



Global Forum on Sustainable Energy Bulletin

A summary report of the Fifth Meeting of the Global Forum on Sustainable Energy (GFSE-5)

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FIFTH MEETING OF THE GLOBAL FORUM ON SUSTAINABLE ENERGY: ENHANCING INTERNATIONAL COOPERATION ON BIOMASS: 11-13 MAY 2005

The Fifth Meeting of the Global Forum on Sustainable Energy (GFSE-5) was held from 11-13 May 2005, at the Diplomatic Academy of Vienna, Austria. The meeting considered the theme of "Enhancing International Cooperation on Biomass." In particular, GFSE-5 focused on biomass, with special emphasis on strengthening the institutional capacity to promote South-South cooperation.

GFSE-5 also brought together various energy-related partnerships announced at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, in order to discuss their progress. GFSE-5 was convened by Irene Freudenschuss-Reichl, Director General for Development Cooperation, Ministry of Foreign Affairs, Austria. The co-sponsors included: the Austrian Ministry of Agriculture, Forestry, Environment and Water Management, City of Vienna, UN Development Programme (UNDP), and UN Industrial Development Organization (UNIDO). An estimated 160 participants representing government agencies, UN bodies, business and industry, non-governmental organizations and academia attended the Forum.

Participants at GFSE-5 met in Plenary sessions to hear presentations and engage in discussions on a variety of relevant topics, including: potentials and challenges for increasing biomass use; synergies and dangers between food and biofuel crops; the example of Africa; and pledges from a panel of international organizations and partnerships. Participants also convened in two Working Groups to discuss biofuels for sustainable transport and biomass for electricity production and household heating. On GFSE-5's final day, delegates reconvened in Plenary to hear reports from the Working Groups and to hold panel discussions on regional views on strengthening institutional capacity for biomass, and on the way forward.

As well as the Plenary sessions and Working Groups, delegates met for consultations held in parallel with the official sessions. Consultations were held between experts and senior officials of the Johannesburg Renewable Energy Coalition (JREC) and UN-Energy, and participants from the Energy Initiatives Meeting convened in the Ministry for Foreign Affairs on Tuesday, 10 May. In addition, participants attending

GFSE-5 were invited on a field trip to Bruck a.d Leitha Biogas and Biomass District Heating Plant.

GFSE-5 is expected to contribute to ongoing work on enhancing incentives for sustainable energy and building international energy partnerships. In particular, GFSE-5 recommendations will feed into the high-level plenary meeting of the UN General Assembly on follow-up to the outcome of the Millennium Summit, which is taking place in New York in September 2005. They will also serve as input into the 2006-2007 cycle of the Commission on Sustainable Development, which will be focusing on energy issues.

A BRIEF HISTORY OF ENERGY FOR SUSTAINABLE DEVELOPMENT AND THE GFSE

The Global Forum on Sustainable Energy (GFSE) was launched by Austria's Foreign Minister in 1999. It stems from outreach efforts of the World Energy Assessment, which was organized by UNDP, the UN Department of Economic and

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Social Affairs (UN-DESA) and the World Energy Council. The GFSE provides a platform for multi-stakeholder dialogues aimed at facilitating decision-making on energy policy issues in relevant fora. It also seeks to foster public-private partnerships.

GFSE-1: The first GFSE meeting convened from 11-13 December 2000. It addressed the issue of Rural Energy – Priorities for Action, and contributed to preparations for the ninth session of the Commission on Sustainable Development (CSD-9), which took up various energy-related issues. Participants at GFSE-1 considered the linkages between rural energy and sustainable development, enabling frameworks for attracting investment for rural energy, lessons learned, financing issues, the challenges and opportunities of regulatory reform, and innovation.

GFSE-2: The second GFSE meeting convened from 28-30 November 2001, and addressed the issue of Energy Technologies – Cooperation for Rural Development. Participants heard presentations and engaged in discussions on: stocktaking of the international energy discourse; facilitating the transfer of energy technologies suitable for rural development; case studies on successful modalities for transfer of energy technologies; and enabling policy environments and creating conditions for private sector involvement in the transfer of energy technologies for rural needs. Participants also met in two regional working group sessions on rural electrification and clean fuels for rural needs in Africa, and in Asia and Latin America. Participants also considered desired outcomes of and proposals for the upcoming World Summit on Sustainable Development (WSSD).

WSSD: Energy for sustainable development was not specifically dealt with at the UN Conference on Environment and Development (UNCED) held in Rio in 1992. However, as Agenda 21 and the Rio Conventions were being implemented in the 1990s, energy emerged as a significant issue. The five-year follow-up meeting to UNCED in 1997 decided that CSD-9 in 2001 would address energy, transport and atmosphere. CSD-9 was preceded by comprehensive preparations on energy issues, including meetings of the *Ad Hoc* Open-Ended Intersessional Group of Experts on Energy and Sustainable Development, and through regional intersessional meetings. CSD-9 recognized, *inter alia*, that the Millennium Development Goals (which developed out of the UN Millennium Declaration in September 2000 and include the target of halving the proportion of people subsisting on one dollar a day or less by the year 2015) would not be met without increased access to modern energy services.

Energy was one of the key areas for a special focus at the WSSD proposed by UN Secretary-General Kofi Annan. In the Johannesburg Plan of Implementation (JPOI) agreed at the WSSD, governments made a commitment to improve access to reliable and affordable energy services, promote sustainable use of biomass, and support the transition to cleaner use of fossil fuels. Energy issues were also addressed in the JPOI chapters pertaining to Small Island Developing States, Africa, regional initiatives, and health and sustainable development. The WSSD also encouraged the development of new “Type II” initiatives – voluntary public-private partnerships aimed at advancing implementation on the ground. Several of these Type II initiatives were launched in the area of energy for sustainable development.

GFSE-3: The third GFSE meeting convened from 27-29 November 2002 and addressed public-private partnerships for rural energy development. It considered the relevant outcomes of the WSSD and sought to support the further development of initiatives to promote WSSD implementation, including the EU initiative on Energy for Poverty Eradication and Sustainable Development. Plenary sessions held during GFSE-3 covered topics such as innovative financial instruments for private sector involvement in rural energy development; implementation of the energy outcomes of the WSSD; how to make the WSSD work in Africa and Asia; and the role of operational international organizations and funding agencies for rural energy development.

CSD: The Commission on Sustainable Development was created in December 1992 to ensure effective follow-up of UNCED in monitoring and reporting on the implementation of the Earth Summit Agreements at the local, national, regional and international levels. CSD-11 took place at UN headquarters in New York from 28 April to 10 May 2003. Following-up on recommendations made at the WSSD for the Commission to have an enhanced role in promoting sustainable development, delegates discussed the future work of the Commission, adopting a new work programme for the period 2004-2017. CSD-11 agreed that future sessions would consider a limited number of topics, or “thematic clusters.” These clusters will be examined over a two year period, or “implementation cycle.” Energy issues will be part of the thematic cluster to be taken up during the 2006-2007 cycle.

GFSE REGIONAL SEMINAR: GFSE held a regional seminar focusing on district heating in South Eastern Europe from 27-28 November 2003, in Vienna, Austria. This seminar underlined the importance of district heating for the social and economic wellbeing of large parts of the population in the countries of South Eastern Europe and emphasized the important contribution that district heating and combined heat and power generation could make to overall sustainable development.

GFSE-4: This meeting, entitled “Energy for Sustainable Development: Reconsidering the Role of Incentive Measures,” was held from 18-20 February 2004, in Vienna. GFSE-4 focused on renewable energy issues in order to provide input to the International Conference for Renewable Energies held in Bonn, Germany in June 2004. GFSE-4 also brought together various energy-related partnerships announced at the WSSD in order to discuss their progress, and sought to contribute to ongoing work on the use of incentive measures for sustainable energy.

GFSE REGIONAL WORKSHOP: This GFSE regional workshop for countries that are members of the International Centre for Integrated Mountain Development (ICIMOD) was held from 24-26 November 2004, in Paro, Bhutan. The meeting considered the theme of “Access to Rural Energy for Sustainable Development and Policies for Rural Areas.” The workshop emphasized increasing awareness among the countries of the Himalaya-Hindukush Region (Afghanistan, Bangladesh, Bhutan, China (Tibet), India, Myanmar, Nepal, and Pakistan) and donor countries on rural energy supply for sustainable development as part of the Millennium Development Goals (MDGs).

REPORT OF GFSE-5

Georg Lennkh, GFSE President, opened the session at 9:25 am on Wednesday, 11 May. He welcomed GFSE-5 participants, noting the importance of GFSE in placing energy and sustainable development on the global development agenda. He thanked the Austrian Government, City of Vienna, and Ministry for Foreign Affairs for hosting the meeting.

Participants then heard a welcoming address by Johannes Kyrle, Secretary General for the Austrian Ministry for Foreign Affairs. Kyrle drew attention to the growing number of global energy initiatives and emphasized Austria's continued commitment to energy for sustainable development.

Josef Pröll, Austria's Minister of Agriculture, Forestry, Environment and Water Management, specified that the use of biomass such as wood is important for both developed and developing countries. He highlighted that energy was one of the most difficult issues at WSSD. In relation to energy strategies, Pröll emphasized the need to have a balanced mix of energy sources, focusing on renewable energy. He indicated that the outcome of the GFSE-5 will feed into the CSD in 2006.

Paul Mubiru, Commissioner for Energy, Ministry of Energy and Mineral Development of Uganda, spoke about the importance of biomass for developing countries. He noted that biomass accounts for 93% of total energy consumption in Uganda and emphasized that sustainable biomass use requires integrated policies and programmes.

Klaus Töpfer, Executive Director of the UN Environment Programme (UNEP), raised concerns about the omission of energy from the Millennium Development Goals (MDGs), noting that energy is a precondition for development. He stated that an "energy revolution" is needed to improve energy demand management, energy efficiency, and energy access for the rural poor.

PLENARY I: INCREASING THE USE OF BIOMASS: POTENTIAL AND CHALLENGES

The first plenary session was held after the welcoming speeches on Wednesday morning, 11 May. This session, which was moderated by Irene Freudenschuss-Reichl, consisted of two presentations and a discussion. The presentations addressed the status of biomass and its use in developing countries, prospects for international collaboration, and the links between biomass and trade.

STATUS OF BIOMASS ENERGY IN DEVELOPING COUNTRIES AND PROSPECTS FOR INTERNATIONAL COLLABORATION: Stephen Karekezi, African Energy Policy Research Network (AFREPREN), presented on the current status of biomass energy and the prospects for international collaboration. He specified that the use of biomass has positive side effects on agriculture (which accounts for a significant part of GDP in developing countries and can therefore alleviate poverty); health and environment (when the use of biomass is improved and made more efficient); and gender (where improved and efficient use of biomass reduces indoor air pollution).

BIOMASS AND TRADE: WHERE ARE THE LINKS?: Malena Sell, International Centre for Trade and Sustainable

Development (ICTSD), spoke about the links between biomass and trade, specifically focusing on the World Trade Organization (WTO). She highlighted opportunities to promote sustainable development within the current Doha round of trade negotiations, particularly related to the reforms of agricultural subsidies and negotiations on the phase-out of tariffs for environment goods.

DISCUSSION: In the ensuing discussion, participants addressed the limited benefits of biofuels such as liquid petroleum gas (LPG) for rural communities given the high costs of such fuels. Karekezi said LPG should at least be considered a short-term option for rural households. One participant expressed concern that the increase in fuel prices has led to unsustainable fuelwood consumption in Brazil. Noting the importance of local knowledge, Karekezi observed that modern cooking stoves had been successfully adopted in Kenya because programmes had adapted to existing marketing systems.

PLENARY II: FOOD AND ENERGY CROPS: SYNERGIES AND DANGERS

Gustavo Best, Food and Agriculture Organization (FAO), moderated this Plenary session, which consisted of four presentations and a brief discussion on the potential and challenges of increasing biomass use. The presentations covered conflicts between food production and energy crops, the benefits of sweet sorghum as food, animal feed and an energy crop, availability of land for energy crops and future demands for food and animal feed, and aspects of international trade, with examples from Brazil. Participants also engaged in a discussion on these issues.

FOOD AND ENERGY CROPS - IS IT A CONFLICT?: Gustavo Best, FAO, on behalf of Alfredo Curbelo, Centre for Management of Priority Projects and Programmes (GEPROP), Cuba, spoke about the potential conflicts between food production and energy crop development in developing countries. He examined biofuel costs and assessed the use of "expensive" biofuels. He said that large-scale bioenergy power generation was a key opportunity to create rural employment.

SWEET SORGHUM: ONE OF THE BEST FOOD, FEED, AND ENERGY CROPS: Norbert Vasen, ETA Renewable Energies, Italy, speaking on behalf of Giuliano Grassi, European Biomass Industry Association (EUBIA), Belgium, highlighted the advantages of sweet sorghum production, noting that it: can be planted in many countries and has high productivity; creates the possibility to switch from fossil fuels yielding competitive products and fuel; and creates employment and enhances local economies in rural areas. He also indicated some of the challenges connected with sweet sorghum production, including water scarcity in some countries and the need to reduce costs in relation to sorghum production and final products.

AVAILABILITY OF LAND FOR ENERGY CROPS AND THE FUTURE DEMAND FOR FOOD AND FEED: Günther Fischer, International Institute for Applied Systems Analysis (IIASA), presented on the demand for food and animal feed, and the use of Geographic Information Systems (GIS) maps to discern the potential for biomass production at the national and regional level, with examples from Central and Eastern Europe.

He also showed maps of world food cultivation under different development pathways and climate scenarios. Fischer emphasized that climate change will have a negative impact on land productivity in many developing countries, particularly in Africa.

TECHNOLOGICAL COOPERATION FOR ENHANCING INTERNATIONAL BIOENERGY TRADING: BRAZIL AND THE EU: Norbert Vasen, presenting on behalf of Malgorzata Peksa, ETA Renewable Energies, Italy, discussed the potential for international trade in biomass between Brazil and the EU. He stated that the EU has “high ambitions” in employing biomass fuels and energies and that Brazil has a long tradition in biomass production, that its environmental conditions are conducive to cultivation, and that there is public support for such production. He indicated that the EU has high biomass fuel use targets that are difficult to reach and said Brazil could provide both the resources and expertise to achieve these targets.

DISCUSSION: In the ensuing discussion, Fischer underscored that biomass production may give rise to pressure on land in the short term, whereas in the medium and long term biomass production does not seem to be in conflict with food security. Gustavo Best suggested that land competition between biomass, food and other uses be kept in mind. Referring to sugar mills, Vasen highlighted how the sugar cane waste can, for example, be transformed into pellets for power generation use.

PLENARY III: THE EXAMPLE OF AFRICA

This session was moderated by Stephen Karekezi, AFREPREN. The session included six presentations and a discussion. The presentations focused on biomass partnerships, options for increasing biomass use, women as stakeholders on biomass issues, and scaling up improved household energy in Africa.

BIOMASS PARTNERSHIPS IN AFRICA: WHERE TO START?: Stanford Mwakasonda, Energy Research Centre (ERC), discussed how to encourage and enhance biomass partnerships in Africa. He commented that cooperation on biomass use and production in Africa already exists although lack of coordination and infrastructure is sometimes problematic. He highlighted the lack of an international energy institution and suggested that a high level international conference involving the major stakeholders could be beneficial to agree on a shared vision and common approaches, and to set in motion strategic plans to tackle the issue of energy, including biomass sources. He also proposed a permanent structure and institution within the UN. Another solution, he suggested, could be to rely on existing institutions such as the World Bank, International Monetary Fund and regional development banks, bilateral aid organizations or regional centers of excellence.

OPTIONS FOR INCREASING THE USE OF BIOMASS – POTENTIAL AND CHALLENGES: David Yuko, Institute for Research in Sustainable Energy and Development (IRSEAD), Kenya, spoke about the opportunities and constraints of increasing biomass use in Africa. He said biomass is often underexploited or inefficiently used, and that modern technologies, including stoves, energy efficient charcoal production, and ethanol from sugar cane and other energy crops are required. Yuko also stressed the importance of challenging

institutional and fiscal infrastructures, noting that governments tend to “shy away” from taking long-term decisions.

WOMEN AS STAKEHOLDERS ON BIOMASS ISSUES: Julie Leopold, Centre for Energy, Environment, Science and Technology (CEEST), Tanzania, discussed women as biomass stakeholders, stressing that women must not to be forgotten within biomass cooperation. Leopold underscored that women face barriers such as institutional inertia and access issues. She highlighted, on an economic level, that women meet difficulties in finding biomass fuel and that the cost of biomass has risen. Referring to the social aspects of biomass use, she indicated that access control remains within the domain of men. She also specified that women encounter health problems while collecting biomass and risk indoor air pollution from using it. In recommending international cooperation, she emphasized the importance of empowering women through, *inter alia*, education, and stressed the importance of involving men in this process.

IMPROVED HOUSEHOLD ENERGY IN AFRICA – ARE WE READY FOR SCALING UP?: Arno Tomowski, Deutsch Gesellschaft für Technische Zusammenarbeit (GTZ), Germany, spoke about the importance of scaling-up improved household energy systems, using Ethiopia as an example. He also described GTZ’s strategy to address Africa’s energy problems which includes a “three-step” process aiming to reduce fuelwood demand through clean and efficient stoves, enhanced fuel wood supply through sustainable forest management, and substitution of fuels such as gas or kerosene.

SMOKE IN THE KITCHEN: THREE COUNTRY SMOKE PROGRAMME: Liz Bates, Intermediate Technology Development Group (ITDG), presented the Group’s research on kitchen smoke in Kenya, Nepal and Sudan. She specified that the project had engaged local actors in discussions on reasons for removing smoke and identified cost-effective ways to deal with kitchen smoke. She noted that the project had supported infrastructure installation, measured levels of pollution and recorded other key impacts such as time saving measures. She said that the projects have resulted in sensitizing the wider community on the dangers of kitchen smoke, identifying ways to promote smoke alleviation, developing business models in collaboration with local entrepreneurs, and bringing together different stakeholders, such as NGOs, researchers, the private sector and government officials.

LAND SUITABILITY ASSESSMENT OF SWEET SORGHUM AND SUGAR CANE IN SOUTHERN AFRICA: Helen Watson, University of Kwazulu-Natal, South Africa, spoke about her research on evaluating suitability of sorghum and sugar cultivation in the region. Comparing high resolution maps from South Africa and the region, Watson suggested that maps of sorghum suitability, informed by internationally aggregated data, were misleading. She stressed the benefits of unused forest areas for local communities, noting that up to 40% of direct household incomes derive from forests. She concluded that replacing natural woodlands with bioenergy crops could have negative impacts on communities and would benefit men who work with cash crops.

DISCUSSION: In the ensuing discussion, Best highlighted a new energy initiative called “UN Energy,” a programme that aims

to network, collect and disseminate energy-related information and mobilize action in the region. Highlighting the social aspects and functions of traditional biomass use, Karekezi noted that traditional knowledge tended to be overlooked in policies and programmes. Discussing the gaps between science and policy, participants emphasized that research results were not adequately translated for policy makers. Mwakasonda attributed this to a conflict of interest between scientists and policy makers.

Commenting on the empowerment of women, participants discussed a project in Bhutan where the National Women's Association has initiated the use of cooking stoves. Leopold stressed that women are primary educators and a powerful lobby group. One participant suggested that the "cooking challenge" of providing biomass to households in sub-Sahara will not be solved by the introduction of electricity to rural areas.

Participants then discussed ideas for GFSE-5 draft recommendations. One participant noted the absence of discussions on biotechnology. Another highlighted the gap between funding bodies and entrepreneurs. Participants discussed the importance of the private sector, with one participant highlighting the need for capacity-building for CDM projects.

WORKING GROUP I: BIOFUELS FOR SUSTAINABLE TRANSPORT

On Thursday, 11 May, participants met in two parallel working groups. Working Group I heard presentations of various case studies on the use of biofuels such as ethanol for sustainable transport. These presentations were followed by discussions. Christine Lins, European Renewable Energy Council (EREC), acted as rapporteur for this Working Group.

EU BIOMASS ACTION PLAN: Lins outlined the background to the drafting of the EU Biomass Action Plan and explained that it was an initiative commenced in 2005. She specified that it is being developed in order to reach the targets set by the EU, since it had been realized that additional biomass production could only be achieved in the short term with strong and targeted measures. In detailing how the plan is being developed, she reported that public consultations had been held regarding biomass availability and market barriers for power heat, combined heat and power (CHP), and biofuels for transport. She explained that the consultations had identified the need to focus on research and development, cooperation, promotion, information and legislation. She indicated that the Plan will be ready in July 2005.

BRAZIL ETHANOL PROGRAMME: Suani Teixeira Coelho, São Paulo State Secretary for the Environment and Brazilian Reference Centre on Biomass (CENIBIO), University of São Paulo, outlined Brazil's ethanol programme and said the programme had begun in the 1970s due to the international oil crisis. She highlighted how the use of biofuels, such as ethanol, can significantly increase employment opportunities, both directly and indirectly, in rural areas. She added that on the environmental level the use of ethanol in Brazil has resulted in complete elimination of lead additives in gasoline and helped reduce greenhouse gases emissions. She also stated that ethanol is now as competitive as gasoline. She reported that gasoline used in cars in Brazil must now contain 20-25% ethanol. She highlighted

that problems with biofuels remain at the international level, such as the high-cost for local producers in developed countries and protective trade barriers applied against the import of biofuels.

JATROPHA CURCAS – "THE POWER PLANT": Clive Richardson, D1 Oils Plc., presenting on behalf of Mark Quinn, described how the *jatropha curcas* plant is a perennial hardy shrub, drought resistant, grows well on all types of land, and exists in many countries. He explained that the advantages of the *jatropha* plant include a high oil yield, less dependence on climate and soil conditions than other energy crops, and the fact that it bears fruit within 18 months. He explained that D1 had considered *jatropha* for biodiesel production, but said it cannot be considered only for biodiesel use, since this would not be sustainable for rural farmers. In outlining the advantages of biodiesel, he said it can be used in most cars, adding that the growing biodiesel market faces a shortage of energy crops which the *jatropha* can fill. He indicated that D1 had worked with India, Egypt, South Africa, Nepal and Philippines on planting *jatropha curcas*.

PRACTICAL IMPLEMENTATION OF THE EU BIOFUELS DIRECTIVE: Walter Böhme, OMV

Aktiengesellschaft, detailed how OMV as a private company is helping to achieve the EU targets through biodiesel production. He specified that OMV invested in biodiesel plants 15 years ago and will have three large production plants along the Danube by next year. He explained that the slight price differences between diesel and biodiesel prices had not encouraged biodiesel use, since biodiesel is less efficient than diesel. He suggested that markets are not prepared to employ only biodiesel, and therefore mixing is essential. Regarding the situation in Austria, he suggested the use of tax differentiation to encourage biodiesel use and called for investment for biodiesel refineries.

BIOENERGY OPTIONS FOR PACIFIC ISLAND

COUNTRIES (PICs): Atul Raturi, University of Technology, Papua New Guinea, outlined the various possibilities for biofuels in PICs, stressing the need to remember the existing diversities between the islands and the high cost of transportation fuel for all inhabitants. He stated that PICs have two crops, coconut trees and cassava, that can be used to produce bioenergy. He explained that ethanol derived from cassava is becoming more economical as oil prices increase and markets in Asia grow. Raturi described how coconut oil has good properties for both biofuel and biodiesel production, but emphasized that there exist disadvantages such as oil solidification at 24 degrees centigrade. He recommended further research in this area.

BIOFUELS – ISSUES, CHALLENGES AND OPTIONS:

Kathleen Abdalla, Energy and Transport Branch, Division of Sustainable Development, UN-DESA, speaking on behalf of Jayarao Gurutaja, considered various issues related to biofuel, including those relating to resources (such as land availability), technology development, cost-benefit assessments, policy-related matters, and trade barriers. Abdalla outlined some of the challenges facing biofuels, which include the need to increase investments and financing, elaborate agricultural and trade policies, internalize external costs to obtain an even playing field between biofuels and fossil fuels, and phase out subsidies. She

indicated that biofuels had the potential to account for 20-25% of transport energy. Finally, she recommended that countries should: provide incentives for biofuel development by creating market mandates; grant soft loans; give direct producer payments, tax incentives and tax exemptions; and encourage capital offset.

DISCUSSION: In the ensuing discussion, participants asked questions relating to the cost of various biofuel crop productions. One participant emphasized the need to find affordable fuel options, which he stressed is also relevant in countries where complete electricity grids exist. Mark Quinn, D1 Oils Plc., said his organization had found that adding coconut oil to other fuels could decrease nitrous oxide emissions. Participants also addressed issues relating to cost efficiency in crop production for biofuels, competition issues, international price fluctuations in biofuels crops, land use and land availability in choosing whether to grow food crops or biofuel crops, water use consumption in relation to biofuel crops, and the need for research. Richardson highlighted that, for *jatropha*, not only the costs and benefits for possible biodiesel production should be considered, but also the costs and benefits of the recuperation of rest of the plant for other uses. Coelho indicated that the Brazilian ethanol and sugar market has been able to self-regulate and ensure consistency in its production and access to sugar and ethanol products.

WORKING GROUP II: BIOMASS FOR ELECTRICITY PRODUCTION AND HOUSEHOLD HEATING

On Thursday, 12 May, participants met in two parallel working groups. Working Group II heard presentations on the use of biomass such as wood pellets for electricity production and household heating, with examples from Austria, Albania, Brazil, and India. Participants also discussed these presentations and the issues raised. Kasimir Nemestothy was rapporteur for this Working Group.

BIOMASS FOR HEATING AND ELECTRICITY PRODUCTION IN AUSTRIA: Kasimir Nemestothy, Austrian Energy Agency, gave an overview of biomass and electricity production, market development, and biomass success in Austria. He reported that biomass is used in 60% of small-scale domestic installations, and that bioenergy has been “successfully” introduced into six areas/sectors, including: forest-related industries; district heating of rural villages and towns; medium-scale heating projects in schools; wood pellet heating for single family houses; cogeneration of heat and power; and biogas from energy crops. He attributed the success of biomass market development to biomass availability, with 47% of the country forested, a long tradition of wood usage for energy, consumer interest and political commitment, and an attractive framework that included stable and predictable financial incentives. He also noted that policies make a difference and need to be comprehensive and long-term.

BIOMASS AND THE KYOTO MECHANISMS: Clemens Plöchl, Kommunalkredit, Austria, talked about the role of biomass and the Kyoto Mechanisms in Austria. He explained that biomass technology accounts for 14% of emissions reductions projects, and that 21 methodologies are approved by the Executive Board of the CDM, six related to biomass. He then described two projects, the Palhalma Biogas Plant in Hungary where the

installation of a biogas plant from agricultural wastes is planned and the Alwae Power Project in India, which is a €5,000,000 small-scale investment that aims to reduce 240,000 tons of carbon dioxide equivalent. Plöchl explained that the aim of the Austrian Joint Implementation/CDM programme is to close the gap between the country’s Kyoto targets and national emissions programme through the purchase of Emissions Reduction Units and Certified Emissions Reductions. He said Austria has €288 million allocated for buying credits, and needs to purchase at least seven million tons of carbon dioxide equivalent per year until 2012, noting that 74 projects are in the pipeline and eight are finalized.

ALBANIAN ENERGY EFFICIENCY AND IMPLEMENTATION OF A NATIONAL ENERGY STRATEGY:

Besim Islami, National Energy Agency, Albania, spoke about the need to increase renewable energy in Albania. He said 30% of the State budget deficit is influenced by energy imports and there is a need to increase energy efficiency due to high energy costs in production. He explained that Albania’s political and economic context has contributed to national energy “crises,” noting that it has taken several years to persuade government departments to agree on the new Energy Efficiency Law. He reported that the Albanian Energy Efficiency and Renewable Energy Strategy Fund is financed by national, international and private sources. It is managed by the National Energy Agency, which has set out an ambitious programme for renewable energy and energy efficiency, including installing solar power, small hydro and wind energy, increasing energy saving in hospitals and industry, and securing energy supplies.

BIOMASS AS A SUSTAINABLE ENERGY SOURCE IN INDIA: Srimvasaiah Dasappa, Indian Institute of Science (IISC), presented on biomass energy, technology options and lessons learned from India. He said about 30% of India’s power generation comes from biomass, primarily for domestic, district and industrial heating. He noted that over 50% of India’s population do not have access to electricity and said attempts to meet rural electricity needs by centralized generation were unsuccessful, resulting in a new form of “distributed power” where plant capacity depends on the availability of biomass, relies on clusters of microenterprises, and considers the local context and priorities. Dasappa also talked about the development of modern bioenergy, citing examples of grid electricity and biogasification projects in southern India. He explained that IISC has been researching biomass gasification and its commercial applications for the past four years. He also identified various challenges, including a dependence on professionals to collect, process and deliver biomass technology, and varied local and national costs.

BIOMASS FOR ELECTRICITY GENERATION IN ISOLATED VILLAGES IN RURAL AREAS: Suani Teixeira Coelho, São Paulo State Secretary for the Environment and Brazilian Reference Centre on Biomass (CENIBIO), University of São Paulo, Brazil, spoke about the problems of energy access in isolated villages in the Amazon region. She explained that diesel oil is expensive and equipment often fails. She spoke about trials with a vegetable oil project in Vila Soledade, Pará State

and a biomass gasification project in Aquidabam Village in the Amazon. She said they had found that subsidies fail to encourage renewable energy and that rigorous standards set by large utilities prevent small utilities entering the market. She also noted that the high generation costs of small-scale steam are problematic and that existing engines only use diesel oil. She concluded that new policies need to develop energy access for communities, together with economic activities.

DISCUSSION: In the ensuing discussion, participants considered: ways in which to engage farmers in risk taking with biomass crops; the problem of double counting subsidies for fossil fuels and biomass; technology transfer from developed to developing countries; the use of agricultural residues in manufacturing pellets; and availability of equipment for developing countries.

Nemestothy said Austria has a historical relationship with forest management that facilitates the uptake up biomass technology. He noted that fossil fuels also received subsidies for entering markets. He also pointed out that many small and medium sized enterprises require assistance to enter the international market, noting the potential of the JI/CDM for this.

Participants asked specific questions on how to make renewable energy economically attractive to local communities in the Amazon. Coelho stated that this is an ongoing problem, but that policies need to change. One participant asked what mechanism has been used to disseminate biofuel technology in India. Dasappa responded that, although the rate of technology penetration is low because people remain risk averse, it is on the rise. Another participant noted lack of coordination between organizations in technology dissemination and said the private sector needs to be involved. Coelho remarked that specific policies are required to encourage the private sector and incentivize foreign manufacturers. Warning about the risk of generalizing from one experience, Coelho said that they are trying to “leapfrog” to policy change, keeping in mind the importance of providing reliable technologies.

One participant asked a question about how to encourage local employment. Coelho said that each case is distinct, but that the projects had worked with existing local institutions. One practitioner highlighted that the challenge for development programmes is whether to first deliver productive use or energy services.

PLENARY IV: PLEDGES OF SUPPORT

On Thursday afternoon, participants met in a Plenary session moderated by Cahit Gürkök on behalf of Abel Rwendire, UNIDO. This session consisted of presentations by international organizations and energy partnerships. Participants also engaged in discussions on the issues raised.

PRESENTATIONS: Cahit Gürkök, UNIDO, supported the promotion of bioenergy technology, in particular biogasification. He highlighted UNIDO’s efforts to establish an international bioenergy network and hoped to assist energy equipment provision in developing countries.

Peter Kui-Nang Mak, UN-DESA, stressed that bioenergy for development is a “serious matter.” Kui-Nang Mak highlighted UN-DESA’s role in compiling lessons learned and identifying

information gaps on bioenergy. He also supported a holistic and integrated approach to bioenergy, development and use.

Susan McDade, UNDP, outlined UNDP’s four energy priorities, which include: integrating energy consideration into development planning and campaigns; increasing access to energy services in rural areas to promote health, agricultural processing and commercial food processing; supporting low emissions technologies funded through the GEF; and linking energy and MDGs at the international level. McDade stressed that developing countries should articulate the importance of energy issues and proposed that GFSE-5 recommendations should emphasize the links between biomass and women’s and children’s participation in production activities.

Mark Radka, UNEP, highlighted potential avenues of work and project development. On the problem of methodological inconsistencies in biomass data and collection, he said UNEP could pull together an existing data archive created for the Solar and Wind Energy Resources Assessment (SWERA), with FAO. He also noted a bio-energy tool, RETScreen, which provides data on renewable energy developed in collaboration with Natural Resources Canada, and environmental due diligence guidelines elaborated by UNEP and private companies to evaluate environmental project impacts. He said he would be interested in applying such guidelines to biomass projects. Radka also expressed interest in supporting analysis of small biomass CDM projects and recommended a review on the trade implications for bioenergy under the new OECD preferential rules for trade of renewable energy.

Gustavo Best, FAO, spoke about FAO’s activities in bioenergy and outlined selected FAO activities on wood energy, bioenergy potential assessment, bioenergy information systems, databases, links with climate change (mitigation and adaptation), CDM methodologies for agriculture, and projects and partnerships. He also called for an International Action Plan on Bioenergy that would bring together disparate sources of information on biomass energy globally and mobilize existing technologies. He noted that a meeting will be convened in Rome later in 2005 to elaborate ideas for the Action Plan.

DISCUSSION: In the ensuing discussion, Coelho emphasized the need for information, in particular statistics related to biomass and the necessity to disaggregate data by biomass type to make it more useful. Gustavo Best stated that in the case of wood, the statistics are available and based on GIS and field work, whereas for other biomass types it is necessary to develop a global comprehensive programme. One participant called for investment opportunities for the private sector to be identified. Referring to RETScreen, Radka recommended its use in preparing pre-feasibility studies. Another participant welcomed the involvement of FAO and forest organizations in the GFSE process, since these organizations have experience of issues similar to those in biomass production such as non-reliability of resources.

PRESENTATIONS: Mike Allen, Renewable Energy and Energy Efficiency Partnership (REEEP) described REEEP’s objective as “generating green kilowatts and energy.” He said REEEP is a bottom-up initiative with decentralized regional offices. He explained that REEEP’s activities include analyzing

the regulatory, policy and financial aspects of renewable energy, and developing an information clearing house.

Richard Jones, Global Village Energy Partnership (GVEP), outlined the activities of the GVEP, explaining that it focuses on specific solutions for country actions, encouraging capacity development, assisting in finance facilitation, enhancing knowledge management and facilitating cross-cutting public-private partnerships with an aim to reduce poverty and achieve other MDGs. He said GVEP has more than 650 partners addressing a wide range of areas, such as energy, rural development and agriculture, adding that these partners are encouraged to look outside their “respective boxes” to find solutions. Jones underscored that GVEP uses a technology-neutral approach where multilateralism and market principles are emphasized. He stressed that all MDGs need energy in order to be met, although there does not exist a specific “energy MDG.”

Mark Radka, speaking on behalf of the Global Network on Energy and Sustainable Development (GNESD), explained that this partnership brings together 20 research institutions in developed and developing countries. He reported that the network addresses energy access, power sector reform and renewable technologies for rural communities. Looking forward, he envisioned a role for GNESD in providing methodological guidance for biomass technology and cost-benefit analysis of bioenergy options.

Arno Tomowski, on behalf of John Mitchell, Partnership for Clean Indoor Air (PCIA), stated that the challenge is to reduce deaths from indoor air pollution, which now amount to 5000 each day. He indicated that PCIA’s goal is to increase the use of clean, reliable and affordable cooking methods. He stated that PCIA emphasizes the use of flexible methods in accomplishing their goals, and the need for clearly-articulated goals. He outlined some of the PCIA’s activities, which include developing tools and resources; building capacity in priority areas; and organizing social marketing workshops and regional health and exposure workshops. He encouraged participants to raise awareness about indoor air pollution, reduce exposure to it, ensure capacity building of local entrepreneurs, and test, improve and market their products.

Andrew Yager, LPG Challenge, explained that the LPG Challenge partnership was launched at WSSD between UNDP and the LPG private sector. Yager said the partnership assists private companies to provide gas to peripheral urban areas in developing countries. The partnership is also looking at health, environment and economic productivity.

Alois Mhlanfa, African Development Bank Group, noted that the available energy resources in Africa are underexploited. He reported that the African Development Bank is currently working on a financing programme, “Financing Energy Services for Small-Scale Energy Users (FINESSE).” He explained that the Bank had begun with building its internal capacity in this area, followed by the establishment of policy support through consultative workshops, and the development of sub-regional action plans and the involvement of the public and private sectors. He stressed that the private sector is playing an increasingly important role in this area, and that establishing public-private partnerships mitigates perceived risks.

DISCUSSION: In the ensuing discussion, one participant stressed the need to clarify and define the services provided by biomass. One participant stressed the importance of quantifying the impacts of capacity building strategies in biomass plans. Another asked if an integrated energy strategy between bilateral and multilateral agencies currently exists. Gürkök responded that this is a challenge for international organizations.

PLENARY V: REPORTS FROM THE WORKING GROUPS

On Friday morning, 13 May, delegates reconvened in a Plenary session to hear the rapporteurs from the two Working Groups report on the sessions held the previous day. The Plenary was moderated by Elfriede More, Ministry of Agriculture, Forestry, Environment and Water Management, Austria.

REPORT OF WORKING GROUP I: Christine Lins, rapporteur of Working Group I, gave an overview of the presentations. She highlighted some of the benefits of employing biofuels, including: an enhanced economy in rural areas; the creation and continuance of energy supply in remote areas; the creation of a market competitive with fossil fuels; the generation of economic opportunities; and emissions reductions specifically in transport sectors. She highlighted some of the concerns and challenges identified during the discussions, including the need for technological development and investments for industry, the need for policy frameworks to promote biofuels, and the different biofuel standards worldwide.

She said participants had discussed such topics as removal of trade barriers, land use and land availability, water availability, and the need to consider costs and impacts of biofuel development. Identifying some recommendations from the Working Group, she specified that participants had indicated the need to: create a level playing field through internalization of external costs, since biofuels still compete with fossil fuels; examine biofuels in an integrated manner, taking into account the environment, agriculture and trade; foster capacity building, research and development efforts through international cooperation; consider greenhouse gas certification for biofuel options, since biofuel projects encounter difficulties in demonstrating CDM “additionality” criteria; limit trade and tariff barriers; and create international biofuel markets.

REPORT OF WORKING GROUP II: Working Group II’s rapporteur, Kasimir Nemestothy, reported that the group had discussed biomass for electricity production and household heating, using case studies from several countries. He then presented the group’s key conclusions, noting participants’ views that:

- energy efficiency has to be given the highest priorities in all cases, including when using renewable energy sources;
- high technical applications with a focus on the reduction of labor costs offer solutions for developed countries, while developing countries need different approaches;
- the local socioeconomic context and use of energy resources has to be studied within a holistic approach before technology transformation takes place;
- implementation of new systems faces multiple barriers in developing and developed countries; and
- an integrated policy with complementary and long-term approaches is essential.

DISCUSSION: In the ensuing discussion, one participant regretted that there had not been more discussion on biomass concerns and challenges related to household use, specifically cooking, since this is where the majority of biomass is employed. Another participant highlighted the need for more research on the potential of using sunflower plants for diesel engines. Coelho stressed the importance of employing simple technology that is easily operated by the community, in particular in rural areas. Another participant underscored the importance of including the manufacturers' dimension in discussions.

One participant reminded the group that the extensive use of biomass can result in environmental problems related to land use and irrigation. Another proposed labeling all household goods for biomass use. Lins underscored the importance of considering all renewable energies in discussing biomass, as all of them are complementary. Nemestothy emphasized the need for a holistic approach to biomass.

PLENARY VI: STRENGTHENING INSTITUTIONAL CAPACITY FOR BIOMASS

Participants gathered in a Plenary session to hear regional presentations on strengthening institutional capacity for biomass. This session was moderated by Mats Karlsson, UN-Energy. Participants also engaged in a discussion.

Alfredo Curbelo, GEPROP, Cuba, spoke about barriers to biomass use in Latin America, focusing in particular on institutional capacity. Curbelo showed the different characteristics of biomass use across the region, with "traditional" use of biomass featuring in Central America. He reflected on barriers to the adoption of modern biofuel, suggesting that markets are not prepared and that facilities and produce companies are insufficient. He emphasized that biomass marketing requires functioning institutions with clear organizational roles and mandates in all areas of technology transfer. He reflected on the national and regional dimensions of biomass technology development, and highlighted the importance of local, company and government buy-in to the technology. He supported the development of inter-regional cooperation, envisioning that this could lead to the establishment of information networks, technology transfer institutions, education and training programmes, and regional research, development and technology innovation programmes.

Kinga Tshering, Department of Energy, Ministry of Trade and Industry, Bhutan, presented an overview of Bhutan's energy situation, indicating the need for enhancing the capacity of the energy sector and government. He highlighted that the objectives of Bhutan's energy sector include obtaining electricity for all by 2020, developing sustainable energy (renewable, environmentally friendly, techno-economically viable and adaptable) and providing reliable, adequate, affordable and safe electricity for domestic consumption. He stated that solar energy is an option that needs to be considered further. He highlighted the need to increase wood efficiency by optimizing the technology and ensuring training in its use. Tshering recommended encouraging the use of hydropower, but highlighted the need for investment in this area. He underscored the importance of establishing policies that can sustain inter-institutional linkages for the technical

development of the biomass sector; micro-level planning and grassroots assessment for identifying energy needs and priorities to design appropriate biomass energy programmes; and designing appropriate energy delivery systems for rural areas.

Abdelali Dakkina, Centre for Information on Sustainable Energy and the Environment (CIEDE), Morocco, reported on strengthening institutional capacity for biomass in Africa. He spoke about the benefits of modern biomass energy technologies, including multiple social, environmental and economic opportunities, improved rural livelihoods, carbon neutrality, bio-waste management potential and increased incomes. However, he noted that technology uptake in Africa is generally constrained by the absence of capital investment and technical expertise, unfavorable legal and regulatory frameworks, and the high costs of ensuring access. He recommended: the improved design and establishment of effective institutional and associated legal and regulatory frameworks; improved policy measures; modernized forestry approaches; improved data collection and associated biomass energy planning; and the provision of adequate financial and technical resources.

Krasimir Naydenov, on behalf of Tasko Ermenkov, Ministry of Energy and Energy Resources, Energy Efficiency Agency, Bulgaria, gave an overview of Bulgaria's economic and energy sectors, indicating that they are similar to other countries in the region. He underscored the need to take strong measures for energy efficiency, explaining that wood has a major share of renewable energy resources in Bulgaria. He recommended increasing the use of firewood in households. He indicated that Bulgaria has the potential to increase its wood extraction and production and to raise biomass use, which would enable it to adhere to the EU targets for power generation from renewable energy resources.

Dörte Fouquet, European Renewable Energy Federation (EREF), stressed the importance of maintaining a "heat perspective" in the discussions on bioenergy. She hoped that an EU directive on sustainable heating and biomass use would be established to support biofuels entering the market. She highlighted differences between the capacity of old and new EU member states and suggested that new members are starting to "wake up" to the challenge of energy, but that they require greater awareness and regional funds for biomass development. She highlighted that institutional barriers between national governments and EU bodies included inconsistencies in biofuel definitions and lack of coordinated approaches across Europe.

DISCUSSION: Karlsson stated that institutions in Africa need to secure a level playing field, noting that strategies and institutions for bioenergy should be created early on. One participant asked about the transferability of Morocco's experience to other parts of Africa. Dakkina emphasized that successful technology transfer requires the right policy measures.

CONCLUDING PANEL: THE WAY FORWARD

Late on Friday morning, participants assembled for GFSE-5's final session – a concluding panel and discussion on the way forward. The session was chaired by Irene Freudenschuss-Reichl.

Irene Freudenschuss-Reichl informed participants that the Forum had been working on a web-based communication

and information system to facilitate access to information on sustainable development energy activities, hoping that it would be available for the CSD in May 2006. She welcomed participants' comments and feedback on this tool. She also invited participants to comment and advise on future activities and meetings.

Mats Karlsson, UN-Energy, said he was encouraged by the discussions during GFSE-5, noting that they demonstrated a "character of maturity" not widely known outside this Forum. He spoke about the need for action at the national and sub-national levels. He also highlighted the challenge of moving forward the energy agenda at the global level, concluding that mega institutions are not the answer, but that global networks are needed to move forward on the issues.

Nebojsa Nakicenovic, IIASA, stated that energy involves the question of access to affordable energy for the poor and that it is indispensable for human well being. He indicated that 10-20% of biomass worldwide is used to produce energy, which is not recognized at the global level. He stressed that energy needs to be produced sustainably and underscored current fossil fuel dependency, adding that biomass and other renewable energies are critical to addressing this problem. Nakicenovic stressed that much more research on renewable energy technologies is necessary. He also emphasized that markets in renewable energy need to improve.

Thomas Johansson, International Institute for Industrial Environmental Economics, supported further research into the contributions of biomass to economic development and environmental protection, taking into account the limitations of land and water availability. He said this research could help avoid the wrong type of resource development. He hoped that GNESD would take this matter forward. Johansson also highlighted the problem of inertia among global institutions in addressing energy in the context of sustainable development and emphasized the importance of networks in tackling long-term sustainable development objectives. He supported Freudenschuss-Reichl's proposal for a GFSE web-based information tool.

DISCUSSION: In the ensuing discussion, participants welcomed the web-based communication and information system initiative presented by Freudenschuss-Reichl. One participant emphasized the need to take an integrated approach to biomass use. Another stressed the importance of international cooperation. Karlsson highlighted the need to work with various actors such as the private sector and international organizations, but suggested that it was not necessary to establish a new international organization dealing with energy issues, arguing that the focus should be on the national level.

CLOSING REMARKS: Irene Freudenschuss-Reichl informed participants that the full report of GFSE would be posted on GFSE's website (<http://www.gfse.at>) and that an executive summary would be developed by the convenors, containing recommendations from the meeting. She welcomed comments on the draft report. She explained that the GFSE-5 executive summary would be forwarded to the UN in view of the upcoming review of progress on the Millennium Declaration in September 2005. She thanked GFSE-5 participants and organizers, especially the Austrian Ministry of Foreign Affairs

and Ministry of Agriculture, Forestry, Environment and Water Management, and Christine Sprinzl in particular. She declared the meeting closed at 1:00 pm.

ELEMENTS FOR RECOMMENDATIONS

GFSE-5 produced a set of draft recommendations, which once finalized will be forwarded for consideration by the Commission on Sustainable Development in 2006-2007, and at the high-level plenary meeting of the UN General Assembly on follow-up to the outcome of the Millennium Summit, which is taking place in New York in September 2005. The recommendations were developed from an initial draft that was distributed at GFSE-5 and commented on by participants. These draft recommendations address various issues, including:

- **Improved use of traditional biomass:** Research and analysis, as well as data collection, should be improved so that planning for biomass energy can be based on a more accurate knowledge of the situation on the ground; widely used improved biomass technologies (IBTs) such as improved cooking stoves should have reduced costs; and local production of IBTs should be promoted.
- **Modernized biomass (agro-industry, new growth, pellets, and boilers):** The income producing effects of IBTs on rural poor should be harnessed; targets should be set for modernized biomass energy, combined with financial commitments; new and innovative financing mechanisms for IBTs should be developed; modern biomass technologies should be used as levers to develop agro-industries; knowledge about modern biomass should be integrated into long-term training programmes; legal and regulatory frameworks should support the use of modern biomass technologies; and dedicated regional and international funds to promote modern biomass technologies should be created.
- **Biomass and systems approach:** Biomass technologies should be integrated into the systems context of energy service provision, including scarce resources such as land, water, environment; GFSE should actively include those industries to whom power production would be a marginal upside and cross-sector issue and integration of biomass with other industry sectors should have a focus.
- **International cooperation:** Cooperation, including development cooperation, should promote South-South coordination, international research on biomass issues, cooperation within countries through better donor coordination, and multistakeholder involvement and integration of international trade dimensions into biomass discussions.
- **Gender and Other Issues:** GFSE recommends taking note of the gender dimension, noting the special importance that biomass energy use, especially traditional fuels, play in impacting women's and children's situations with regards to time spent on fuel collection, household cooking, participation in education, health conditions, and economic activities. Affordable and accessible modernized biomass energy is needed to support gender equality.
- **Commitments:** UNEP and GNESD are encouraged to support various activities, in particular those addressing data, methodologies and analysis.

UPCOMING MEETINGS

22ND SESSIONS OF THE SUBSIDIARY BODIES TO

THE UNFCCC: The twenty-second sessions of the Subsidiary Bodies (SB-22) to the UN Framework Convention on Climate Change (UNFCCC) are scheduled to take place from 19-27 May 2005, in Bonn, Germany. Following an agreement at the tenth Conference of Parties to the UNFCCC in December 2004, SB-22 will be preceded by a "Seminar of Government Experts," which will seek to promote an informal exchange of information on actions concerning mitigation and adaptation, and on policies and measures adopted by governments supporting implementation of existing commitments under the UNFCCC and Kyoto Protocol. The Seminar is scheduled for 16 and 17 May. For more information contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail:

secretariat@unfccc.int; Internet: http://unfccc.int/files/parties_and_observers/notifications/application/pdf/notice_po_050216.pdf

RENEWABLE ENERGY FINANCE ASIA FORUM:

This meeting will take place from 15-16 June 2005, in Hong Kong, China. For more information contact: Sarah Ellis, Green Power Conferences; tel: +44-870-758-7808; e-mail: sarah.ellis@greenpowerconferences.com;

Internet: <http://www.greenpowerconferences.com/events/RenewableFinanceAsia.htm>

2005 ANNUAL MEETING OF THE INTERNATIONAL ENERGY WORKSHOP: This meeting will take place from 5-7 July 2005 in Kyoto, Japan. The themes to be covered at this year's workshop include managing uncertainty and abrupt climate change, UNFCCC/Post-Kyoto regimes and technological responses to climate change. For more information contact: Leo Schrattenholzer; tel: +43-2236-807-225; fax: +43-2236-807-488; e-mail: leo@iiasa.ac.at; Internet:

<http://www.iiasa.ac.at/Research/ECS/IEW2005/index.html>

G8 GLENEAGLES 2005 SUMMIT: This meeting will convene from 6-8 July 2005 in Gleneagles, Perthshire, Scotland. Under the UK Presidency, the G8's deliberations will focus on Africa and climate change among other topics. For more information contact: British Prime Minister's Office; fax: +44-20-7925-0918; e-mail: <http://www.number-10.gov.uk/output/Page821.asp>; Internet: <http://www.g8.gov.uk/>

SOLAR WORLD CONGRESS 2005: This meeting will take place from 6-12 August 2005 in Orlando, Florida, USA. This event is expected to bring together researchers, scientists, engineers, architects, designers and other renewable energy professionals to discuss solar energy issues. In particular, the Congress will consider linkages between solar and water issues under the theme, "Bringing Water to the World." For more information contact: Becky Campbell-Howe, American Solar Energy Society; tel: +1-303-443-3130 ext.103; fax: +1-303-443-3212; e-mail: bchowe@ases.org; Internet: <http://www.swc2005.org>

INTERNATIONAL ENERGY PROGRAMME

EVALUATION CONFERENCE: This conference will convene from 17-19 August 2005 in New York, USA. The theme of the conference is "Reducing Uncertainty through Evaluation," providing a forum for presenting and discussing new research and objective evaluations of energy programmes. The International

Energy Programme Evaluation Conference (IEPEC) is a biennial professional conference for energy programme specialists. For more information contact: Cara Lee Mahany Braithwait; tel: +1-608-231-2266; fax: +1-608-231-1365; e-mail:

samb@LRCA.com; Internet: <http://www.iepec.org/>

NORDIC BIOENERGY CONFERENCE: BIOENERGY 2005: This conference will convene from 25-27 October 2005 in Trondheim, Norway. The conference will provide an opportunity to discuss options for increasing biomass in Europe significantly by 2010. Delegates will consider a range of relevant issues, including the future market for bioenergy and new technology for the efficient use of biofuels. For more information contact: Silje Schei Tveitdal, Norwegian Bioenergy Association; tel: +47-23-365870; e-mail: post@nobio.no; Internet: <http://www.bioenergy2005.no>

FOURTH WORLD WIND ENERGY CONFERENCE AND EXHIBITION: This conference will convene from 2-5 November 2005 in Melbourne, Australia. Organized by World Wind Energy Association, this conference will consider the latest issues facing the wind energy sector, including the impact of the Kyoto Protocol's entry into force and plans to implement the Millennium Declaration and Millennium Development Goals. Other issues on the agenda include the linkages between wind power and water management, desalination, human health, off-grid systems, financing and training. For more information contact: Conference Organizers; tel: +61-3-9417-0888; fax: +61-3-9417-0899; e-mail: wwec2005@meetingplanners.com.au; Internet: <http://www.wwec2005.com/index.shtml>

GREEN POWER MEDITERRANEAN CONFERENCE - THE SUSTAINABLE ENERGY MEETING PLACE: This conference will convene from 15-16 November 2005 in Rome, Italy. This event seeks to create a focused platform for networking and knowledge transfer that will further the adoption of renewable energy systems and energy efficiency programmes in the region. For more information contact: Sarah Ellis, Director, Green Power Conferences; tel: +423-663-029-144; fax: +44-207-900-1853; e-mail: sarah.ellis@greenpowerconferences.com; Internet: <http://www.greenpowerconferences.com/events/GreenPowerMed.htm>

FIRST MEETING OF PARTIES TO THE KYOTO PROTOCOL AND ELEVENTH CONFERENCE OF PARTIES TO THE UNFCCC: Scheduled for 28 November to 9 December 2005 in Montreal, Canada, the historic first Meeting of Parties to the Kyoto Protocol (MOP-1) is taking place in conjunction with the eleventh session of the Conference of Parties (COP-11) to the UN Framework Convention on Climate Change (UNFCCC). For more information contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; Internet: http://unfccc.int/meetings/unfccc_calendar/items/2655.php

WORLD BIOENERGY 2006: Conference & Exhibition & Biomass for Energy. This conference will convene from 30 May-1 June 2006 in Jönköping, Sweden. For more information contact: SVEBIO; tel: +46-8-441-7080; fax: +46-8-441-7089; e-mail: info@svebio.se; Internet: <http://www.svebio.se>