

REVIEW OF MAJOR ENVIRONMENTAL AND ELECTRICITY ISSUES AFFECTING BIOMASS POWER

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Electric Marketplace Information and Analysis: Technical and Economic Information

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HIGHLIGHTS December 1998

- The United States signed the Kyoto Protocol on November 12, 1998. (p.9)
- EPA released a draft action plan that will help it determine whether or not to regulate mercury. (p.3)
- EPA has issued rules which would bring 450,000 animal feeding operations under the federal Clean Water Act. (p.4)
- EPA issued new guidance on implementing the national standards for ozone and particulate matter which changes the attainment date to 2005. (p.3)
- Rep. Kucinich (D-OH) introduced a bill that would indirectly help renewables in a restructured environment. (p.7)
- The “Green Power for Green L.A.” program was submitted for approval; it will allow Los Angeles Department of Water and Power customers to buy a renewable power. New York state’s energy regulators have issued a fuel disclosure order for all energy suppliers. Green Mountain Energy introduced three new clean electricity products in Pennsylvania and each consists of at least some, or all, electricity generated from renewable sources. (p.7)
- The Automated Power Exchange (APX) found that in California, green power is more valuable to wholesale buyers than non-green power. (p.7)
- Prebon Energy and the AirBank plan to form a joint venture to offer air emission credit brokerage and consulting services. (p.3)
- A new EPA policy limits companies’ ability to avoid technology-based emissions standards when settling alleged New Source Review (NSR) violations. (p.3)
- The Europe-based International Union of Producers and Distributors of Electricity, the Japanese Federation of Electric Power Producing Companies, and the U.S.-based Edison Electric Institute are offering themselves as “guinea pigs” for an international GHG emissions trading program. (p.10)
- In the final hours of the Buenos Aires conference, countries agreed to set the end of 2000 as the deadline for resolving contentious compliance issues (p.9)
- Argentina and Kazakstan have become the first developing countries to volunteer to limit GHG emissions. (p.9)
- Australia’s New South Wales legislature passed a law that grants forestland owners carbon sequestration rights, and allows utilities to trade in such rights. (p.9)

- India's Maharashtra state government has announced several incentives to developers of non-conventional energy and renewables-based power projects. (p.12)
- Renewable energy projects in the Philippines will be further assisted by the implementation of an UNDP-funded \$837,000 project. (p.12)
- Sri Lankan scientists are trying to establish a biogas plant in a swamp outside the city of Colombo that will turn garbage, weeds, and water hyacinth into energy. (p.12)
- A report released by EIA has been used to support the argument that the Kyoto Protocol would hamper the U.S. economy even under the best scenario. (p.14)
- Public Citizen released a report which argues that green power marketing in California is a hoax and is of little or no benefit to the environment. (p.14)

1.0 ENVIRONMENT

This chapter covers the major environmental issues, including air and water, potentially affecting biomass power development.



1.1 Air

EPA released a draft action plan that will help it determine whether or not to regulate mercury—overall, the plan seeks to reduce mercury emissions by 50 percent by 2006. Over the next two years, EPA will collect data and require power plants larger than 25 MW to monitor and report the mercury content of the coal they burn. In addition, 75 plants will undergo stack testing for mercury emissions. By 2000, the mercury emissions data will be made available to the public over the Internet. The agency estimates that utilities will spend \$17,500 per year on coal sampling and \$44,500 on stack testing. If EPA finds that regulations are needed, then it must propose a rule by December 2003. (*Air Daily*, 11/18/98; 11/17/98)

EPA issued new guidance on implementing the national standards for ozone and particulate matter which changes the attainment date for determining an area's compliance with the new standards. The initial date, 2003, is the same year that the ozone standard goes into effect, but attainment demonstrations require three years worth of data, so the date has been changed to 2005. The new guidance also includes the following: it adds new requirements for areas wishing to be designated as "transitional non-attainment areas"; it sets out procedures for areas to measure "reasonable further progress" towards meeting both the old and new ozone standard; and it outlines a "framework for future air quality planning efforts." (*Inside EPA Weekly*, 11/20/98)

Prebon Energy and the AirBank plan to form a joint venture, the AirTrade Alliance, which will offer air emission credit brokerage and consulting services to electric utilities and industrial manufacturers in the Northeast. The Alliance will focus on NO_x emissions trading and will work with emitters to determine the best compliance strategies, such as buying allowances or installing controls. Prebon Energy is an energy broker for electricity, natural gas, coal, weather derivatives, and SO₂ allowances. The AirBank provides market-based solutions to air quality management issues. (EIN, *Clean Air Today*, 11/11/98; *Air Daily*, 11/5/98)

A new EPA policy limits companies' ability to avoid technology-based emissions standards when settling alleged New Source Review (NSR) violations. In the past, NSR violators would bypass the permitting and pollution control technology requirements by electing to become a "synthetic minor" source. To do so, it would voluntarily adopt an emissions limit below the major source threshold. The new EPA policy will deny the synthetic minor option to violators whose emissions exceed major source limits, and it will consider "willful recidivists" as major sources and impose NSR requirements on them. (*Air Daily*, 11/24/98)

EPA is supporting a federal court's decision not to rule on the legality of the agency's use of "any credible evidence" to determine violations to the Clean Air Act. EPA's standard practice has been to only use test results from periodic inspections to determine violations, but in 1997, it changed its approach by authorizing itself to use any credible evidence in making these determinations. Industry groups filed suit, arguing that EPA was changing the emissions standards through a new means of enforcement rather than through an explicit ruling. The court, however, said that credible evidence's legality could only be challenged in court once EPA had used it in an enforcement action. One source says that industry will probably get a rehearing, and several cases could be filed. (*Inside EPA Weekly*, 10/28/98)

The Institute for Clean Air Companies reports that U.S. efforts to curb smog in the eastern U.S., cut mercury emissions from utilities, and reduce hazardous pollutants from industrial sources are about a 'generation behind' initiatives taken by other countries. For example, to reduce SO₂ emissions, Germany and Japan installed FGD systems on their coal-fired power plants more than 10 years ago. The U.S., however, will still have more power plants without the FGD technology after the acid rain program is fully implemented. (EIN, *Clean Air Today*, 11/18/98)

The coal and utility industries are challenging a recent EPA rule that sets low NO_x limits (0.15 lb./MMBtu) for new and modified boilers regardless of the type of fuel they burn.

Industry representatives say that such a low limit will force power plants to stop using lignite. They say that the NO_x standards should go back to being fuel- and boiler-specific.

Source: *Air Daily*, 11/16/98

The year 1998 will most likely be considered the most active year in Michigan's emissions trading program. In this case, however, "most active" means fewer than 20 trades per year. A state representative says that NO_x trading could catch up once Michigan starts controlling the pollutant under EPA's ozone transport rule. Education and outreach are perceived as a big part of the problem, because small sources are not even aware that trading is a compliance option for meeting state pollution limits. (*Air Daily*, 11/10/98)

1.2 Water

EPA has issued rules which would bring 450,000 animal feeding operations under the federal Clean Water Act. Farms in the U.S. produce 1.4 billion tons of manure annually and by 2003, the largest operations would have to file detailed plans on their programs for managing animal waste. Smaller farms will have to start filing similar plans by 2008. In addition, the rule calls for a watershed-specific permit for those feedlots located on or near impaired or sensitive watersheds. Farmers will have to change the animals' diets to reduce the amount of nutrients in manure and incorporate better practices to handle the waste and prevent leaks. The plan will be overseen by both EPA and the USDA. (*Solid Waste Digest*, Sep. 1998)

In response to the release of the EPA/USDA animal feeding operation strategy, lawmakers will sponsor a technology conference in February or March to find ways to reduce agricultural runoff pollution. Those in the agricultural industry are trying to find inexpensive ways to prevent runoff before stricter regulations are imposed. The conference will be an attempt to gather EPA, industry, and scientists to "make alternative farming methods more known and eventually more cost-effective." It is set to cover presentations on equipment, technology, and alternative farming methods used in the U.S. and other countries. (*Inside EPA Weekly*, 11/13/98)

The agriculture industry and some state sources say that the EPA/USDA animal feeding operation strategy could lead to extensive permitting rather than the desired voluntary approach. These sources are mainly concerned about the need for a watershed-specific permit. An industry source says that the information used to create state assessments and impaired water lists is often out of date and speculative because states do not have enough resources to monitor all waterbodies. The lack of random sampling sometimes exaggerates the data, which could lead to extensive permitting even when there is not really a problem. (*Inside EPA Weekly*, 11/20/98)

Before it finalizes an industry draft plan designed to shape effluent guidelines, EPA wants more information about farm practices from poultry producers. The plan is scheduled to be proposed in December 1999, but a key part of the project is setting limits on how much animal waste runoff will be

permitted. EPA has asked for zero discharges, but the poultry industry has countered with cost and feasibility arguments. Specifically, EPA wants to know about the industry's common operational practices, how many sheds have correctly installed waste containment measures, how many sheds store manure as opposed to immediately applying it to land, and how often cleanup measures are employed on farms. (*Inside EPA Weekly*, 11/13/98)

A draft EPA report shows that its recent efforts to reduce NO_x emissions from electric utilities will also have a significant positive effect on water quality. Overall, the NO_x rule may reduce nitrogen deposition in water by more than 10 percent, which will lessen the burden on point source dischargers to reduce pollution. Agency sources say that these benefits could inspire more cross-medium cooperation in such rules as the 'total maximum daily loads' rule and the Clean Water Action Plan. (*Inside EPA Weekly*, 11/6/98)

1.3 Miscellaneous—Renewable Energy

The Southern Co., Auburn University, EPRI, the Alabama Department of Economic and Community Affairs, and DOE are collaborating to develop ways to burn a combined mixture of coal and switchgrass to produce electricity. Researchers will investigate the most efficient mixture of the two fuels and then test them in a pilot-scale plant that can simulate a coal-fired utility boiler. Data will be collected on the characteristics of new fuels and boiler performance under different conditions. (EIN, *Renewable Energy Today*, 11/4/98)

The final omnibus appropriations bill included a \$120 million add-on for energy efficiency (EE) and renewable energy (RE). This is divide into \$50 million for EE, \$60 for RE, and \$10 million for EPA (either for its "green" programs or the Program for a New Generation of Vehicles). (Sustainable Energy Coalition, 10/24/98)

DOE and Minnesota Environmental Quality Board will jointly prepare an environmental impact statement (EIS) regarding a MnVAP proposal to construct and operate a biomass gasifier and electric generating facility of 75-103 MW. The power plant will be fueled by alfalfa stems grown and processed primarily in Minnesota and South Dakota. The site selected for the plant will determine if transmission lines will be needed. (*The Solar Letter*, 10/23/98)

DOE announced a \$12 million competitive solicitation for applications for grants and cooperative agreements. The awards will be given for information dissemination, public outreach, training, and related technical analysis and technical assistance activities involving renewable energy and energy conservation.

Source: Sustainable Energy Coalition, 11/8/98

A public opinion survey of 1,003 registered voters shows that they rate their elected officials' efforts to reduce U.S. dependence on foreign oil as "only fair" or "poor" and most believe that the U.S. is still vulnerable to an energy crisis. Results also show that more than 93 percent of the respondents either 'strongly favor' or 'somewhat favor' investments in renewables. There was a near consensus across partisanship, education, income, etc. in support of increased renewables. In addition, 55 percent believe that there is enough strong evidence of climate change and its causes to warrant action. (*The Solar Letter*, 11/6/98; Sustainable Energy Coalition, 10/21/98)

A survey conducted for the American Solar Energy Society and the Sustainable Energy Coalition finds that 75 percent of Americans favor increasing federal purchases of renewable energy to help reduce pollution and save money. Currently, the federal government spends \$3.5 billion per year for electricity, and if it used renewables for just 0.5 percent of its power needs by the year 2000, then it could prevent 51,000 tonnes of carbon emissions from being released. (EPA, 10/98)

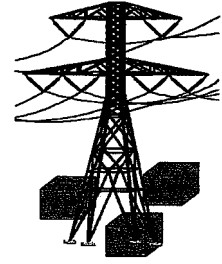
The Fourth Biomass Conference of the Americas is scheduled to be held from August 29-September 2, 1999 in Oakland, CA. Preliminary topics include: feedstock and applications; biofuels and electricity production; biomass conversion to chemicals, fibers, and materials; biomass environmental technologies; challenges in valuing biomass in green electricity markets; gasification/utility restructuring; and rural energy. (EIN, *Renewable Energy Today*, 10/21/98)

The post-November election House Renewable Energy Caucus has 124 members—this includes a loss of 8 Republican and 4 Democratic members.

Source: Sustainable Energy Coalition, 11/8/98

2.0 RESTRUCTURING

This chapter highlights federal- and state-level restructuring activities, emphasizing the role of renewable power.



2.1 Federal Activity

Rep. Kucinich (D-OH) introduced a bill that would indirectly help renewables in a restructured environment; the bill prohibits a ratepayer bailout of utilities that have made non-economical investments in nuclear plants. Environmentalists have long argued that recovering these stranded costs would take away from R&D funding for renewables. (*The Solar Letter*, 10/23/98)

2.2 State Activities

2.2.1 California

The Los Angeles Department of Water and Power (DWP) and representatives from environmental groups, community organizations, and business submitted a “green” power plan to the city’s Commerce, Energy and Natural Resource Committee for approval. The program, called “Green Power for Green L.A.,” will allow DWP customers to buy a portion of electricity produced from renewable sources. The initial cost will be offset by a Green Power energy efficiency program and participating customers will be entitled to special discounts toward the purchase of energy-saving appliances and other energy-saving products/services. (EIN, *Renewable Energy Today*, 11/20/98)

The Automated Power Exchange (APX) found that green power is more valuable to wholesale buyers than non-green power. The price for green power in the APX Green Power Market has been consistently higher and less volatile than the price for system power in the California Power Exchange (PX). Sellers in the APX market have received a daily average premium ranging from \$3-\$7/MWh compared to the daily average PX price. APX says that this gives developers an incentive to build new renewable facilities. (EIN, *Renewable Energy Today*, 11/5/98)

Green Mountain Energy and United Airlines have announced an agreement where Mileage Plus members living in California who choose Green Mountain as their energy provider will instantly be credited with 5,000 bonus miles. Mileage Plus members will be able to choose Green Mountain under this plan until January 29, 1999. (EIN, *Renewable Energy Today*, 11/24/98)

2.2.2 New York

As part of the state’s effort to open retail electricity markets, energy regulators have issued a fuel disclosure order for all energy suppliers. All utility companies, including energy services companies, municipal organizations, and rural cooperatives will have to begin providing this information by April 2000. (EIN, *Renewable Energy Today*, 11/13/98)

The green power marketer Automated Power Exchange (APX) will open a new electric commodity exchange for the state’s power market. It will use software that allows end-users, generators, marketers, and traders to ‘manage their power needs with a few key strokes and mouse clicks.’ APX’s strategy is to use both electronic commerce and energy deregulation to simplify the buying and selling of power. (*The Solar Letter*, 11/6/98)

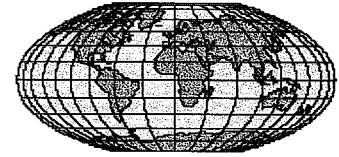
2.2.3 Pennsylvania

Green Mountain Energy introduced three new clean electricity products in the state and each consists of at least some, or all, electricity generated from renewable sources. EcoSmart is a mix of 99 percent natural gas or large-scale hydro power and 1 percent renewable; EnviroBlend is half natural gas or large-scale hydro and half renewable; and Nature's Choice comes from 100 percent renewable sources, 5 percent of which are new. These new options will be priced competitively and any increase in monthly power bills will amount to about 'the cost of one movie ticket per month.' (EIN, *Renewable Energy Today*, 11/17/98)

2.2.4 Texas

A recent poll found that approximately 96 percent of TU Electric customers said that the utility should invest in renewables. Four out of five of the respondents also said that they would be willing to pay a dollar or more extra on their monthly bill for renewables. The median value of willingness to pay was \$5 for renewable energy, \$2 for energy efficiency, and zero for coal and natural gas. (EIN, *Renewable Energy Today*, 11/20/98; *Air Daily*, 11/4/98)

3.0 GLOBAL CLIMATE CHANGE



This section provides an overview of specific country efforts with regard to global climate change and greenhouse gas (GHG) emissions reductions.

3.1 Government Efforts

The U.S. signed the Kyoto Protocol on November 12, 1998. Ambassador Eizenstat said that ‘in taking this action, the U.S. reaffirms our commitment to work with the nations...to address the challenge of climate change. We are guided by the firm belief that signing will serve our environmental, economic, and national security goals.’ The Clinton administration is not hoping for Senate ratification in the near future, but it hoped to “give a boost” to negotiators in Buenos Aires. The U.S. is the last major industrialized country to sign the pact. (*Greenwire*, 11/13/98)

In the final hours of the Buenos Aires conference, countries agreed to set the end of 2000 as the deadline for resolving contentious compliance issues (international emissions trading, joint implementation, and clean development mechanism) and whether penalties can be assessed against violators. The clean development mechanism, which authorizes emissions-cutting projects built in developing countries, received priority among the three compliance options. Eizenstat, the leader of the U.S. negotiating team, said that ‘We are now beyond concepts. We are into the actual practical rules, regulations and procedures.’ (*Air Daily*, 11/17/98; *Greenwire*, 11/16/98)

Argentina and Kazakstan have become the first developing countries to volunteer to limit GHG emissions. The leaders of both countries pledged to adopt specific targets for restricting emissions from factories and automobiles by 2012, to match the timetable adopted by the U.S. and other industrialized countries. The Environmental Defense Fund said this development was ‘a brave and far-sighted move’ but other developing countries and some Europeans responded angrily and feared that it may lead to a split among developing nations. (*Greenwire*, 11/12/98)

The New South Wales legislature in Australia passed a law that grants forestland owners rights over the carbon absorbed by trees they planted since 1990, and it allows utilities to trade in such rights. This Carbon Rights Legislation Amendment Bill of 1998 allows the state forestry agency to buy and sell sequestration rights and to assist in measuring the amount of carbon that trees are absorbing. This type of property rights is seen as one of the necessary first steps in creating an international GHG emissions market. (*Air Daily*, 11/17/98)

Due to strong Senate opposition, White House aides say that President Clinton is expected to leave the fate of the climate change treaty to the 2000 presidential election. Al Gore will promote climate change and environmental issues in his campaign, but Republican challengers are expected to campaign against the treaty. (*Greenwire*, 10/26/98)

The Clinton administration is reportedly planning to revive a tax incentive proposal for activities that reduce GHG emissions, as part of a FY2000 budget plan. Environmentalists say that after signing the treaty in Buenos Aires, the U.S. must follow up with a strong plan to generate voluntary emissions reductions domestically, to show that it is serious about addressing the problem. (*Inside EPA Weekly*, 11/20/98)

The United Kingdom government announced that its GHG reduction targets are ‘well within reach.’ It committed to reducing its emissions by 12.5 percent by 2010, and it is already on track to reduce emissions by 10 percent. (*Greenwire*, 10/28/98)

3.2 Non-Government Efforts

The Europe-based International Union of Producers and Distributors of Electricity, the Japanese Federation of Electric Power Producing Companies, and the U.S.-based Edison Electric Institute are offering themselves as “guinea pigs” for an international GHG emissions trading program. These groups represent utilities from three continents and they believe that although rules for a universal trading system have to be established, power plants could serve as a ‘starter’ for a trading test phase. The U.S. utilities reiterate that they are still opposed to the Kyoto Protocol, and they are “seeking support only for flexible mechanisms.” (*Air Daily*, 10/30/98)

There have been arguments that the International Emissions Trading Association (IETA) is trying to play too large a role in the international GHG market. As a result, a three-person panel has been appointed to draft the a mission statement to clarify the group’s position.

Monsanto is investigating no-till planting as a method that could serve as a carbon sink and a revenue source for farmers. The method has been in use since the 1950s for soil and water conservation, and it involves killing crops with herbicides, leaving the dead plants as ground cover, and planting next season’s seeds by depositing them in holes poked into the ground. Because the soil is not turned over, no-till could serve as a sink by trapping in the ground carbon that is normally released in traditional tilling practices. Monsanto believes that no-tilling could save ½ ton CO₂ per acre of land per year, and farmers could earn 10-40 percent above their annual revenue by selling the emissions credits generated by the sequestered carbon. The international community, however, has yet to include sinks as a viable carbon trap under the Kyoto treaty. (*Air Daily*, 11/2/98)

The panel consists of representatives from Shell International, the World Business Council for Sustainable Development, and the Latin American Trading Association.

Source: *Air Daily*, 11/24/98

Royal Dutch Shell announced that it will cut its GHG emissions by at least 10 percent from 1990 levels by 2002. It aims to reach this target by reducing its own emissions, and helping its customers reduce theirs by promoting renewables, alternative fuels, and market solutions. (Sustainable Energy Coalition, 10/24/98)

The International Emissions Trading Association is a newly established public-private group, backed by the United Nations, that is aimed at advising companies and countries on how best to use carbon trading techniques. The group will be based in Geneva, Switzerland, and hope to become “one of the first truly independent international verifiers of company reports on GHG emissions and carbon credits.” (EPA, 11/98)

Tokyo-based Mitsubishi Electric Corp. said it is aiming to reduce GHG emissions from its facilities by 25 percent below 1990 levels by 2010/2011. To help reach this goal, it plans to introduce fuel cells at up to six of its domestic plants and solar-battery systems at 10 plants by 2001. (*Greenwire*, 11/4/98)

The newly formed “Safe Climate, Sound Business” group, comprised of British Petroleum, General Motors, Monsanto, and the World Resources Institute, is an activist group that is aimed at studying long-term solutions to climate change and preaching action on GHG emission reduction. The group

recommends that companies measure and track their GHG emissions, adopt sequestration techniques, and develop energy efficient technologies, and that government institute a CO₂ trading program and expand joint industry/government R&D efforts. (*Air Daily*, 10/28/98)

The Pew Center on Global Climate Change says that negotiators should divide the world into three groups to reflect a better distribution of responsibility for cutting GHG emissions. The groups would be divided based on emission levels, living standards, and opportunities to increase energy efficiency. The first tier would include 30 countries such as the U.S., the European Union, Argentina, and South Korea. Tier two would include 52 countries such as Brazil, China, India, and Russia and the third tier would include 74 countries such as Bolivia, Morocco, and Vietnam. (*Air Daily*, 10/30/98)

Australia's Sydney Futures Exchange hopes to establish itself as a "regional powerhouse for the international trading of GHG emissions." In particular, it hopes to establish the country's potential as a host for sink projects, which offset GHG emissions by absorbing them back into the earth. (*Air Daily*, 10/29/98)

The Environmental Defense Fund and the Emissions Marketing Association have started an effort to raise public awareness of emissions trading by clarifying how trading works to solve environmental problems.

Phase two of the project will include a full-fledged educational program involving brochures, handbooks, and the Internet. Costs will be partially covered by an EPA grant.

Source: *Air Daily*, 11/5/98

4.0 INTERNATIONAL

This chapter is limited to those international business and investment opportunities that could potentially affect U.S. developers of biopower/renewable energy.



4.1 Business/Investment Activity

India's Maharashtra state government has announced several incentives to developers of non-conventional energy and renewables-based power projects. Estimates are that the state's potential is 500 MWe for wind power, 1,000 MWe for bagasse-based cogeneration, and 75 MWe for municipal solid waste (MSW). So far, the government has received 11 proposals for 332 MWe of bagasse-based cogeneration capacity, in which conventional fuel will be allowed for 40 percent of the total generation. Third-party sale will be allowed to one party, and these projects will be exempted for captive use. In the case of MSW projects, the sites include Bombay with 5,500 tons of waste per day with a capacity of 55 MWe. A municipal corporation will lease land to developers and solid waste will be supplied by the civic body at the site. Developers will receive protection for fluctuation exceeding 5 percent of the loan company and entitled to a sales tax benefit of up to 50 percent of the qualifying investment. (*The Solar Letter*, 10/23/98)

Renewable energy projects in the Philippines will be further assisted by the implementation of an UNDP - funded \$837,000 project. The 3-year project will be funded by the government of Netherlands and it is aimed at developing and strengthening the Development Bank of the Philippines' capacity to evaluate and manage renewable energy projects for financing. (EIN, *Renewable Energy Today*, 10/23/98)

Sri Lankan scientists are trying to establish a biogas plant in a swamp outside the city of Colombo that will turn garbage, weeds, and water hyacinth into energy. In mid-November, the first biogas digester fueled by garbage from the city's vegetable markets was launched. The system is a 5-digester unit. Each unit has a 40 tonne capacity for converting vegetable waste into biogas. The country's president praised new garbage disposal initiatives because garbage collection and disposal are environmental and health hazards for the country. (EIN, *Renewable Energy Today*, 11/25/98)

India's Ministry of Non-conventional Energy Sources was concerned about the country's recent slowdown in the renewable sector's energy growth, so it is attempting to convince the large, state-owned units to choose captive power generation from renewable sources. They attribute the slowdown to inadequate evacuation facilities with state electricity boards and poor project planning. (EIN, *Renewable Energy Today*, 11/16/98)

The European Union energy ministers agreed to allocate \$197 million to EU energy sector programs between 1998 and 2002. The budget, which actually amounts to a reduction in current funding levels in real terms, will be divided among six areas with most of the funding slated to go towards promoting the use of renewable energy sources. (EIN, *Renewable Energy Today*, 11/18/98)

The Shell Company is interested in expanding its renewable energy business in India and is expected to have a market opportunity study completed soon. It's

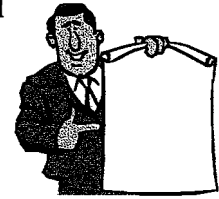
U.K.'s Minister for Competition and Consumer Affairs predicts that the U.K. will become the 'driving force in Europe for renewables.' The country has 'ample opportunity to develop offshore wind generators, and biomass and energy crops have a great future.'

Source: *The Solar Letter*, 11/6/98

goal is to supply 50,000 solar home systems for India, similar to its efforts in South Africa. Although the company owns more than 210,000 acres of land worldwide for biomass generation, current Indian forestry laws present obstacles for Shell's forestry-for-biomass generation efforts. (EIN, *Renewable Energy Today*, 11/19/98)

5.0 CURRENT AND UPCOMING REPORTS

A report released by EIA has been used to support the argument that the Kyoto Protocol would hamper the U.S. economy even under the best scenario. The *Impacts of the Kyoto Protocol on U.S. Energy Markets and Economic Activity* study examined six cases with different carbon emissions reduction levels, and it predicted that energy costs for the average household will increase \$335-\$1,740 per year. The Council of Economic Adviser's estimates were a \$70-\$110 annual increase. The report also concludes that if the treaty is implemented, renewable electricity generation could capture 11-22 percent of the market by 2020, with more than half from non-hydro sources. It predicts that major increases are expected in wind, biomass gasification, and geothermal generation. (*The Solar Letter*, 10/23/98)



Public Citizen released a report titled *Green Buyers Beware: A Critical Review of 'Green Electricity' Products* which argues that green power marketing in California is a hoax and is of little or no benefit to the environment. The authors say that the green power bought by customers was already being generated and it simply repackaged and sold at higher prices. They also estimate that 75-95 percent of a customer's premium goes toward covering marketing and overhead. (Sustainable Energy Coalition, 10/24/98)

Resource Data International published a report titled *Energy, Economics, and the Environment* which predicts that new federal NO_x regulations targeting 22 midwestern and eastern states will raise consumer electric bills by more than \$11 billion and increase the cost of electricity used to produce most items by up to 10 percent. The study says that the regulations will force utilities to invest nearly \$22 billion in emissions controls over the next 10-15 years. (EIN, *Clean Air Today*, 10/26/98)

The Renewable Energy Alliance released a paper, "Disclosure: A Vital Tool for Consumers," that can be used by policy makers as a guide for implementing fuel disclosure rules in their states. The paper recommends a simple, standardized format and requires that all sellers base their disclosures on products rather than companies and calculate fuel sources based on annual averages. (EIN, *Renewable Energy Today*, 10/27/98)

A report by the Renewable Energy Marketing Board, *How Emerging Green Markets Help Respond to Global Climate Change*, concludes that California's renewable energy industry will play a "key role" in fighting global climate change. The report notes that 55 new renewable energy projects will be operational by early 1999, and that about half of all residential power switches in the state have gone to green power providers. (EIN, *Renewable Energy Today*, 11/24/98)

EPA and the Lawrence Berkeley National Lab have done an analysis that suggests that implementing policies to encourage the development and deployment of energy efficient and low-carbon technologies can reduce carbon emissions to about 1,530 MtC by 2010, compared to the 1,803 currently anticipated. The report is titled *Technology and Greenhouse Gas Emissions: An Integrated Scenario Analysis Using the LBNL-NEMS Model*. (Sustainable Energy Coalition, 11/8/98)

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