www.ukcip.org.uk

Innogy has installed two dissolved oxygen (DO) monitoring systems from Pollution and Process Monitoring Ltd to help reduce corrosion in its plant at Didcot B power station. Boiler



water containing even relatively low concentrations of DO can be extremely problematic since the dissolved gas contributes to corrosion of the pipework, steam turbine and boiler system.

Didcot B now relies on two trace level DO monitoring systems to measure trace level DO concentrations lower than 100 parts per billion (ppb) at a resolution of 1 ppb. This allows correct dosing with hydrazine to scavenge the oxygen.

London bids for hydrogen economy

Big business, the motor industry and research experts have joined the Greater London Authority (GLA) in a bid to make London a world leader in the use of hydrogen. Deputy Mayor Nicky Gavron launched the Hydrogen Partnership, which is committed to taking forward fuel cell technology.

The launch was sponsored by BP and Evobus, which is to supply three fuel cell buses for trial in London next year. If the trial is successful, the Mayor has said he will consider converting all buses to hydrogen.

With more Londoners dying from the effects of vehicle emissions than are killed in road accidents, according to the GLA, the development of cleaner fuels is crucial to the city's future.

The Hydrogen Partnership has pledged to:

- make London's infrastructure hydrogenfriendly, for example by providing refuelling points;
- develop research and assembly skills in hydrogen applications, which could bring jobs to London and build a green economy;
- encourage business and government to look seriously at the potential of hydrogen vehicles; and
- set targets for the number of hydrogen vehicles that should be on London streets, and units to power our homes and offices.

Budget aids CHP, extends North east establishes ECAs, increases oil taxes

=115

April's budget held mixed fortunes for the energy industry and its customers. Campaigners for CHP and distributed generation welcomed the Chancellor's intention to extend the exemption from Climate Change Levy charges to all energy produced by CHP plants, while the UK offshore oil and gas industry was 'concerned' at the imposition of 10% supplementary charge on North Sea profits. The Carbon Trust welcomed the extension of the Government's enhanced capital allowances to five additional groups of technologies.

Until now, although CHPgenerated power used on site and exported via 'private wires' to nearby sites was exempted from Levy charges, power exported to the grid and sold on the market continued to attract charges. This barrier to the wider use of CHP with export capacity is now dismantled. The Chancellor also announced plans to reduce to 5% the tax on micro CHP systems when they become available.

Welcoming the move, CHPA Director David Green stressed the need now to reform the recently-instituted electricity trading arrangements, which are widely thought to have caused serious damage to the distributed generation sector. "Welcome as today's announcement is, the Government now needs to make sure that Ofgem's dogmatic adherence to its New **Electricity Trading** Arrangements, that have

significantly reduced the output of CHP plant, stops undermining the Government's target to double CHP use by 2010," said Green.

The UK offshore oil and gas industry welcomed the Chancellor's move to increase capital allowances on first year investment in the North Sea, but was less happy at the decision to introduce a 10% supplementary charge on North Sea profits. The UK Offshore Operators Association (UKOOA) fears that this could undermine investor confidence in the longterm viability of the North Sea, the very thing that the industry has been working with Government, through the joint industry-government PILOT initiative, to achieve.

The Carbon Trust, meanwhile, welcomed pledges given by the Chancellor for further investment in energysaving technologies through the introduction of a new series of enhanced capital allowances (ECAs).

The Chancellor outlined plans for an extension of the existing scheme to introduce ECAs for investment in five additional groups of technologies: heat pumps; radiant and warm air heaters; solar heaters - specifically thermal systems; energy efficient refrigeration equipment (including display cabinets and compressor equipment); and air compressors (specifically steam traps and condition monitoring control systems).

renewables centre



The Regional Development Agency for the north east of England, One NorthEast, is competing with the development agency for Barrow and the Furness Peninsula in the north west. Furness Enterprise, to attract renewables research and manufacturing companies.

One NorthEast has established the UK's first large scale New and Renewable Energy Centre (NaREC) while Furness Enterprise is inviting potential wind turbine manufacturers to take over existing dockside manufacturing facilities.

One NorthEast has allocated £10 million to develop NaREC, which will feature research, development, education, manufacturing, and working examples of energy technology. The core of the centre will be at the Port of Blyth, the site of Britain's first, two-turbine near-shore wind farm.

During a visit to launch the project, Energy Minister Brian Wilson viewed the purposebuilt facilities currently being developed and launched Europe's largest scientific wave testing machine. He also announced a collaboration

between NaREC and the Orkney Marine Energy Test Centre for 'wet' renewables.

NaREC is a partnership of One NorthEast, the Region's universities and private industry, with strong support from local authorities and related partners. Its primary purpose is to provide facilities to fast track new and renewable energy R&D through to commercial use. Close to the coast, the NaREC test site operates with the huge marine test facility of EEST (Euro-Seas Engineering Solutions and Testing).

NaREC has a strong board of public and private sector representatives, with Dr Chris French, Lecturer of Marine Technology at Newcastle University, seconded as centre Director, and the energy expert Professor lan Fells as its Chairman.

Meanwhile, Furness Enterprise is advertising Barrow as the natural site for the manufacture or assembly of wind turbines bound for use on the UK's west coast, the Irish Sea basin and Ireland. The port can handle large ships, and contains a considerable amount of transport and industrial infrastructure to support a new manufacturer



New support for biomass to power - and CHP

Energy Minister Brian Wilson has launched a £66 million support scheme for bio-energy projects. The money will support the establishment of up to six power stations to produce electricity from burning fast growing crops such as straw, willow or miscamphus (elephant grass), and up to a hundred smaller CHP plants.

The Bioenergy Capital Grants Scheme, jointly funded by DTI and New Opportunities Fund, is expected to lever in an additional £200 million of private sector investment.

Brian Wilson emphasised the potential benefits to the rural economy of crops-forenergy: "Rural communities have much to gain from the growth of this industry, in terms of jobs and farm incomes. Harvesting and transport will provide employment throughout the difficult winter months - when most energy crop-management takes place.

"A key reason for DTI funding of this programme is to bring forward advanced technologies - such as pyrolysis and gasification, and to develop supply chain networks. We have also recognised within the Renewables Obligation the supporting role that co-fired power stations can play in helping to develop biomass and energy crops. At the same time, the Government has already put in place support for the establishment of energy crops through DEFRA's Energy Crop Scheme, worth an additional £29 million over the next six years."

Application packs and programme guidance notes are available from: www.dti.gov.uk /renew/eoi.htm.

BP and customers make early emissions trades

BP says it has used the UK's newly introduced emissions trading scheme to carry out early trades, including in one deal the sale of 1,000 carbon credits to IMERYS, enabling both companies to gain firsthand experience of trading early in the life of the scheme.

IMERYS, the international minerals processing group formerly known as English China Clay, have worked closely with BP over the past 12 years to achieve significant improvements in their energy and environmental performance. They became the first energy customer to benefit from a BP service designed to support the UK's recently introduced Emissions Trading Scheme and help customers lower emissions.

The service, which came into effect on the first day of trading, enables customers to access information on the emissions trading market and track their own environmental performance against agreed targets.

BP is currently securing similar service agreements with other customers. Fiona MacLeod, BP's UK Gas and Power Managing Director, said: "BP has gained extensive experience in emissions trading from our own, internal emissions trading scheme. Developing an information service for our customers in support of emissions trading is part of our continuing efforts to provide innovative services that go beyond the provision of energy and, in this case, that help lower emissions cost-effectively."

First major offshore wind farm gets consent

A major offshore wind industry for Britain has moved a step closer with Energy Minister Brian Wilson granting consent for a 76 MW offshore farm to be built at Middle Scroby Sands, some 2.5 km off the coast of Great Yarmouth in Norfolk.

The development, of up to 38 turbines, will be the single largest offshore wind farm in the UK and should provide enough green electricity for 52,000 homes. Work is scheduled to begin next winter for completion by the summer

of 2003.

Wilson granted consent under section 36 of the Electricity Act 1989 to Powergen Renewables Offshore Wind Ltd for construction and operation of the proposed wind farm, the first of up to 18 in the pipeline after several offshore sites were licensed for development last summer.

Brian Wilson has also established a new 'Renewables Advisory Board' to advise him on future stategy for renewables.

An indoor barbecue fuelled by a handful of sticks in a container open only at the top could bring back the ancient art of wood fire grilling - according to its inventor Joseph Wildman of the Central Fire Company. "Put a match to newspaper beneath thin, dry sticks and the Wildman woodfire grills fish and meat in about a third of the time used by charcoal", claims Wildman.



International

US nuclear operators gear-up for the future

While it is over 20 years since a new nuclear plant has been proposed in the US, recent licensing moves suggest that nuclear power may once again be on the move. In response to a new, streamlined licensing process offered by the Nuclear Regulatory Commission (NRC), and a DOE offer to share the cost of preparing a permit, three nuclear operating companies have announced their intentions to apply for a socalled 'early site permit' at existing nuclear stations.

Entergy Nuclear, one of the three, emphasised that it does not currently plan to build a new nuclear plant, but will examine the economics three to five years from now. The company has applied for a permit at its Grand Gulf Nuclear Station, located in Port Gibson, Mississippi. According to Entergy, the new permits, if granted, would be applicable for 20 years and could then be renewed for another 20 years. The preparation of the early site permit application will take approximately a year and includes evaluating suitability of the site based on population, transportation routes and potential environmental effects from construction and operation of a new plant. The application will be submitted to the NRC in June 2003.

Meanwhile, the Tennessee Valley Authority (TVA) is considering restarting its Browns Ferry Unit I nuclear power plant. A new report estimates that it will take five years and \$1.7 billion to restart the reactor, which has not operated since 1985. The project is currently undergoing an environmental review.

Although nuclear generating capacity has remained essentially steady for the past 12 years, nuclear operators have successfully kept the units operating more often in recent years. According to DOE's Energy Information Administration, the amount of In a contract worth £5 million, over 3,000 of UK manufacturer Remsdaq's CallistolES remote terminal units (RTUs) are currently being installed by the Thailand Provincial Electricity Authority (PEA) in 50 substations and on over 2,000 pole-mounted switches, reclosers and regulators. The installation will provide PEA with enhanced management and supervision of its electricity distribution network as well as a sophisticated automation scheme.

The PEA operates numerous substations and distributes electricity to clients in 70 provinces around the country. It receives power from the Electricity Generating Authority of Thailand (EGAT) over 500, 230 and 115 kV transmission lines and converts it to 69 kV and then to 11, 22 and 33 kV.

The project is managed by SNC Lavalin of Canada. The Callisto RTUs communicate with SNC's distribution management and energy control systems, located at five regional and one national control centre using system-wide radio links.



electricity generated by US nuclear plants achieved a

record last year, at 769 billion kWh.

HotModule fuel cell heads for series production

Developed in Germany, the MTU 'HotModule' fuel cell plant is on target for series production, following the ordering of 15 modules for delivery around the world this



Production

and next year. Plants have been ordered for stand-by power, cogeneration and DC power supply applications, with some units to be fuelled by special gases. Customers

include companies

in the power supply, telecommunications, health and industrial sectors in Spain, Germany, Japan and the US.

The high temperature fuel cell achieves an electrical output of 218 kW at a cell block output of 250 kW, plus 170 kW of thermal energy, giving a total utilisation efficiency above 90%. Oxides of sulphur and nitrogen produced by the plant are too low to be registered, says MTU, and carbon dioxide emissions are very much lower than those from conventional power stations. As well as natural gas, the HotModule can be operated on methanol, biogases from sewage treatment works, landfill gas and certain other industrial waste gases.

Two field trial plants installed at a university and a hospital in Germany have demonstrated the performance of the technology under real conditions.

International

EU carbon emissions now rising again

The European Union has delivered on its long-standing commitment to stabilise emissions of carbon dioxide at their 1990 level by 2000, despite an emissions upturn in the final year of the period. Total carbon dioxide emissions from the 15 EU Member States were 0.5% lower in 2000 than 10 years earlier, according to the latest emissions inventory from the European Environment Agency.

Less positive, however, is that EU emissions of carbon dioxide and other greenhouse gases rose between 1999 and 2000, the most recent year for which EU-wide data are available. CO₂ accounts for around 80% of the EU's total greenhouse gas emissions.

Carbon dioxide emissions taken alone increased by 0.5%

in 1999-2000, while emissions of CO_2 and the five other gases controlled by the Kyoto climate change Protocol together rose by 0.3%.

Under the Kyoto Protocol the EU is required to cut its combined emissions of the six gases to 8% below their 1990 level by the years 2008-2012.

The latest inventory shows that in 2000 total EU greenhouse gas emissions stood 3.5% below their 1990 level. In 1999 they had been 3.8% lower, according to the most recent estimates.

One of the main reasons for the overall emissions rise from 1999 to 2000 was a 2.4% increase in CO_2 emissions from electricity and heat production, due in part to an expansion of power generation from fossil fuels, especially coal, in the UK, the EU's second-largest emitter, says the Agency. Another reason was continued growth in greenhouse gas emissions in Greece, Spain, Ireland, Italy and Belgium.

The year-2000 figures mean that more than half of the European Union countries are still heading towards overshooting their agreed share of the EU's greenhouse gas emissions target by a wide margin. This is the case for Austria, Belgium, Denmark, Greece, Ireland, Italy, the Netherlands, Portugal and Spain.

Spain is furthest away from keeping to its share of the EU target: its emissions in 2000 stood 34% higher than a decade earlier, more than double the 15% increase it is allowed between 1990 and 2008-2012. At the other end of the scale Germany, the largest EU emitter, has achieved the greatest emissions cut among the big Member States, recording a 19% decrease over the decade. This is not far off the 21% reduction from 1990 levels that Germany is required to show by 2008-2012.

Upgrading Nigeria's electricity system

Global power and automation company ABB has won contracts worth \$44 million from Nigeria's state-owned National Electric Power Authority (NEPA) to upgrade the country's electrical supply infrastructure.

In a major, two-year project worth \$34 million, ABB will design and build a 132 km, 330 kV transmission line connecting the cities of Benin and Onitsha in southern Nigeria. The contract includes a 2.5 km overhead transmission line across the Niger River, and installation of composite fibre optic cable throughout the line to strengthen the country's telecommunications and data communications capabilities.

A second project is the \$10 million, refurbishment of ninety-two 330 kV and 132 kV circuit breakers at seven transmission and distribution substations throughout Nigeria. In addition to supplying range of high-voltage components, ABB will provide technical training for NEPA engineers.

BP, Chevron Texaco turn to wind for Rotterdam refinery

UK-based consultant Mott MacDonald has been appointed owner's engineer by BP Energy Marketing by for a 22.5 MW wind farm to be built at BP and ChevronTexaco's jointly-owned Nerefco oil refinery near Rotterdam in the Netherlands see Energy World, March 2002. The 25 million euro scheme to be built by German manufacturer Nordex - will be the first substantial use of wind turbine technology for both BP and ChevronTexaco.

The project will support both the Dutch national target for renewable energy generation and the covenant between Rotterdam harbour authorities and the Government, aimed at encouraging environmental projects within the Europoort area.

The scheme comprises nine 2.5 MW wind turbine generators which will produce electricity equivalent to the consumption of 20,000 households, displacing 20,000 tonnes of carbon dioxide a year. The turbine height will be 80 m above ground level and the blade disc diameter will also be 80 m. Each turbine nacelle will weigh about 100 tonnes and will be accessed through a hollow steel support tower. The project site offers many advantages for a wind farm including a shoreline location with exposure to

strong and consistent winds, access to the national power grid and minimal visual impact, the nearest housing being some 2 km away.

As owner's engineer, Mott MacDonald's role includes reviewing detailed designs for all civil, mechanical, electrical and control aspects, inspecting the equipment at the manufacturer's works. overseeing and managing construction and assisting the owner with all plant start-up, commissioning and performance tests. With construction teams already on site, it is expected that the plant will begin operation in the second half of this year.

No more easy money - how to

by Chris Bowden, CEO, Utilyx, Group member of the InstE

Electricity prices have fallen by over 12% since the beginning of January this year, and by more than 18% since January 2001. Base load prices are now below some electricity generating plants' cash costs of production. For energy buyers, this price collapse has created an environment where they could earn their companies double digit percentage reductions in energy costs. To continue to deliver further energy cost reductions will be a challenge. Chris Bowden predicts that only smart buyers will be successful.

Companies are starting to realise that there are only two ways to compete and succeed; increase the top line and/or reduce the bottom line. In their quest for competitive advantage and bottom line improvements, companies need to rethink their approach to important business processes such as procurement.

Energy buyers are often responsible for thousands, if not millions, of pounds in energy spend, yet very few have any tools available to increase the efficiency of the buying process. In fact, one industry executive recently noted sarcastically that: "Currently the leading sourcing automation company must be Microsoft; since the only software tools that purchasing people have available to them are Excel, Word and Project."

Even if buyers have tools, many of these are poorly designed to deal with the unique characteristics of the energy

market. In addition, many people have continued to follow the same buying processes that have been in place for years, such as always waiting to renew a couple of months before their contract end date, or having to get board approval for a contract following the receipt of a price. These existing practices will need to be reviewed if buyers want to embrace the speed and efficiencies of new technology and the savings they can bring.

Electricity markets have changed dramatically in recent years and especially since the introduction of the wholesale electricity trading arrangements, or NETA, introduced in England and Wales in 2001see Figure 1.

The new arrangements were designed to provide greater competition, while maintaining a secure and reliable electricity system. They are based on bilateral trading - that is, they are binding agreements between two parties; one a seller and the other a buyer, in this case generators, suppliers, traders and customers. These arrangements were created to both provide and encourage the development of forwards and futures markets, and to introduce a balancing mechanism and an imbalance settlement process. This will make payments to and from those companies whose contracted positions do not match their actual metered electricity production or consumption.

NETA has created an environment

where market prices are the key driver; suppliers, particularly generators, who might once have ignored these prices when selling power to commercial and industrial customers, are increasingly market price sensitive. Whereas Account Managers might have been given weekly updates to the pricing matrix used to price retail customer load, they now find themselves having to update this matrix on a daily or even hourly basis.

SQUEEZING THE MARGIN

The price a company pays for its energy is driven by wholesale market prices, which are then mapped against their unique characteristics of demand or load profile. Added to this is a margin for risk and profit. Very few companies consume enough energy to have any effect at all on wholesale market prices, so buying electricity is all about squeezing the margin that is paid over the wholesale price. It is this margin that needs to be understood, measured and used as the benchmark against which a buyer can evaluate the effectiveness of their buying process, since this is the only element of the price over which the buyer has any control. Other elements of the final delivered price such as transmission, distribution and metering are largely out of the buyers' control.



succeed as a smart buyer

To reduce this margin, companies first need to understand how it is calculated, and only then can they adapt and improve their existing processes to reduce this margin.

Electricity is a commodity, just like oil or gas, and it is actively traded throughout the day and night by generators, suppliers, traders and some large buyers. Most electricity trades are executed in the overthe-counter market, rather than on exchanges like UKPX or APX, and are bilateral. Electricity is generally traded in standard contracts which break down from a season; to a quarter; to a month; to a week; to a day; then to a block; then a half hour contract. Companies like Heren and Platts capture the prices at which these contracts trade, on a daily basis.

There are two major contract types; base load and peak load demand. Base load is a contract for a constant flow of one megawatt of electricity per hour for the entire 24 hours in a day, whereas peak load is from 7.00 am to 7.00 pm. When pricing retail electricity, a supplier will map these base load contracts and prices against a buyer's base demand and map the peak contracts against a buyers peak demand. The supplier will then add to this a margin for credit risk, balancing risk, forward market price risk and profit.

The predictability of a company's load profile is the factor upon which the balancing risk is evaluated. This is done by analysing the variance of each half hour; should this variance be high, then the supplier will add a much higher margin. The cost of balancing can be considerable, particularly if the variance is high during pressure points like 7.00 am in the morning and 5.00 pm in the evening.

However, companies can take control and reduce their balancing risk by ensuring business processes that consume electricity are always started and finished at the same time each day, and that the electricity consumption for the business process remains relatively constant. Of course, in practice this may not be possible, but it is still worth analysing the balancing risk to highlight any times of day when this is high.

The real key to reducing the margin is the speed of execution; receiving, analysing and gaining immediate feedback on prices is essential - not something that is easy to get using Excel spreadsheets or email.

VOLATILE PRICES

The risk a supplier takes on when submitting a price relates to the forward market prices. This risk is a function of both how volatile the supplier perceives the market to be when offering the price, and how long the price is left on the table. Electricity prices are extremely volatile and can move as much as 5% in a matter of days, thus if a supplier is required to leave a price on the table for three or four days then they are likely to add a 5% margin to ensure that they don't lose out if the market moves against them. Thus a purchasing process that involves faxes, telephone calls and Excel spreadsheets increases the time it takes to analyse an offer and thus increases this margin.

Furthermore, due to the way the UK market was privatised, electricity is not a single product, but rather a mixture of many different products; energy, transmission, distribution and other supply charges such as metering. In addition, the cost of energy, transmission, and distribution differs during the course of a day. Combine this with the fact that an organisation's consumption varies throughout the day and one has a fairly significant and complex calculation to make to try to evaluate different suppliers' quotes.

This is where some of the widely available internet e-markets, such as Utilyx, come into their own. Powerful software to do the sorts of calculations outlined can be hosted on large servers at a secure remote location where, in addition, a company's unique consumption data can also be stored. So, when a supplier feeds a quote via a web browser into the system, the calculation can happen in seconds and the results be instantly presented through the web to the buyer to review, analyse and compare using real-time analysis tools. The idea of a company developing and maintaining such software itself makes little sense since it would take years' of developers' time and considerable cost, yet through the internet any organisation with a browser can have access to the same software, at a fraction of the cost and with immediate payback.

In this maturing energy market and increasingly technology driven world, successful buyers will need to think more like traders, adopting new techniques and the latest technologies while adapting their existing processes to become successful in driving down the vital margin.

Contact Utilyx at www.utilyx.com

Buying energy the Utilyx way

Founded in February 2000 Utilyx (www.utilyx.com) has enabled many of the UK's leading companies to reduce their energy costs dramatically. Operating exclusively in the commercial and industrial market, Utilyx says it has registered over 2,500 energy buyers since its launch in July 2000. This represents 25% of a market that spends ± 10 billion per annum on energy. To date, the company has placed nearly 12 TWh of energy with a market value of over ± 260 million.

The customer base is still expanding and now includes several of the UK's major energy buyers such as Marks and Spencer, Tesco, Waitrose, Boots, Air Products, Rexam and Kimberly Clark.

Green electricity at brown prices - how

by Bob Olding MInstE, Senior Energy Engineer, Bournemouth Borough Council.

Local authorities are often found near the front when it comes to acting in an environmentally-benign fashion, for example, by buying green electricity - and Bournemouth Borough Council is no exception. Here, Bob Olding reports on how green power can sometimes be bought at 'brown' prices, and on other work the Council is doing.

Bournemouth is a major tourist resort and the Borough Council is justly proud of it's parks and beaches. Sustaining the environment has always been a priority. With previous accolades such as being one of the top recycling boroughs in the country, and a 'Green Globe' environmental award for its conference centre, the environmental issues surrounding energy use have been prominent in recent years. Bournemouth also runs a fleet of natural gas powered vehicles ranging from light vans to the 'noddy trains' which carry holidaymakers along the seafront.

In 2001, Bournemouth became the first local authority in Dorset to sign up to a 'Making a Corporate Commitment' to reduce greenhouse gas emissions and water consumption. This commitment was endorsed and signed by the leader of the council and the Chief Executive.

This highlights one of the key points in any council-wide local authority initiative; securing support from the top. Councillors, Senior Officers and those involved at the front line in delivering energy improvement need to work together to ensure success. Energy efficiency is no exception and has been a corporate function

for many years. Bournemouth's Community Plan objectives include minimising waste and energy use along with other environmental issues.

Although Bournemouth Council has over 540 buildings, with 900 electricity and gas supplies, the three largest buildings use 25% of the energy; the next 30 buildings use 25%, and the other 500 make up the balance. Therefore the best savings in cost and greenhouse gas emissions reductions will come from targeting just a few of the larger sites. Budget holders have been well briefed on the environmental benefits of renewable energy. In 2001 the largest three buildings, using nearly 8 GWh per year have been switched to 100% renewable from Ecotricity. The 10 GWh street lighting account was also switched to 100% renewables, from London Electricity. When the Climate Change Levy (CCL) is included, the total cost of 100% green was less than 1% more expensive than brown and, on one site, was actually cheaper. With electricity prices lower than when previously tendered, street lighting electricity costs were kept within the



existing budget, taking into account the reduction in CCL by going for 100% green.

As with many other organisations, utility contracts have always been based on a start date of the first day of October. Many suppliers are under extreme pressure at this time and it was thought that changing this date may lead to lower prices. Therefore the current contracts will run for 13 months and be renewed from 1 November.

This will also allow added consultation with local schools. In previous years they have given written permission for contracts to be entered into on their behalf if the lowest price was accepted. With some governing bodies and head teachers keen to 'go green' they will need to make a positive decision, as renewable prices are likely to be higher than brown. Having a contract start date in November will allow decisions to be made by the governing bodies early in September, after the summer holidays.

The decision to opt for renewable electricity supplies was relatively easy, given the small price differential. Many other departments are now keen to purchase renewable supplies and it is hoped that

> they will follow the lead set by the others. The support of the key budget holders has been instrumental in allowing a change to renewable supplies and without their support this task would have been more difficult to accomplish.

Although the greenhouse gas emissions reduction - of over 30% due to green purchasing - was well received it must be said that this may not continue if the price of green electricity is substantially higher in the next round of tenders. With increasing pressure on budgets, there is still the overriding principal to obtain the cheapest possible utility costs to ensure 'best value' services.

However, with environmental objectives becoming more important, a strong case is being made for a steady and continuous increase in the purchase of green electricity. Whilst an authority-wide staff awareness campaign will be launched later this year, the work involved in reducing energy consumption may mean that paying a premium to secure renewable supplies may be the most cost-effective way in meeting green targets. It would seem in the best interest of all concerned to have a planned increase in the use of renewable

one borough council makes it work

electricity supplies over the coming years. This is difficult to organise, given constraints on local authority tendering procedures, and will probably mean that a change in the way public bodies procure energy supplies will be needed.

On the energy efficiency side, as much free advice and help as possible is used. The CCL which is added to utility invoices funds many schemes that can be of great assistance to energy managers. With no budget available for energy efficiency improvements and increasing pressure on resources, all available free help is utilised.

All new-build and major refurbishment projects are subject to a 'Design Advice' energy consultation and all major buildings have had a 'Site Energy Assessment' carried out free of charge. (Details of these schemes are available on the Energy & Environmental Helpline, 0800 585794.)

Following these audits, design notes issued to architects and consultants are in the process of being amended to improve energy efficiency in future schemes.

Contact Bob Olding at Bournemouth Borough Council, tel: 01202 456307, e-mail: bob.olding@bournemouth.gov.uk

Power that won't cost the earth

Ecotricity is dedicated to making and supplying electricity from sources that don't pollute and won't run out. At the heart of its business is a commitment to build new wind turbines. But don't expect to pay more for ecotricity just because it doesn't damage the environment; the company is committed to supplying green for the same price as conventional electricity.

Customers come from both business and public sectors and all have different requirements for green electricity. Some of the more high profile organisations are the Body Shop, B&Q, EMI and the Co-operative Bank. But the company also supplies many small and medium sized businesses such as organic food distributors, industrial manufacturers, financial corporations, local authorities, restaurants and schools.

Ecotricity says it is the only electricity supplier dedicated to building new renewable energy capacity, aiming to build a minimum 500 MVV of new wind energy by 2010.

Its innovative 'merchant wind power' (MWP) initiative has shown that wind power does not require the support of Government subsidies or premium prices. MWP provides an exclusive source of wind generated electricity, which is both commercially viable and price secure, for organisations with an environmental agenda.

The company built its first MWP project for Sainsbury's in March 2001. The UK's first fully-commercial wind turbine built without Government subsidy, it generates nearly half the power requirements of the retailer's distribution depot in East Kilbride, Scotland - see the photograph on the front cover. Sainsbury's pay a market price for the green electricity, which will cost less than conventional electricity in the long term.

Merchant Wind Power is available on or off-site for any organisation with an environmental agenda. All that Ecotricity requires in return is a 12-year commitment to buy the power.

Finally, the company's 'Our Home Supply' service is being launched nationwide later this year will revolutionise the domestic market place, says Ecotricity. "The greenest tariff in the UK, it will offer unique benefits to the environment, at no extra cost to our customers". **Contact Ecotricity by completing the** online form at www.ecotricity.co.uk

Not as simple as it sounds - buying green power

A new energy league table produced by Friends of the Earth (FoE) reveals that some domestic electricity tariffs offering environmental benefits are not as green as customers might believe. FoE is calling on companies to take action to clear up the confusion by improving their products and making their marketing materials clearer. Unit[e] came top of the league and FoE wants other suppliers to follow their lead in making a clear commitment to doing more for the environment than is legally required.

Since last month, all UK power suppliers have had to provide 3% of their electricity from renewable sources. To show that they have done this, they are awarded green certificates for every unit of green electricity they buy. They must have green certificates equivalent to 3% of their energy output or face a fine.

But the different eco options supplied by companies can be confusing for consumers wishing to choose the greenest electricity tariff, says FoE. Some green tariffs may be selling just the basic minimum quantity of renewable energy that a company must provide to comply with the law, and because trading of green certificates is possible, a supplier can sell on the greenness of the electricity they buy to help another company comply with the law.

FoE intends to update its league table later in the year to take account of any changes suppliers make as a result of the new Ofgem guidelines.

Ranking	Tariff/company
1	Unit[e] (Unit[e])
2	Ecotricity (Ecotricity)
2	Green Energy 100
	(Green Energy UK)
4	Eco Energy
100	(Northern Ireland Electricity)
4	Green Energy 10
	(Green Energy UK)
6	Juice (Innogy Group)
6	Ecopower (TXU Energi)
6	Green Tariff
1.00	(London Electricity Group)
9	RSPB Energy
	(Scottish and Southern Energy)
9	Green Energy Offer
	(Scottish Power)
11	Green Fund Tariff
	(Seeboard Energy Ltd)

Recent regulatory issues -

Aubrey Bourne, Policy Advisor to the Major Energy Users' Council

Aubrey Bourne looks at recent initiatives from the energy regulator, Ofgem, and comments on their impact on large commercial and industrial customers.

Ofgem published an 'initial proposals' document: NGC system operator incentive scheme from April 2002. The new scheme builds on the old one, which has been quite successful in reducing NGC's system operator costs, and is therefore welcome. There is now less uncertainty over the effects of NETA, though a full winter, with its implications for maximum demand, had not been experienced at the time. The scheme will be reviewed again in twelve months.

The regulator has also introduced a scheme to give compensation of £50 to customers who suffer multiple power cuts. The MEUC pointed out that such a sum, while reasonable for domestic customers, was totally inappropriate for industrial and commercial (I&C) sector customers. Such customers should receive compensation which relates to their actual losses. MEUC has written to Ofgem asking for further discussion.

Ofgem has produced a survey document: Review of competition in gas and electricity connections. It will be interesting to see how many I&C customers responded, and how they reported their experiences in this section of the market. Ofgem also published a consultation document: *Guaranteed standards of performance for gas transportation*, which was mainly concerned with compensating domestic customers when the supply fails. The statement "The compensation scheme for non-domestic customers will continue to be covered by Transco's Network Code" was little consolation for most larger consumers, especially any connected to an independent gas transporter's network.

Ofgem's Transmission access and losses under NETA – revised proposals raised interesting points. They have revisited the subject of zonal transmission loss charging, on the back-burner since before privatisation, more detail below. It was good to see that others beside MEUC had expressed doubts as to whether the expected benefits warrant the costs of this exercise. How is a large-demand site supposed to react when instructed to increase its consumption? One good thing to be seen was Ofgem's revised views on the efficacy of auctions as an instrument for allocating capacity. Can we expect this to be read across into the gas NTS entry capacity scenario?

The two Distribution Code Review Panels (one for Scotland, one for England and Wales) published a Joint Report: Development of a Single Distribution Code for Great Britain. MEUC members with offices or factories on both sides of the border recognise this as a step in the right direction, but note that the subject will have to be revisited when British Electricity Trading and Transportation Arrangements (BETTA) are introduced. There is a curious asymmetric anomaly in the composition of the proposed single Distribution Code Review Panel; at least one of a certain class of member must be a user of a Scottish transmission system, but there is nothing to prevent them all being Scots, to the exclusion of the Sassenachs.

Although MEUC did not comment on Ofgem's final proposals document: Connection and charging policy for new generation by Scottish Hydro Electric Transmission Ltd, it was a welcome step in the right direction. Similar remarks apply

New supplier, new tariff cut electricity bills

Witham Fourth District Internal Drainage Board has managed to substantially cut their annual electricity expenditure by utilising the services of multi-utilities specialist McKinnon & Clarke. In a commercial relationship which has been ongoing since 1993 McKinnon & Clarke's analysis has effected consistent savings each year, peaking at £5,750 in 2001.

Historically, Witham Fourth District IDB, whose sites cover the Hobhole and Ladebank pumping stations, were unable to secure the most economical electricity tariffs available. This was due to their erratic usage of electricity, which was entirely influenced by weather patterns and their effects on the community. Due to these usage patterns, the Board had been restricted to a multi-rate contract (with six to seven different rates being applied) for different times of the year, with higher rates being applied in winter.

Investigations conducted by McKinnon & Clarke's analysts identified that increased savings could be made by moving the Board to an alternate supplier. On I November 2001, McKinnon & Clarke transferred them from their previous supplier to a 24 month contract with npower, negotiating the implementation of a straightforward night & day tariff contract. This simplified structure eliminates the expensive winter charging periods under the previous multi-rate contract. The result of a new tariff structure being implemented through the new supplier are annual savings against the agreed baselines, which have been calculated at $\pounds 5,750$ per annum covering both sites.

"We don't have the time or resources to bring in-house the kind of thorough analysis and assessment McKinnon & Clarke provide us on an ongoing basis. Outsourcing this service leaves us with the time and money to concentrate on our core business activities and, of course, the savings improve our bottom line," said Rex Piggins, Chief Executive of Witham Fourth District Internal Drainage Board. **Contact McKinnon & Clarke at tel: 01383 745 165,** website: www.mckinnon-clarke.co.uk

an I&C perspective

to: Overall standards of performance for gas transportation – Consultation on draft determinations and associated modifications to GT standard licence conditions which, although obviously written with domestic customers in mind, applies to I&C customers as well.

The Performance and Innovation Unit's Energy Review was given a cautious welcome. Particularly heartening was its recognition that, if the UK uses 'financial instruments' in isolation, then our international competitiveness will be threatened, while the planet's environment will remain in jeopardy. One thing that does seem certain is that the target of 20% for renewable sources of energy by 2020 is unlikely to be met without substantial changes in planning law, which will not be easy. The Government's response to the Report should make interesting reading.

Ofgem consulted on: RWE Group's proposed acquisition of Innogy Holdings plc. Although the two companies have substantially different customer profiles, we had two concerns. First, Innogy had been active in promoting demand-side participation, which we felt might conflict with RWE's generating interests. Secondly, we thought it inequitable that RWE should be able to reduce competition in the UK while protected (so far) on its home ground.

We welcomed Ofgem's: Summary of responses and next steps document Scotland-England Interconnector: Access criteria to 31 March 2004 which we thought proposed a reasonable solution to this vexed question.

The two-volume: The Renewables Obligation – Ofgem's procedures consultation paper – Summary of responses received a mixed reception. We and others had expressed concern about the labyrinthine nature of the processes Ofgem was proposing; the most common responses were: "It's in the legislation" and, "Outside Ofgem's remit". At least the certification procedure for buying green energy and for dealing with the Climate Change Levy are to be common.

And now, as promised above, more on

the subject of zonal Transmission Loss Factors (TLFs). Powergen has raised Modification proposal no.75 to the Balancing and Settlement Code calling for a methodology to be established for the calculation of TLFs on a zonal basis. The problem is that the present system of charging for losses cross-subsidises northern generation and southern demand, while unfairly placing additional costs on southern generation and northern consumers. This makes it difficult for MEUC to make a case, since some of our members will gain if the proposals come to fruition, while others will lose. But we do support the principles of fair, transparent charging and encouraging the optimal siting of generation and demand, although some loads, eg mines and quarries, have no choice about where they are sited. We hope that the new system of calculating TLFs is as simple (and therefore as cheap) as possible.

The European Commission's decision on gaming at the Bacton-Zeebrugge Interconnector was greeted with incredulity. Flows in perverse directions and substantial increases in UK gas prices, all suggested that some form of skulduggery was going on, yet none was found. Despite that, we are assured that new procedures will be put in place to prevent repetitions. We shall see.

There is a number of regulatory documents in existence which are too new for MEUC yet to have determined whether they are relevant to us, let alone to have taken a position on. They include:

- arrangements for gas and electricity supply and gas shipping credit cover;
- termination accounts for NGC's customers at shared connection sites; and
- Transco price control and NTS SO incentives 2002-07 (two volumes).
 We wait with bated breath for Ofgem's consultation on the proposed merger of NGC and Transco.

Contact Aubrey Bourne at the MEUC, tel: 01803 864462, e-mail: aubrey.bourne@meuc.co.uk

'Look before you leap' into a new contract

Electricity prices continued to drop in the first quarter of 2002, with suppliers and some consultants encouraging companies to trade their sites early, offering the carrot of attractive 'early bird' deals and predicting that prices would soon start to rise.

Whilst these offers appeared to represent very large savings, with contract prices being slashed since the previous year, those who chose to look more carefully and check the prices available from other suppliers were rewarded with significantly better deals, according to online energy procurement company EnergyQuote.

For example, a major financial institution was offered a 6% reduction by their incumbent supplier for re-signing early. Two days later this figure was increased to 8%. After refusing this offer, and instead trading through an online tendering system, the price that the company finally accepted around three weeks later was 16% lower, saving them over £1.2 million, says EnergyQuote.

Christopher Lydiard Wilson, CEO of EnergyQuote advises: "Companies should not feel pressurised into signing contracts with their suppliers before the due date. However, if they do wish to take advantage of the current low prices available in the market place they should put their contracts out to tender. Our customers' performances so far this year have demonstrated that many early bird offers were greatly improved in a matter of hours when submitted to the competition."

As companies with September, October and November renewal dates start focusing on their supplier options, competition due to oversupply in the market - is bound to be fiercer than ever.

Contact EnergyQuote at tel: 020 7352 9616, website: www.energyquote.co.uk

13

Monitoring for energy New meter records power quality for wind farms

Power quality is a serious issue for wind farms and new measures to control the existence of damaging harmonics within the electricity supply have brought it into even sharper focus. Now, manufacturer Rhopoint Systems has developed a power recorder which monitors energy usage and power quality, specifically for use in wind farms.

The new power recorder allows measurement of the harmonic content on the electricity grid and the harmonics produced by the drives in the wind turbine, giving the ability to resolve measurement discrepancies between the site and the electricity provider, says Rhopoint. In addition, the monitor can measure active and reactive power, power factor, voltage and current variations, power sags and swells, power fluctuations, transients during switching operations and flicker.

Until recently, standard monitoring techniques have not been suitable for wind turbines, as they have failed to recognise the factors that govern wind turbine power quality, such as wind speed and the fact that turbines produce rather than absorb power. Rhopoint's power recorder allows the user to accurately assess the impact of the turbine's drive on the electricity supply, as well as providing for all of the data requirements necessary for the user to comply with the G5/4 harmonics regulations.

Furthermore, says the company, it allows the user to check that negative power quality conditions, including harmonics, are not replicated on the generated power being exported.

Wind turbines can cause measurable grid interaction. For instance, voltage increases may accompany rises in power

Measuring high pressure gas flows

Coriolis flowmeters from Micro Motion have been used by natural gas transporter Transco, based on independent high pressure flow calibration test results from NMI, the Netherlands Metrology Institute.

Micro Motion Coriolis meters have demonstrated reliability and accuracy in gas metering applications on process and gas storage plants for many years, says parent company Emerson Process Management. This experience encouraged Transco to consider the same technology for use as a natural gas custody transfer meter.

Recognition of meter suitability followed a successful series of flow calibration tests on high pressure gas flows at NMI. The meters demonstrated their accuracy to within +/-1% of volume flow, says the company.

The benefits for fiscal or custody transfer metering stations used on large industrial or commercial sites include a smaller and simpler skid design than conventional designs; no moving parts and no lubrication or filtration requirements.

The meter provides direct outputs of corrected and uncorrected gas flow rate

High flow-rate gas measurement

and totalised flow, as well as gas mass flow rate and totalised mass flow and temperature. Typical applications include natural gas feed-lines, combustion control systems, and refinery gas measurement.

Contact Emerson Process Management on tel: 0151 604 3405, website: www.emersonprocess.com output; voltage fluctuations may reflect wind speed variations and switching events and flicker can be induced by tower shadow (the effect on a turbine with a down-wind rotor of the tower itself obstructing the wind entering its plane of rotation). In addition, harmonics are normally associated with the design of the turbine drive itself. The power recorder helps eliminate all of these areas of concern by allowing the user to attribute the effect to its cause.

Contact Rhopoint Systems Ltd, tel: 01883 722222, website: www.rhopoint.co.uk

Low cost flow measurement tool for air

Flowmeter manufacturer PVL says it has solved the problem of air flow rate measurement in pipes with a new instrument which will prove invaluable to compressed air users striving to cut energy costs in the wake of the Climate Change Levy.

The new ClimaAir flowmeter allows users to obtain accurate flow rate measurements so as to help isolate compressed air leaks and maximise efficiency of air use.

Flowmeters offer a reliable solution for monitoring - and so optimising - compressed air usage, but only if the meter is the correct specification for the task. Getting the right product depends on being able to determine the air flow rate through the pipe, and it is this that has proven such a challenge to measure, with variables of velocity, pressure and temperature to consider. ClimaAir says it offers a low-cost, portable solution which provides accurate flow measurements at pressures from 0-10 bar. As a highly portable product, ClimaAir is also suited for use to detect and isolate leaks. Contact PVL at tel: 01892 664499,

website: www.pvl.co.uk



Presidential review 2001

s the Institute of Energy's (InstE) President I am pleased to bring you the Summarised Accounts for 2001. Yet again, the continuing high profile of energy issues nationally and globally contributed to another productive and successful year for the InstE.

As your President I was privileged and pleased to work with many members and the staff team on a number of high profile activities. I would like to take this opportunity to thank you all for your commitment and support.

Climate change is, of course, an international debate. With the publication of the UK Climate Change Programme from the government and devolved administrations in November 2000, the complexity of the subject provided the InstE with a number of interrelated issues to address through its activities during the year, locally, nationally and internationally. Not least of these was a high profile annual energy policy conference held in London in conjunction with the CBI in June. Shortly afterwards came the announcement of the Prime Minister's Cabinet Office Review of energy policy to 2050, picking up a number of questions and issues of debate discussed at the InstE's event. In addition to submitting a high level strategic response to the consultation the InstE also worked closely with the Cabinet Office's Performance and Innovation Unit team to host the largest stakeholder consultation mounted during the review, which involved participation from many of our members as well as those from the wider energy community. One point made by the InstE in its submission to the PIU team was that

this review should be a starting point for policy-makers to continue their work, proceeding to practically address future priorities, using the expertise within the InstE and the wider community to move forward. Internationally, similar messages were conveyed when the InstE Hong Kong branch hosted a major energy and environment conference followed later in the year by the InstE's first presentation in recent years to the World Energy Congress in Buenos Aires in October.

The launch of the new electricity trading arrangements in March, replacing the electricity Pool, was met with mixed feelings. Again as part of the InstE's activities on the subject, key members and figures in the sector came together in October to review the first six months of operation under the new arrangements at a well attended event chaired by Martin O'Neil MP, Chairman of the Trade & Industry Select Committee.

Engineers and technicians amongst us saw a radical review of the engineering profession led by Science Minister, Lord Sainsbury and Chairman of the Engineering Council, Dr Robert Hawley. The InstE's Council and our Secretary & Chief Executive were both supporters and critics at various stages during the review. Work culminated in November with the launch of the Engineering Technology Board to promote engineering and technology to a community more broadly identified beyond the accepted engineering profession. This was to be followed by a separate, newly organised regulatory body in Spring 2002 to be known as the Engineering Council (UK). As a fully nominated and licensed body John Ingham - President of the Institute of Energy

of the Engineering Council, the InstE again demonstrated the competence of its members and staff on two regulatory matters. Firstly, the InstE was asked to present its approach in the development of matching sections to its peer Institutions across the engineering profession to share its expertise. Secondly, the InstE was one of the first Institutions to secure a new licence, 'senior route to registration', offered by the Engineering Council. All this was against the backdrop of implementing the new Standards and Routes to Registration (SARTOR 3) increasing academic standards for both Incorporated and Chartered Engineers.

Another development within the InstE's own standards saw the approval and introduction of a new grade of Technician Member (TMInstE), with the option to register as an Engineering Technician, (Eng Tech), as appropriate to the individual candidate.

Once again, I am confident that the InstE has worked hard on your behalf and to the benefit of society in 2001 and will continue to do so with relevance, professionalism and independence as it enters its 75th year in 2002.

John Ingham - President

Statement of the Trustees of the Institute of Energy

The summarised financial statements for the year ended 31 December 2001 set out on pages 16 to 18 are a summary of the information extracted from the annual accounts which may be obtained, together with the reports of the Auditors and Trustees, on application in writing to the Secretary and Chief Executive at 18 Devonshire Street, London, WIG 7AU.

These summarised financial statements

may not contain enough information to allow for a full understanding of the financial affairs of the Institute of Energy. For further information the full annual accounts, the Auditors' report on those accounts and the Trustees' annual report should be consulted.

The annual accounts were approved on 19 March 2002, and will in due course be submitted to the Charity Commission and have been audited by Messrs Kernon & Co.

Signed on behalf of the Trustees

D Barber Honorary Treasurer Date: 19 March 2002

The Institute of Energy Statement of Financial Activities

	year ended 31 December 2001				year ended 31 December 2000				
		restricted				restricted			
	unrestricted	income	endowment	total	unrestricted	income	endowment	total	
	funds	funds	funds	funds	funds	funds	funds	funds	
	(Interior	f	f	1 C	1 cincus	101105	f	f	
INCOMING RESOLIDGES	-	<u>_</u>	-	÷.	<u> </u>	<u>L</u>	-	-	
Charles Charles									
Charitable activities									
C 1	276 606			374 404	200 552			240 552	
Subscriptions	2/0,000			2/0,000	260,552			200,352	
Project and training event management	115,114			115,114	84,554			04,004	
Conferences	79,436			79,436	70,238			/0,238	
Journals and other publications	53,483			53,483	69,328			69,328	
Courses and other educational income	74,652			74,652	63,068			63,068	
Other activities to generate funds									
Rental income and room hire	43,610			43,610	10,058			10,058	
Royalties	4,921			4,921	5,101			5,101	
Miscellaneous income	9,580			9,580	10.287			10,287	
Investment income	12.810	1.827	7 1.677	16.314	14,993	2.107	1,668	18,768	
Donations	750	70)	820	1.01.15	32,216		32,216	
Donations			Second Second			021210		1000	
Total incoming resources	671.042	1,897	7 1.677	674,616	588,179	34.323	1.668	624,170	
					-				-
RESOURCES EXPENDED									
Costs of generating funds									
Investment management	2,368	643	3	3,011	2,868	714	(3,582	
Net incoming resources available for									
charitable application	668,674	1,254	4 1,677	671,605	585,311	33,609	1,668	620,588	
Charitable expenditure									
Project and training event management	53,646			53,646	31,218			31,218	
Conferences	72,906			72,906	64.677			64,677	
lournals and other publications	94.087			94.087	83.815			83.815	
Courses and other publications	29.625			29.625	24 084			24.084	
Mombership and other direct seets	15 467			15 467	9 704			9,704	
riembership and other direct costs	29.340			29.340	20.020			38.028	
Accommodation and related costs	20,300		1 500	20,300	30,020		1 500	1 500	
Awards			1,500	1,500			1,500	1,500	
Management and administration:				2 221				5 303	
Publicity	3,331			3,331	5,393			5,373	
Salaries and related staff costs	283,984			283,984	266,343			266,343	
General communications	65,246			65,246	75,134			75,134	
Professional	20,563	1,000)	21,563	12,180	534		12,714	
Other administration expenses	26,506	32	2	26,538	29,511	54		29,565	
	(02 70)	1.022	1 500	(0/ 252	(40.00/		1 500	642 174	-
lotal charitable expenditure	673,721	1,032	1,500	070,233	640,086	566	1,500	042,174	
Total resources expended	696,089	1,675	5 1,500	699,264	642,954	1,302	1,500	645,756	_
NET INCOMING/(OUTGOING) RESOURCES	(25,047)	222	177	(24,648)	(54,775)	33,021	168	(21,586)	1
Investment gains/(losses)		de trans							
Realised gains/(losses)	(5,281)	(1,470))	(6,751)	(19,119)	199		(18,920)	
Unrealised gains/(losses)	(48,127)	(20,844))	(68,971)	(31,436)	(6,995)	1	(38,431)	
	(53,408)	(22,314)) -	(75,722)	(50,555)	(6,796)		(57,351)	_
						20000	145	(70.027)	
NET MOVEMENT IN FUNDS	(78,455)	(22,092)) 177	(100,370)	(105,330)	26,225	168	(78,937)	_
Fund balances at 1 January 2001	458,910	145,900	34,218	639.028	564.239	119.675	34,050	717,964	
· ····································				A WEAR					_
FUND BALANCES AT 31 DECEMBER 2001	380,455	123,808	3 34,395	538,658	458,910	145,900	34,218	639,028	

All amounts derive from continuing activities.

All gains and losses recognised in the year are included in the Statement of Financial Activities.

The Independent Auditors' statement on summarised financial statements

Auditors' statement to the Trustees of the Institute of Energy

We have examined the summarised financial statements set out on pages 16 to 18.

Respective responsibilities of Trustees and Auditors

You are responsible as Trustees for the preparation of the summary financial statements. We have agreed to report to you our opinion on the summarised statements' consistency with the full financial statements, on which we reported to the members on 19 March 2002.

Basis of opinion

We have carried out the procedures we consider necessary to ascertain whether the summarised financial statements are consistent with the full financial statements from which they were prepared.

Opinion

In our opinion the summarised financial statements are consistent with the full financial statements for the year ended 31 December 2001. Kernon & Co Chartered Accountants and Registered Auditors, 4 Middle Street.

London, ECIA 7NQ Date: 19 March 2002

The Institute of Energy Balance Sheet as at 31 December 2001

		2001		200	0
		£	£	£	£
Fixed Assets					
Tangib	le fixed assets	57,954		75,519	
Unque	oted investments	10,968		10,443	
Quote	d investments	437,376		485,707	
			506,298		571,669
Current Assets					
Stocks	of Ties, Shields & Medals	2,444		2,726	
Debto	rs	82,775		102,448	
Bank b	alances and cash	47,362		62,354	
		132,581		167,529	
Liabilities falling d	ue within one year				
Income	e received in advance	10,080		33,905	
Credit	ors and accrued expenditure	90,141		66,266	
		100,221		100,171	
Net current asset	s		32,360		67,358
Total assets less c	urrent liabilities		538,658		639,028
Representing:					
Capital funds	- Endowments		34,395		34,218
Income funds	- Restricted		123,808		145,900
	- Unrestricted				
	- Designated funds	101,000		82,000	
	- Revaluation reserve	23,766		82,351	
	- Accumulated fund	255,689		294,559	
			380,455		458,910

Approved on behalf of the Trustees:

D. Barber Honorary Treasurer

Dated: 19 March 2002

The Institute of Energy Accounting Policies

I. Accounting Convention

The accounts are prepared under the historical cost convention, modified by the revaluation of quoted investments at market value; with the application of the fundamental accounting policies of going concern, accruals, consistency and prudence and in accordance with applicable Accounting Standards, the Statement of Recommended Practice issued in October 2000, and in accordance with the Charities (Accounts and Reports) Regulations 2000.

2. Basis of Inclusion

These accounts include the

incoming/outgoing resources for the year and the funds and net assets representing those funds at the year end of head office and all branches of the Institute of Energy, including those of its Benevolent Fund (for which, in addition, a separate audited statement is prepared).

3. Depreciation of Tangible Fixed Assets

Tangible fixed assets are stated at cost less depreciation. The historical costs of leasehold property and improvements thereon are depreciated evenly over the terms of the lease (expiring in 2009) and its carrying value does not necessarily represent the market value. Other tangible fixed assets are depreciated on a straightline basis over their estimated useful lives at the following rates:

Fixtures and fittings	10%
Electrical Equipment	25%

4. Quoted Investments

Quoted investments are included at market value, calculated on a portfolio basis. Unrealised and realised gains and losses are recognised in the year they arise.

5. Income and Expenditure

Income and expenditure are stated net of Value Added Tax (VAT) where applicable, and are recognised in the year to which such income and expenditure relate. Irrecoverable VAT is allocated to the SOFA on a line by line basis.

6. Liability for Dilapidations at Expiry of Lease in July 2009

An amount equal to the anticipated liability for dilapidations as estimated by Council at each year end, less amounts already set aside, divided by the number of full years remaining on the lease, has for a number of years been set aside annually by transfer to the Dilapidations Fund, in order to ensure that existing free reserves and the eventual Dilapidations Fund will together suffice to meet any eventual liability. Council has taken professional advice on this matter and presently estimates that the maximum to be set aside at anticipated 2009 prices will not exceed £240,000. Accordingly £19,000 has been allocated in 2001 to the Dilapidations Fund (2000: £19,000). Council has adopted the policy that any future liability will be subject to independent professional assessment in 2002 and 2007.

7. Pension Arrangements

The Institute of Energy contributed in the year to personal pension plans for eligible employees, funded on a money purchase basis and invested in insurance policies. Contributions are charged as expenditure in the year they fall due. All funds are independently administered.

8. Engineering Council Fees

The Institute of Energy acts as collecting agent for the Engineering Council in respect of fees, and accounts to it for such

The Institute of Energy Benevolent Fund Statement of Financial Activities

year ended 31 December

	2001	2000
	restricted	restricted
	income funds	income funds
	£	£
INCOMING RESOURCES		
Charitable activities		
Donations and bequests	70	32,216
Investment income	1,827	2,107
Total incoming resources	1,897	34,323
RESOURCES EXPENDED		
Costs of generating funds		
Investment management	643	714
Net incoming resources available for		
charitable application	1,254	33,609
Charitable expenditure - administration		
Professional fees	1,000	534
Bank charges	32	54
Total charitable expenditure	1,032	588
Total resources expended	1,675	1,302
NET INCOMING/(OUTGOING)		
RESOURCES	222	33,021
Investment gains/(losses)		
Realised gains/(losses)	(1,470)	199
Unrealised gains/(losses)	(20,844)	(6,995)
	(22,314)	(6,796)
NET MOVEMENT IN FUNDS	(22,092)	26,225
Fund balances at I January 2001	141,857	115,632
FUND BALANCES AT 31 DECEMBER 2001	119,765	141.857

All amounts derive from continuing activities.

All gains and losses recognised in the year are included in the Statement of Financial Activities.

fees on the basis of annual estimates, which are subsequently adjusted to actual. Balances between the Institute of Energy and the Council and amounts received or paid in advance are included in debtors and liabilities due within the one year as appropriate, but such fees are not otherwise recognised in the financial statements.

9. Operating Leases

Rentals payable are charged on a time basis over the term of the lease.

The Institute of Energy Accounting Policies

I.Accounting Convention

The accounts are prepared under the historical cost convention, modified by the revaluation of quoted investments at market value; with the application of the fundamental accounting policies of going concern, accruals, consistency and prudence and in accordance with applicable Accounting Standards, the Statement of

Statement of the Trustees of the Institute of Energy Benevolent Fund

The summarised financial statements for the year ended 31 December 2001 set out on pages 18 to 19 are a summary of the information extracted from the annual accounts which may be obtained, together with the reports of the Auditors and Trustees, on application in writing to the Secretary and Chief Executive at 18 Devonshire Street, London, WIG 7AU. These summarised financial statements may not contain enough information to allow for a full understanding of the financial affairs of the Fund. For further information the full annual accounts, the Auditors' report on those accounts and the Trustees' annual report should be consulted.

The annual accounts were approved on 19 March 2002, and will in due course be submitted to the Charity Commission and have been audited by Messrs Kernon & Co.

Signed on behalf of the Trustees

D Barber Honorary Treasurer Date: 19 March 2002

Benevolent Fund

Recommended Practice issued in October 2000, and in accordance with the Charities (Accounts and Reports) Regulations 2000.

2. Investments

Quoted investments are included at market value, calculated on a portfolio basis. Unrealised and realised gains and losses are recognised in the year they arise.

The Independent Auditors' statement on summarised financial statements

Auditors' statement to the Trustees of the Institute of Energy Benevolent Fund

We have examined the summarised financial statements set out on pages 18 to 19.

Respective responsibilities of Trustees and Auditors

You are responsible as Trustees for the preparation of the summary financial statements. We have agreed to report to you our opinion on the summarised statements' consistency with the full financial statements, on which we reported to you on 19 March 2002. We have carried out the procedures we consider necessary to ascertain whether the summarised financial statements are consistent with the full financial statements from which they were prepared.

Opinion

In our opinion the summarised financial statements are consistent with the full financial statements for the year ended 31 December 2001.

Kernon & Co

Chartered Accountants and Registered Auditors, 4 Middle Street, London, ECIA 7NQ Date: 19 March 2002

Basis of opinion

The Institute of Energy Benevolent Fund Balance Sheet as at 31 December 2001

	2	001	20	00
	£	£	£	£
Fixed Assets				
Unquoted investments				
- National Savings deposit bond	10,968		10.443	
Quoted investments	104,164		116,862	
		115,132		127,305
Current Assets				
Debtor - The Institute of Energy	1,348		3.181	
Accrued income	67		60	
Cash on deposit	2,329		8,953	
Cash in bank current account	889		2,359	_
Net current assets		4,633		14,552
Total net assets		119,765		141,857
Representing:				
Restricted income funds				
- Accumulated fund		109,515		110.698
- Revaluation reserve		10,250		31,159
		119,765		141.857

Approved on behalf of the Trustees

D. Barber Honorary Treasurer

Dated: 19 March 2002

EVENUS

June

Sustainable development of energy, water and environment systems Conference 2-7, June, Croatia Tel: +385 1 6168107 Email: dubrovnik2002@fsb.hr

InstE Branch Event **North East Branch AGM** 5 June, venue TBC Details from the North East Branch Andrew Cox Tel/Fax: 0191 261 5274 Email: awcox@eimr.demon.co.uk

Energy management Short course, 6 June, London Contact: Institute of Energy Tel: 020 7580 0008 Email: events@instenergy.org.uk

Hydrogen energy Conference, 9-14 June, Canada Contact: O'Donoughue & Associates Tel: +1 514 481 7408 Email: info@hydrogen2002.com

An introduction to solar shading design Course, 10 June, Watford BRE Tel: 01923 664800

How to purchase gas and electricity Course, 11 June, Coventry Contact: Energy Information Centre Tel: 01638 554920 Email: rwilbourn@eic.co.uk Co-sponsored by the Institute of Energy UK electricity markets Workshop, 11-13 June, Brighton Power Ink Tel: 01273 202920 Email: margaret@power-ink.com

Electricity in Europe Conference, 12-13 June Brussels Tel: 020 7915 5103 Email: icbi_registration@icbi.co.uk

InstE Branch Event Annual EMC lunchtime lecture 14 June, Cheltenham Contact: South Wales & West of England Branch Tony Boulton Tel: 0117 9323322 Email: a.boulton@talk21.com

Biomass for energy and industry

Conference and exhibition 17-21 June, Amsterdam Tel: +39 055 500 2174 Email: eta.fi@etaflorence.it

Advanced solar shading

Course, 18 June, Watford BRE Tel: 01923 664800

Nuclear energy: the future Workshop, 18 June, London Contact: Institute of Energy Tel: 020 7580 0008 Email: events@instenergy.org.uk

How to purchase gas and electricity

Course, 18 June, London Contact: Energy Information Centre Tel: 01638 554920 Email: rwilbourn@eic.co.uk Co-sponsored by the Institute of Energy

WindEnergy 2002 International trade fair

18-21 June, Hamburg Email: info@windenergy-hamburg.de www.windenergy-hamburg.de

Changes to Part L, H & J of the Building Regulations Seminar, 19 June, Preston Mid Career College Tel: 01223 880016 E-mail: courses@mid-careercollege.ac.uk

InstE Branch Event **The energy gap** Lecture, 20 June, Glasgow Contact: Scottish Branch Renate Powell Tel: 01866 822309 Email: renate@powellconsulting.co.uk

Energy security & market opportunities in Europe Discussion dinner, 20 June

London Contact: Di Hammet Tel/Fax: 020 8767 9744 Email: BEAwec@aol.com

Energy liberalisation building on lessons learned

Conference, 24-25 June Leipzig, Germany Eurelectric Tel: +32 2 515 1000 www.eurelectric.org

Engine emissions

measurement Course, 24-28 June, Leeds University of Leeds Alison Whiteley Tel: 0113 233 2494 Email: cpd.speme@leeds.ac.uk

Melchett lecture

Lecture, 26 June, London Contact: Institute of Energy Tel: 020 7580 0008 Email: events@instenergy.org.uk

Changes to Part L, H & J of the Building Regulations Seminar, 26 June, Southampton Mid Career College Tel: 01223 880016 E-mail: courses@mid-careercollege.ac.uk

Innovation & maturity in energy markets Conference, 19-26 June Aberdeen Contact: IAEE Secretariat Fax: 01224 272271 www.abdn.ac.uk/iaee

World Renewable Energy Congress Conference and exhibition

29 June - 5 July, Germany Tel: 0118 961 1364 Email: asayyigh@netcomuk.co.uk

Partnerships for sustainable energy R&D 30 June, Germany Contact: Dr Tony Vassallo Email: tony.vassallo@csiro.au www.det.csiro.au



Advanced sensors and instrumentation systems for combustion processes Call for papers, 30 June Contact: Professor Yan Tel: 01634 883732 Email: y.yan@gre.ac.uk Co-sponsored by the Institute of Energy

July

Corporate social responsibility and environmental management Conference, I-2 July, Leeds Contact: ERP Environment Tel: 01274 530408 Email: elaine@erpenv.demon.co.uk

Renewable Energy Expo 2002

Exhibition, I-3 July, Germany Tel: 020 8910 7893 Email: helen.beckett@reedexpo.co.uk

Combustion in boilers and furnaces

Course, I-5 July, Leeds University of Leeds Alison Whiteley Tel: 01 I 3 233 2494 Email: cpd.speme@leeds.ac.uk Radioactive waste management and decommissioning Summer school, 1-5 July Cambridge IBC Conferences Ltd Tel: 01932 893851 Website: www.nuclearevents.com

Changes to Part L, H & J of the Building Regulations

Seminar, 2 July, London Mid Career College Tel: 01223 880016 E-mail: courses@mid-careercollege.ac.uk

Wind energy

Conference & Exhibition 2-6 July, Germany Tel: 49 89 720 1235 Email: wip@wip-munich.de

Changes to Part L, H & J of the Building Regulations Seminar, 4 July, Bristol Mid Career College Tel: 01223 880016 E-mail: courses@mid-careercollege.ac.uk

75th Anniversary Dinner Dinner, 5 July, London Contact: Institute of Energy Tel: 020 7580 0008 Email: events@instenergy.org.uk Wind Power Technology Conference, 8-12 July Loughborough Tel: 01509 223466 Email: a.j.white@lboro.ac.uk

InstE Branch Event **Technical visit** 10 July, Wessex Water Bournemouth Contact: South Coast Branch Chris Wilson Tel: 01252 673570

Control of solar shading Course, 10 July, Watford BRE Tel: 01923 664800

UK electricity markets Workshop, 16-18 July, Brighton Power Ink Tel: 01273 202920 Email: margaret@powerink.com



Yearbook and Directory 2003

Do you want some free promotion for your business? We will list your company and contact details in the 2003 edition of the Yearbook and Directory. All you have to do is provide us with your details. Please contact: Mr John Cooper Excel Publishing Portland Buildings,127-129 Portland Street Manchester, M1 4PZ Tel: 0161 661 4156 john.cooper@excelpublishing.co.uk

The Yearbook and Directory 2003 will be distributed to all members free of charge with the January 2003 edition of Energy World and will also be available for sale.

If your company has previously apeared in the Yearbook and Directory, look out for a form. Fill it in to guarantee your entry. Don't foget, your company listing entry is completly free of charge.



Registering on an event seen here?

If you are registering on an event which you have seen listed here, please don't forget to mention to the organisers that you saw it listed in the *Energy World* Events Diary.

or further information about events, and to view the Institute of Energy's events alender please click on to our website at: www.instenergy.org.uk/community

InstE Branch events are open to everyone regardless of the branch they are organised by.

Institute of Energy 75th Anniversary Dinner

The Institute of Energy

invites you to a magnificent evening at the Mayfair Inter-Continental in London to celebrate its 75th Anniversary.

This impressive central London venue, located in the heart of Mayfair, will host the special dinner, commemorating the InstE's anniversary with reception drinks in the Danziger Suite, followed by dinner in the Crystal Room with the splendour of crystal chandeliers.

Individual tickets are available at £55+VAT and includes the drinks reception, a three course meal with coffee and petit fours. Corporate tables are also available and a table seating ten guests costs

£750+VAT.

The InstE has come a long way since it's formation in 1927 and as the membership it represents and society at large has changed so has the InstE. The evening will provide an excellent opportunity for you to meet with colleagues and friends.

All members and colleagues of the Institute of Energy (including partners) are welcome to this magnificent event. Dress: Lounge suit. To book your place, please complete the orange form included with this copy of Energy World, or for further information tel: 020 7580 0008 or email: communications@instenergy. org.uk

Ellis Memorial Lecture

This year the Midlands Branch's prestigious Ellis Memorial Lecture was held on the 10th April at the Birmingham Botanical Gardens, when Andrew Warren, Director of the Association for the Conservation of Energy and Chairman of the EEC Task Group on Sustainable Construction and Energy Efficiency, plus a participant in other Government energy i nitiatives, presented an address covering the latest EU Directive on Energy Efficiency in Buildings.

The Directive COM(2001)226, which becomes binding in June 2002 amongst all member states and is to be implemented as soon as possible thereafter, basically implies that whenever the occupancy of any building alters, the new incumbent will receive detailed advice on how it should be upgraded in terms of energy efficiency. In addition, the Directive indicates that all larger buildings irrespective of their usage and occupancy, when renovated, will be required to be brought up to a contemporary energy standard. The buildings will then be

covered by a certificate of compliance, which must be prominently displayed and include advice on how further energy reductions can be made.

Andrew gave a splendid presentation on the practical implementation of the Directive, which is aimed at increasing the uptake of cost effective energy efficiency measures, since it is estimated that in the EU, building usage accounts for some 40% of the total carbon dioxide emissions. It is estimated that the savings resulting from the implementation of the Directive will deliver greater energy and carbon reductions than any other adopted initiative.

The occasion was well supported from industry, with exhibitions provided by Vent Axia, EAGA Partnership, Ex-Or, Energy Metering Technology, Allen Martin Conservation Ltd, and HQ, to whom the Branch gratefully acknowledges.

The photograph shows the Institute of Energy President, John Ingham, presenting Andrew Warren with the Ellis Medal.



ENERGY MANAGEMENT

Would you like more control of your energy costs? Do you need support to reach environmental targets? Would you like guidance on managing energy?

The Institute of Energy has designed a one day course to cover all aspects of energy management to assist you in meeting your energy costs effectively.

The course is a day well spent for anyone new to Energy Management or needing an update in the current market. The course covers all aspects of energy management, from staff awareness to developing and presenting a three year energy management plan. PLUS, all participants receive additional followup support from the facilitator to assist in applying these principles to their current role.

Andrew Rouse, Thames Water, who attended the course earlier this year says: "It was an excellent and compact introduction to the whole new field of energy management and energy efficiency savings. Pitched at the right level with plenty of ideas and leads for my latest project challenge, but it didn't assume any major technical or legislative knowledge of the subject." The energy management one day course will be run again on 6 June and 17 October in London, and 18 September in Sheffield. Please contact Katie Moore on 020 7580 0008 or email events@instenergy.org.uk to register your interest and receive further information.



Nuclear energy: the future workshop

The Institute of Energy

(InstE), Trade Partners UK and the British Consultant and Construction Bureau (BCCB) are pleased to invite you to a Nuclear Energy Workshop.

This workshop is being held on Tuesday 18th June 2002, from 9.30 - 3.00 pm at the DTI Conference Centre, 1 Victoria Street, London and is part of the InstE's series of events to inform the energy policy consultation process.

Uncertainty about the future fuel options in a low carbon economy has pushed debate about the future of the nuclear industry further up the agenda. Nuclear energy offers a zero carbon source of electricity on a large scale and if existing approaches to low carbon electricity generation and energy security prove difficult to pursue cost effectively, then the case for using nuclear power continues to exist. Yet the main focus of public concern about nuclear power is the unsolved problem of long-term nuclear waste disposal, together with perceptions about the vulnerability of nuclear power plants to accidents and attack.

The PIU's Energy Review Report recommends that the UK should continue to participate in research aimed at developing new, low waste, modular designs of nuclear reactors. This workshop is being held to take the thinking on nuclear energy to a new level and seeks to answer some of the questions raised as a result of the Report. The result will be a summary paper that will inform the DTI energy policy consultation process.

The workshop will examine: world activities, the international agenda, fuel and waste storage, reactor technology, eastern European and UK involvement in the nuclear industry, safety and security, and environmental protection.

To register for this workshop please tel: 020 7580 0008 or email: communications@ instenergy.org.uk

Melchett Lecture

The Institute of Energy is pleased to announce Dr Mary Archer, President of the National Energy Foundation, as the recipient of the 68th Melchett Medal.

The Melchett Medal is the InstE's most prestigious award, established in the name of its first President, Lord Melchett in 1930 and awarded for outstanding work.

Please join us on Wednesday, 26 June 2002 to hear Dr Archer's lecture on the realistic opportunities for renewables.

Attendance at the Melchett Lecture is free by preregistration only.

To ensure your place, it is essential you complete and return the blue registration form included with this copy of *Energy World* and fax or post it to the Institute of Energy.

The lecture will be held at Regent's College, Inner Circle, Regent's Park, London, starting with registration at 5.50pm. Dr Archer's lecture will be followed by a drinks reception.

To register for this event please complete the registration form enclosed with this copy of Energy World or contact Katie Moore at events@instenergy.org.uk or telephone 020 7580 0008.

mine methane (CMM), if it were classified as renewable like landfill methane, could assist the UK in achieving the Kyoto Protocol targets to reduce greenhouse gases by 10%.

Greenhouse gas mitigation technology

A joint meeting was held with the Institute of Gas Engineers and Management, sponsored by Wilcock Consulting, at Advantica, Loughborough, when Dr. Cameron Davies, Executive Chairman of Alkane Energy plc, delivered an excellent presentation on the mitigation of carbon dioxide by capturing and utilising methane from abandoned coal mines.

Dr Davies explained that Alkane has 29 petroleum exploration and development licences covering some 5,816 km² of the UK coalfields, having proven gas reserves in excess of 0.5 billion S.c.f. In addition to it's five operational sites, Alkane has a further 24 sites under development. These projects, which are now fully exempt from Climate Change Levy, if recognised as renewable, could assist the Government in meeting its target of 10% of electricity being generated from these sources by 2010. The

currently operational green energy parks reduce carbon dioxide emissions by an amount equivalent to removing 190,000 motor vehicles from the roads.

Extraction of the methane is achieved by sealing the mine shaft and using vacuum pumps to extract the 50-70% methane rich gas arising from the coal seams. The gas is sold as fuel for producing electricity by means of spark ignition gas engines coupled to generators,



or via short pipelines as a source of thermal energy on customer sites.

The International Panel on Climate Change considers methane to be 23 times more potent as a greenhouse gas than carbon dioxide. Methane extraction and utilisation thus not only removes a significant health and explosion hazard in the vicinity of the abandoned mine shaft but also reduces the global warming impact of the gas by 87%. Additionally, coal



NEW MEMBERS

NORTH WESTERN

Mr S J Wright MInstE DHP Mr P A B Newman MInstE

Self-employed, education

NORTHERN IRELAND

Mr R A Woodward, Graduate Intergrated Services Design Mr D Moorehead, Graduate Belfast Education & Library Board

YORKSHIRE

Dr Y Wu MInstE University of Sheffield Mr. M. Ayoub, Student University of Central Lancashire

LONDON & HOME COUNTIES

Dr Z Wu MInstE IEA Coal Research Dr L Mansel-Thomas MInstE Atelier Ten Consulting Engineers Mr P R Taylor, Graduate W S Atkins Consultants Ltd Mr P Kritsikis, Graduate MSc Student Cranfield University Mr I T Lane, Graduate LB of Redbridge Ms M Poon, Graduate

HONG KONG

MrYW Chui MinstE HKCG

SOUTH COAST

Mr S C P Gibson, Affiliate Satchwell Controls Systems Ltd Mr J Titcombe AMInstE Shanks Mr C R Morse MInstE Sheffield Hallam University

OVERSEAS

Mr D J Baker FinstE Independent Business Consultant (USA) Mr. A. Maitos, Graduate Technical Department TEI Piraeus

Deceased Members

Mr Colin Hammersley FInstE Mr Asheley Charles Smith MInstE

BENEVOLENT FUND SEEKS COMMITTEE MEMBERS

The Benevolent Fund Committee is the management committee which meets annually at the InstE offices in London to review the management and operation of the Fund, and reports to the Council. The Benevolent Fund was established in 1969 as a resource to provide assistance to fuel technologists experiencing various forms of hardship. The Committee is chaired by the InstE's Honorary Secretary and it now requires three members (who are not members of the Council) to join it. If you would be interested to find out more with a view to joining the Committee, please contact Louise Kingham via email:

lkingham@instenergy.org.uk

SITUATIONS VACANT / WANTED

e n e r g y 1 2 1.com A bespoke Introduction Service. PAYE Candidates to Potential Employers. Freelance / Ltd. / Corporate Suppliers to Clients. Under no obligation, enquire in confidence to Steve Howe BSc, MBA, CEng, MInstE Email: line8@energy121.com

Commissioning Engineers Required

for short contracts located outside of UK. Hands-on water tube boiler experience. Must be: self-sufficient, flexible, with demonstrable track record. Profiles in confidence to Steve Howe. Email: line9@energy121.com

Robert Gevargiz MSc CEng MInstE MBA Available for consulting assignments

Energy surveys – SEAs/SMAs Energy management Facilities management Facilities strategy Managing facilities change programmes Contract management Project management Senior management seminars and staff training Business development

To enquire: Tel: 01525 862 835 Email: robert.gevargiz@adian.co.uk

Energy consultant wanted

l am in need of an energy consultant based in York for a series of small projects around the region. Main work will involve energy surveys of superstores, commercial facilities, and institutional buildings. There may be some residential work as well. Please contact me at davidpk@hotmail.com for more infomation.

David Kaufman

This space is available for members to advertise. For more details e-mail: eworld@instenergy.org.uk





McKinnon & Clarke are Europe's leading multi-utility specialists, offering efficient purchasing and usage of Electricity, Gas, Fuel, Water and Telecommunications. We operate within six business units throughout the UK, Europe and Asia. The Energy Services Division specifically undertake energy efficiency and utilisation projects on behalf of our industrial and commercial client base.

Energy Services Engineers

Ref: CS/LAC/01

Ref: CS/LAC/02

Due to continued expansion, our Energy Services Division require outstanding Energy Services Engineers, of exceptional technical and practical experience with sound commercial acumen to work from our HQ in Dunfermline and our Stockport office. Key roles will include conducting energy surveys, analysis and monitoring of plants, report preparation and presentation followed by the implementation and on-going management of savings. Project management skills involving utility supplies and site services are also desired.

The successful applicant will demonstrate an ability to work and deliver in an extremely competitive environment and must be able to identify technical solutions to problems, report and present results to the highest level, before project managing through to satisfactory completion. Language skills would be advantageous.

An attractive salary will be offered, commensurate with age and experience.

Graduate Energy Services Engineers

We require highly motivated and experienced graduates to contribute to all aspects of this challenging role. You require a degree of technical and practical knowledge and commercial experience. You will work from our HQ in Dunfermline and our Stockport office and have the ability to balance your workload across a variety of tasks and projects.

This is an extremely dynamic, competitive environment to work in and requires an enthusiastic and committed individual to carry out the key roles (outlined above). Full training will be provided.

This opportunity offers a rewarding future within an expanding industry.

Please apply in writing, quoting reference number with a full CV and current salary details to: Callum F Stuart, McKinnon & Clarke Limited, Claymore House, Enterprise Way, Dunfermline, KY11 8PY. Direct Tel: 01383 745 138 Mobile No: 07720 419 370 or e-mail: callum.stuart@mckinnon-clarke.co.uk

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The Department is recognised by CIBSE as a CPD course provider.

- For further information please contact:
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