WREN NEWS

WORLD RENEWABLE ENERGY NETWORK

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When submitting articles please send in ASCI text or RTF format with hard copy. All illustrations / photographs welcome.

WREN member wins Queen's award

Thermomax has won a Queen's Award for Enterprise - International Trade.

Thermomax's system collector was specifically designed to operate in northern climates with cold and cloudy conditions. The unique patented features encased in a vacuum glass tube utilise the latest heat-pipe innovation, combined with memory metal technology for limiting maximum temperature.

Thermomax, with factories in Bangor, Northern Ireland and South Wales, employs more than 300 people. Demand for its solar collectors from over 40 countries has grown rapidly.

Sharokh Sabba, Chief Executive of the Thermomax Group said: " We are working 3 shifts in both plants to satisfy the demand for our solar heating systems. We need to further expand our operations to ensure that our position as Europe's leading manufacturer is retained."

For further information, please contact:
Mrs K. McVeigh, Thermomax Ltd, Balloo Crescent, Bangor BT197 UP, Tel :028 91 270411, Fax: 028 91 270572, Email: info@thermomax.co.uk

SHARJAH Solar Energy Conference

The Regional World Renewable Energy Congress was held jointly with the Sharjah Solar Energy Conference and the co-operation of the 7th Arab International Solar Energy Conference, in Sharjah, UAE, in February 2001.

The Conference was organised by the University of Sharjah and was chaired by Professor Isam Zabalawi. The Co-Chairmen were Professor Ali Sayigh, Director General of WREN Reading, UK, and Dr Abdalla A Alnajjar, Director, Research Centre, University of Sharjah, UAE. The head of the International Technical Committee was Dr Lawrence L Kazmerski, NREL, USA.

There was an architectural competition for young architects and students.

The Conference was a mini World Renewable Energy Congress attended by over 450 delegates from 75 countries. There were over 30 members of WREN present and more than 300 papers were received. The best 50 papers will be printed in a special issue of the International Journal of Renewable Energy, whilst authors of the remaining papers were asked to resubmit their papers to the International Journal of Renewable Energy. All the papers were reviewed and a set of proceedings will soon be published by the University of Sharjah. This event will be repeated in two years.

There was a small exhibition running parallel with the Conference and all the participants were very grateful to H.H. Sheikh Dr. Sultan Bin Mohammed Al-Qassimi, the Chancellor of the University of Sharjah, and Dr Abdalla A Alnajjar and his team, for making the Conference very rewarding technically as well as for their kind hospitality and welcome.

During the conference The Arab Science and Technology Foundation held their meeting, chaired by two members of the executive committee: Prof Munir Nayfeh, Dept. of Physics, University of Illinois, USA, and Prof Mohammad Al-Qarwan, University of Petroleum and Minerals, Dhahran, Saudi Arabia. Several members of the executive committee, remarked on the importance and role of ASTF, then the 200 scientists voiced their opinions and blessed this formation in the Arab World.

Energy Policies, Marketing and Financing

Michael Jefferson: Consultant, UK, provided a Round-Up of the 90 Papers, 45 Poster Session contributions, and two Workshops relevant to Energy Policies and Related Topics, using the words of speakers and their Papers.

Prof. G. Obasi of the World Meteorological Organisation had stated that "energy authorities should strengthen co-operation and planning", but made linkages between energy and water, the minimisation of pollution, and coping with climate change. He also stressed the need to move towards a global strategy for energy.

Prof. Obasi was only one of several speakers who had referred to the recent UN "World Energy Assessment". The stress on rural energy needs, energy efficiency, and the mitigation of environmental impacts in the "World Energy Assessment" had been covered. But the Conference also covered

topics such as the avoidable use of energy in our urban centres, the potential for active solar systems for water heating and desalination, and low energy architecture.

In the Opening Session it had been pointed out that the industrialised countries were in breach of the Principles of the UN Climate Convention by not taking the lead in combating climate change, nor giving full consideration to developing countries. They are not transferring finance and technology, nor do they recognise that social and economic development, and poverty eradication, are the first and overriding priorities of developing countries.

Small things can also make a difference. Richard Wareham had demonstrated the difference US$ 300 could make to the water quality for 40 families, and an $18 'Sunstove 2000' made from local materials to families in many developing countries.

Financing sustainable energy development is of crucial importance, and Wohlgemuth and Getzner stressed the absence of adequate financial resources, the limited role of the World Bank, and the need to convince private investors that it is good for them to invest in renewable energy installations in their countries. There were also some references to the need to use energy far more efficiently, for instance from Kleinhauf and Ibrahim.

Turning to matters of more Regional and local interest, Nadia Alhasani stressed the need to take more advantage of solar energy in buildings, where the current position was characterised as stagnant, nondescript, and with onlookers remaining "to be delighted". Miss. Saridar had urged the design of "intelligent facades" to save on energy use.

A number of Poster Sessions criticised the way in which local vernacular architecture had been totally ignored or segregated by Europeans and North Americans, who preferred to import techniques from their HQ countries in the view of Mubarak and Ghanem from Aden-Yemen. A similar view was expressed in a contribution from Saudi Arabia. But Florian Techel had pointed out that there is a long tradition of appropriate architectural design in the Region.

There were a number of appropriate design submissions from architects and students in the U.A.E. Michael Jefferson concluded from these submissions that we need the right architects, the appropriate building codes and effective planning authorities, to ensure that optimal energy savings principles are applied.

Within the U.A.E. Dr. Abdalla Alnajjar had been introducing hybrid PV systems to electrify remote animal welfare centres, and they had been found both economical and environmentally suitable. Al-Douri and Al-Sabounchi had found that PV systems have benefits over battery systems for water pumping on remote farms.

Appropriately, given the contribution which Sharjah's Ministry of Electricity and Water had made to the Conference, the linkages between energy and water at the local level were stressed. The role that decentralised electricity plants could make to water treatment and purification was highlighted by Messrs. Michel and Deves. S. Kaneff had discussed the need for desalination plants powered by waste heat from solar thermal dish-based systems.

Larry Kazmerski (above left) had discussed seven 'myths' about PV. Summarised, he believed one should never claim too much now nor accept all the negative comments – but should expect plenty later. PV should have a strong long-term future, as should passive solar, solar water heating, and solar water treatment. This is already occurring: S.A.Kalogiru discussed the exploitation of solar water heating in Cyprus.

With fossil fuel use heavily subsidised there is little chance for renewable energy to be widely used or its advantages to be recognised, pointed out Messrs. el-H. Zein and al-Allao. Rational energy policies require the phasing out of such subsidies, and the careful use of subsidies for renewable energy market development.

Other issues discussed included the need for solar energy products to have agreed standards to avoid low quality products, a point stressed by O.O.Badran.

Apart from a Workshop on "Venture Capital and Solar Energy Businesses", there was not much said about financing, commercial opportunities, or marketing, but Antony Book did focus on this area, following a plea in the Opening Session to raise awareness about the commercial opportunities existing for solar systems. He emphasised the many commercial opportunities which exist for active solar thermal systems throughout the World – in large institutional buildings such as offices, hospitals, and recreation areas (particularly swimming pools). Cheap solar thermal systems can provide most of the hot water required year-round for washing, hygiene and health purposes in lower latitudes.

Prof. Ali Sayigh had also emphasised, the Region's natural solar advantages; the Region's needs for water, agriculture, human comforts, and eventual energy diversification – which can be met by renewable energy; and the Region's financing resources. The Region could also, Michael Jefferson added, move towards becoming a centre of excellence in the domestic production and use, and export, of solar technologies.

Noam Lior considered the use of Space for power generation seemingly inevitable. For those more interested in the shorter-term, participants had the opportunity to ponder the stance of the new US Administration and the potential risks to the Arctic Wildlife Refuge, National Parks and global climate from – as Prof. M.Ramachandran put it – "Pursuing a supply-side energy strategy and dependence on conventional energy will entail a high price in terms of investments and environmental costs".

Prof. Ramachandran's conclusion to his own presentation made a fitting Conclusion to this part of the Conference: "If we don't wake up to the reality of the situation in the energy sector, it will be too late and the coming generation will suffer and blame us for it".

Biomass

Nasir N El Bassam: Institute of Crop Science, Federal Agricultural Research Centre, (FAL), 50 Bundesallee, 38116 Braunschweig, Germany

The programme consisted of eleven oral presentations and six posters. All papers were of good quality covering: Energy generation and utilization, Environmental impact, cultural, social and economical extents of biomass and biogas. A keynote paper entitled, "Biomass and Biogas for Energy Generation - Recent Development and Perspectives" was presented by Dr N El-Bassam. All sessions were well attended and the poster presentations were well received.

Solar Thermal Session

Dr Robert Critoph – Warwick University

The solar thermal sessions covered a wide range of topics and it would be impossible to mention all the excellent work presented.

There were 13 papers on aspects of solar powered desalination, an area of particular relevance to the region: the supply of fresh water uses large quantities of energy. One 'systems' approach was to consider running a desalination plant from the rejected heat of a solar thermal power station using dish concentrators. Another large systems-oriented approach was the combination of solar desalination with a greenhouse; now producing water and crops rather than water and electricity. A successful system in the Canaries is now being improved and implemented in Abu Dhabi and Muscat. Smaller devices, solely devoted to desalination were also discussed. They range in size from machines built as academic research tools, through to a nearly commercialised system of 40 m^2 capable of producing more than 0.5 m^3 / day.

Moving from the large to the very small were the presentations on solar cookers designed for the world's poor using low-cost recycled materials. Such an approach is needed to help those with the greatest need.

Nine papers were presented on solar thermal power generation. The technology looks promising enough to be able to compete with PV power generation in large systems, even with predicted advances in PV systems. A new series of central solar thermal power stations will be built: more economic and more efficient than the ageing Luz designs.

A number of devices are being built and improved designs simulated, that can achieve up to 400¼C with good efficiency.

Utilisation of solar heat integrated with combined cycles is becoming even more innovative: work on trough and heliostat systems is being carried out over the world.

There were also ten presentations on solar thermal energy used for cooling; another strong area of regional interest. Papers were presented on PV, liquid desiccant, solid desiccant, absorption and adsorption. The problem is, as ever, to reduce capital costs.

Photovoltaic

AbuBakr S.Bahaj, University of Southampton

The solar PV consisted of thirty papers presented orally and eighteen shown as posters covering all aspects of photovoltaics from solar cell technology to stand-alone systems, grid-connected systems, PV in buildings, marketing and finance, PV in rural applications and experiences. The papers were of mixed quality - some of them were of high level while a few were of basic knowledge. The sessions were very well attended and the poster papers were very well received. Several PV personalities presented their papers at this Conference among them Dr Larry Kazmerski - Director of the U.S. Photovoltaic Centre. The Exhibition was very small, but two PV companies managed to exhibit.

Prof Elbassam and his solar cooker

Wind and Other Renewables

Oliver Headley: The University of The West Indies, Cave Hill Campus, P.O. Box 64, Bridgetown, Barbados, West Indies

Wind turbines are now commercially available in sizes varying from 50 watts to over a megawatt. In marinas around the world, the small wind turbine, sometimes accompanied by a photovoltaic panel, is a common sight. On boats, electricity is used for lights and telecommunications; the technology is now reliable at virtually all sizes of turbine and represents good value for money. One of the papers by Dr M Rees was on the design of a 5 MW turbine for offshore applications, designed to produce this power at a wind speed of 12m/s. Wind turbine technology has been advancing rapidly in the past ten years and at good sites with wind speeds of over 8m/s, electricity can be generated for as little as US 4.5¢/kWh. Among the conventional fossil energy systems, only gas turbines are cheaper sources of electricity than wind. International banks and financing agencies treat wind energy systems as normal prime movers: the technology is now regarded as proven.

Some utility companies are still not entirely convinced that wind can be accorded a definite capacity credit. Such companies are only willing to pay the wind energy generator the avoided fuel cost for the electricity since they maintain that the intermittent nature of the wind means that for small standalonegrids, the utility company has to maintain enough conventional power to replace the wind energy source during periods of light winds. The experience which Electricité de France has had on the island of La Desirade in the Department of Guadeloupe has supported the reliability of wind. In 1999, all of the electricity used on the island was derived from wind power. The submarine cable connecting the island to Guadeloupe took excess production *back* to the main island.

Some of the best sites in the world have not yet been exploited, including the west coast of Scotland and areas on the shores of the Southern Ocean such as the most southerly parts of Chile and Argentina and the Antarctic Peninsula. The isolated nature of the sites on the Southern Ocean would require transmission at high efficiencies in order to justify the high capital cost of the transmission lines. Research and development work in high temperature superconducting cables and transformers holds promise for the exploitation of these remote wind sites. Alternatively, hydrogen can be generated by electrolysis and piped back to populated areas for power generation in fuel cells.

Wind farms at marine sites are exposed to corrosion from the salt-laden air and this can be severe at tropical sites as the rate of reaction doubles with a temperature rise of about 10^oC. The utility company KODELA which has operated the wind farm at Tera Corá in Curaçao in the Netherlands Antilles since 1993, has had considerable experience in corrosion control and they report that even some grades of stainless steel require cathodic protection to inhibit corrosion.

Good preventative maintenance is one of the most important requirements for ensuring reliability. One colleague informed me that he was asked to investigate why a large number of wind turbines which had been installed in a third world country had failed. When he examined the turbines, he discovered that a large number of their gearboxes had been allowed to run dry since no one had bothered to check them. With stand-alone systems, which are characteristic of many in rural areas of the third world, another challenge is battery maintenance. At Matelot in Trinidad one of the problems was battery failure due to spring water being added to the batteries. This happened even though we informed the villagers that only distilled water should be used and we set up a small solar still at the site to produce distilled water for the batteries.

Site specific conditions are also important. The general tendency towards bigger turbines is not necessarily an unmixed blessing at isolated island sites. A crane must be available to lift the rotor and nacelle on to the tower. This means that the machine size is limited by the size of the crane available. Larger machines may have higher cut-in speeds, hence where there is a significant percentage of wind speeds in the 3 - 5m/s range, a machine with a low cut-in speed is desirable. In the paper which was presented by Dr A. M. Al Shehri of Saudi Arabia on the provision of power for an isolated village, the system designers opted to use 150kW turbines rather than 1MW machines because the former have a lower cut-in speed and so would operate for a greater fraction of the time.

Traditionally, wind turbines have been used in the rural areas of the world for decades. The last paper of the session on wind power presented by Dr A. A. El-Haroun proposed that wind be used to power the traditional animal-powered water pumps, in parts of Egypt. The system was modeled mathematically and because of the low head (1 to 1.5m), the pump would deliver up to 263m^3/ hour. The dramatic increase in wind power with wind speed, which theoretically increases with the cube of the wind speed, was illustrated by his calculated output which at 12.6m/s was 24 times the value at 4.4m/s.

Solar Materials

Mick G. Hutchins: School of Eng., Elect., Physics & Elect. Engineer, Oxford Brookes Univ, Gipsy Lane, Headington, Oxford OX3 0BP, UK

Scope within WREN is the underpinning of solar thermal, daylighting, low energy architecture and photovoltaic elements of the conference. Materials of interest lie principally in solar collectors, windows, facades and buildings applications.

Main Areas

- Thin Films and Surface Coatings
- Deposition processes
- Spectrally Selective Materials
- Measurement techniques for optical properties
- Optical Modelling
- Performance Assessment, durability and reliability assessment
- Optical properties database developments
- Photovoltaic Materials Areas
- Transparent conductors / barrier layers
- Active PV materials
- Surface microstructure
- Anti reflection coatings
- Optical and electrical measurements

Sharjah Solar Materials Conference has 72 papers strongly biased towards PV issues:

PV	49
Glass, Glazing, Transparent Conductors	9
Solar Absorbers	7
Polymers	2
Other	5

Recommendations

Conference Presentations - Many speakers found the 10 minute time limitation difficult and demanding

- Consider upgrading the status of posters within the conference and extend presentation time of reduced number of oral papers
- Ensure fundamental underpinning areas such as optical properties measurements are properly established with appropriate instrumentation and laboratory support.
- Increase activities in areas such as glass and glazing, daylighting, shading and radiative cooling relevant to the Gulf.

A successful and well organised event providing good experience and a sound basis for repeating the event in the near future.

Calendar of Events

19 - 25 August 2001

WREN International Seminar in Britain - Renewable Energy Major Environmental Option For Sustainable Development, Old Ship Hotel, Brighton - United Kingdom, contact: World Renewable Energy Network, 147 Hilmanton, Lower Earley, Reading RG6 4HN, UK. Tel: 44 - (0) 118 9611 364, Fax: 44 - (0) 118 9611 365, asayigh@netcomuk.co.uk, http://www.wrenuk.co.uk

29-31 August, 2001

SATIS 2001, Sustainable Applications for Tropical Island States, Kingston, Jamaica, contact: Mr Raymond M Wright, Conference Coordinator, Petroleum Corporation of Jamaica, PCJ Resource Centre, 36 Trafalgar Road, P O Box 579, Kingston 10, Jamaica. Fax: 876-926-3928, or 876-929-2409, rwright@pcj.com

22-26 October 2001

17th European Photovoltaic Solar Energy Conference and Exhibition, ICM International Conference Centre, Munich, Germany, contact: Dr Ewan Dunlop, PV17, I-21020 Ispra (VA) Italy, Tel: 39-0332-785-885, Fax: 39-0332-789-646, pv.conf@jrc.it

2-5 December, 2001

IRAN/WREN - First International Symposium in Renewable Energy Options. Contact: Dr A Kaabi Nejadian, President of Iranian Solar Energy Society, Shahrake-Bakhteri, P O Box 14155-6398, Tehran, IRAN. Tel: 98-218084771-3, Fax: 98-218086970.

9-11 December, 2001

EC-BREC /WREN Seminar: Renewable Energy: A strategy for Sustainable Development. Warsaw, Poland. Contact: Dr Grzegorz Wisniewski, Director, EC Baltic Renewable Energy Centre, Institute for Building, Mechanization and Electrification of Agriculture, RES OPET Poland, Rakowiecka 32, 02-532 Warsaw, Poland, Tel/fax: + 48 22 8484832, 6466850, 6466854, grewis@ibmer.waw.pl, http:www.ibmer.waw.pl/ecbrec

22-23 December, 2001

Third International Seminar on Renewable Energy Systems and Applications for Executives and Policy Makers in Bahrain. Contact Prof Waheeb E Alnaser, Dean of Science, College of Science, University of Bahrain, Bahrain, Tel: 00 973-686197, Fax: 00 973-682582, waheeb@sci.uob.bh

29 June - 5 July, 2002

World Renewable Energy Congress - VII, Cologne Congress Cente, Cologne, Germany, contact: Prof Ali Sayigh, 147 Hilmanton, Lower Earley, Reading RG6 4HN, UK, Tel: 44 - (0) 18 9611 364, Fax: 44 - (0) 118 9611 365, asayigh@netcomuk.co.uk, http://www.wrenuk.co.uk

23-26 February, 2003

Sharjah Solar Energy Conference & Regional World Renewable Energy Congress. Sharjah, UAE, contact: Dr Abdalla A Alnajjar, SSEC-Organizing Committee, University of Sharjah, P O Box 27272, Sharjah, United Arab Emirates. Tel: (971) 6 505 0551, Fax: (971) 6 505 0552, research-6@sharjah.ac.ae

21-25 April, 2003

World Renewable Energy Regional Congress - 2003, Melbourne, Australia. Contact: Dr. A. Zahedi, Solar Energy Applications Research Group (SEARG), Monash University, Department of Electrical and Computer Systems Eng., Clayton Campus, Wellington Road, Clayton, Victoria, 3800, Australia. Tel.: 61-3-9905 5957, Fax: 61-3-9905 3454, ahedi@eng.monash.edu.au

12-16 May, 2003

Third World Conference on Photovoltaic Energy Conversion, Osaka, Japan, contact: Prof K Kurokawa, wcpec3@ec.tuat.ac.jp

North Sea Offshore Wind

Greenpeace produced a brochure based on Wind Energy Institute of Germany (DEWI), North Sea Offshore Wind: A Power-House for Europe. The

Country	TOTAL Max. offshore Potential TWh/yr	1933 Annual Electricity Consumption TWh/yr	605 % Contribution to national consumption
UK			307
Belgium	986	321	38
The Netherlands	24	63.2	180
Germany	136	75.5	55
Denmark	237	431.5	1708
	550	32.2	
			320

This table is taken from Windpower Monthly News.

Wind Energy Installation by the end of 2000

Region of the World	Start – MW 2000	End – MW 2000	Best – Country End – 2000
Europe	9307	12972	Germany - 6113
North America	2619	2695	USA - 2555
Asia	1287	1574	India - 1220
South & Central America	87	103	Costa Rica - 51
Pacific Region	116	221	Japan - 150
Middle East & Africa	39	141	Egypt - 63
TOTAL	13455	17706	Increase = 4251

This table is taken from Windpower Monthly News.

NEWS

NEWS FROM AMERICA

NREL

National Renewable Energy Laboratory's Vice Admiral Richard H Truly was interviewed with Business Week writer Janet Ginsbung to talk about NREL's work.

Renewables, not including large hydro-electric projects, provide less than 5% of U.S. energy. Do the current problems provide a "marketable" moment?
This is a critical juncture. The public conversation has changed a great deal recently. It's become more bipartisan. Renewable energy, rather than being what I would call a "religion", is being seen as a business opportunity. A lot of people at NREL fervently believe in renewable energy, but, it will never win the day unless markets are developed. And that gets right to business.

In terms of the environment, how critical are renewables?
Observing Earth from those big windows on the Space Shuttle gives one a complete perspective about the awesome beauty and the fragile nature of our planet. From space you can see the smog that often obscures Los Angeles, Mexico City and Tokyo. We're all in this together - a world view that is really humbling. In the U.S. we use a lot of energy to maintain our standard of living and we wrestle with some environmental problems as a result. To me, the scary thing is that there are still about two billion people in the world without electricity, who want it. Fossil fuels will be an important energy source for a number of years to come. How do we seriously begin putting the unlimited potential of renewable resources to work in our earth's energy mix now so we can enjoy the benefits in the future?

What's the biggest barrier to renewable power?
To tell the truth it's not technical. It's a knowledge barrier, both in the Congress and Administration - and with the public - about what an unbelievable opportunity this is. But that's changing. I thought it was just amazing when BP Amoco PLC redid its public image in one day. They came with advertisements in every major newspaper with a new logo that looks like a green sun and a new tag line "Beyond Petroleum". That's not "religion". That's Business. And they see it. If you look at this as an opportunity - let's jump into it! - it could change the world we live in.

NEWS FROM MALTA

Renewable Energy for transport

Prof. E A Mallia, Dept. of Physics, University of Malta.

Electric Vehicles (EV) are well suited to urban commuter use, where their still-limited range is no handicap. Apart from the fact that the (transferred) emissions of most pollutants including CO_2 are much lower than those of ICE cars, there is the possibility of using renewable sources of energy to charge batteries. Such an EV would then strongly reduced transferred emissions (or eliminate.)

A small petrol-engined car was converted to electric drive with a 6kW DC series motor. Energy consumption of the vehicle ranged from 0.03 to 0.07 kWh/pass.km. Charging was carried out on the university campus, the normal source being a mains-connected off-board charger. However, this was always supplemented by PV charging, either direct or through a static battery bank. The university installation consisted of an 8 x 50Wp poly-crystalline array. Most of the time this was used to charge the car batteries directly; at weekends charge was stored in a nominal 78V battery bank.

The installation of a PV charging system at home allowed exploration of the potential of PV to supply a significant fraction of the energy required for traction. A 4 x 72Wp mono-crystalline array could be utilised directly or via a double 6 x 12V battery bank. The charge transfer to the car batteries was usually effected overnight, allowing the charging cycle to be adapted to the preferred form for the valve-regulated Pb-acid batteries on the car. The useful transfer ranged from 0.5k - 2.0kWh.

Over 90 days in the period mid-May to mid-November, 95kWh were deposited in the car batteries. In addition some 40 kWh were transferred from the house battery bank.

Generation of energy by the university PV array on 12 days in March 2000 yielded an average of 1.15kWh/day, which compares favourably with the May-to-November average of 1.05kWh/day. The slightly lower summer-autumn average, despite the higher sun and longer days may be due to losses in the PV material increasing with increasing panel temperature. Cooling the arrays with water at 15^{o}C when the shade temperatures were above 30^{o}C produced increases of some 25% in output current.

Between May and November 2000 the vehicle was available on 131 days. Over this period 1738 km were covered, equivalent to 2000 pass.km, giving an average of 15 pass.km/day. The traction energy used was all supplied by the two PV arrays. Average energy consumption was 0.065 kWh/pass.km, about twice the energy consumption of a bicycle and between 0.2 and 0.1 of that of an ICE vehicle of the same type with two occupants. The saving on CO_2 emissions was 100 kg compared to a mains-powered EV and 330 kg compared to an ICE model.

NEWS FROM AUSTRALIA

International Centre for Application of Solar Energy (CASE)

Gordon Thompson, Managing Director

The past year has seen CASE continue to achieve its aim of "Renewable Energy for Sustainable Development".

The Annual Report outlined a number of key projects and activities undertaken during the past financial year.

At present CASE is in the process of updating its website. Please visit www.case.gov.au to receive current information about CASE and sustainable energy industry activities.

NEWS FROM MALAYSIA

Malaysia to Move into PV Manufacturing

A production plant for the manufacture of PVmodules will be set up in Malaysia. Spire Corporation will provide one of its module production lines to BP Solar Malaysia Sdn Bhd, a joint venture of BP Solarex and Projass Enecorp Sdn Bhd. The modules will be used to satisfy the growing demand for PV under Malaysia's recently-announced 'Five Fuels program', which includes renewable energies.

The current global market for PV modules is estimated at US$1.2 billion, and expected to grow to $3 billion within five years. The installation of new manufacturing capacity in Malaysia is a trend towards distributed manufacturing of PV modules. 'Our experience has shown that local manufacturing of modules stimulates the market for PV products,' says Spire president Roger Little. 'BP Solarex and our other customers see the competitive advantage of distributed manufacturing.'

A leading supplier of PV manufacturing equipment and production lines, Spire has facilities in 42 countries. The SPI-LINE^{TM} integrated production line is specifically designed for BP Solar Malaysia, using Spire's advanced PV module assembly equipment.

AT THE 29TH INTERNATIONAL EXHIBITION AND INVENTIONS - New Techniques and Products, in Geneva, from April 2001, two of our

World Cell or Module Production in MW *

Country	1993	1994	1995	1996	1997	1998	1999	2000
USA	22.44	25.64	34.75	38.85	51.00	53.70	60.80	78.50
Japan	16.70	16.50	16.40	21.20	35.00	49.00	80.00	116.70
Europe	16.55	21.70	20.10	18.80	30.40	33.50	40.00	58.50
Rest of the World	4.40	5.60	6.35	9.75	9.40	18.70	20.50	24.20
	60.09	69.44	77.60	88.60	125.80	154.90	201.30	277.90

* PV News Vol.20, No. 2, 2001

WREN Members from Malaysia, Professor Othman and Dr Sopian, received the Certificate of the Gold Medal for their invention of High Performance Solar Assisted Drying Systems for Agricultural Produce in the category of Protection of the Environment - Energy.

NEWS FROM UK

Energy First for Woking

Woking Borough Council and ESCO International A/C

Woking town centre now has its own sustainable energy station, the first commercially operating energy station of this kind in the country. The energy station supplies environmentally friendly energy services to local businesses and offices in and around Woking town centre and electricity via the public network to remote sites elsewhere in the borough.

It operates by combined heat and power (CHP) with heat fired absorption cooling, thermal storage and distributes electricity via private wire and hot and cold services by a private pipe network.

The energy station is the first project of Thameswey Energy Limited, a joint venture company formed by Thameswey Limited (a company wholly owned by Woking Borough Council) and ESCO International A/S (a company wholly owned by Hedeselskabet of Denmark). The project was supported by the Energy Saving Trust.

A brand new 161 room executive Holiday Inn, Woking Borough Council Civic Offices, a Leisure Complex, bar, nighclub, the town's H.G. Wells Conference and Events Centre, and a multi-storey car park are all customers of the new energy system.

The Thameswey energy station was officially opened on 21st March 2001. Also announced at the opening was news of a second CHP energy station to be built in Woking Park, incorporating the first fuel cell CHP in commercial use in the UK, to be built some time in the next two years.

Anatactica 'melting before our eyes'

Geoffrey Lean – The Independent on Sunday

Antarctica is melting faster and further than ever before, environment ministers meeting in Nairobi in February were told in a dramatic phone call from the frozen continent.

The explorer and yachtsman Sir Peter Blake called the ministers attending the governing council of the United Nations Environment Programme to say that he had just sailed 100 miles through open water that had been frozen for hundreds of thousands of years. The King George VI ice shelf at the base of the Antarctic peninsula was breaking up, he said.

The call came as ministers from 80 countries were considering how to rescue international negotiations on combating global warming in the face of attempts in the US and oil-producing countries to delay and kill them. I was the only journalist to witness the call, and Sir Peter spoke to me exclusively after talking with the ministers.

The New Zealand-born sailor - who was standing on an ice floe in King George's Sound at 69 degrees south - gave his warning to David Anderson and Marian Hobbs, the environment ministers of Canada and New Zealand respectively. Both countries are members of the hard-line group of nations - including the US - that is pressing for loopholes in the international treaty agreed to fight global warming.

Sir Peter said "I am speaking from an area of water that has never been water before. It has always been frozen solid. It is uncharted. There are no depth readings on the map because no ship has ever been able to measure them. No one has ever been anywhere near where we are now.

"We have sailed for the last 100 miles through open seas in an area that in the past would only have been accessible to the biggest ice-breakers. Now it is clear water."

WREN Pioneer installs PV System

Mr Fred Treble's experience with the installation and running of a domestic photovoltaic system in southern England is reviewed. The system, which was installed in late December 2000, consists of a 2kWp array of high efficiency monocrystalline silicon PV modules retrofitted on the south-facing tiled roof of a detached 4-bedroom house, two high-efficiency string inverters, dc circuit breakers, switchgear and cabling. The inverters are equipped with a display indicating array power and voltage, energy field of current day and cumulative energy yield. Surplus solar electricity is fed to the grid under a net metering agreement. When this occurs, the existing meter runs backwards. Some results will be presented.