

# Energy & Environmental Export News

Published by the Office of Energy and Environmental Industries

Fall 2008

## INSIDE

1

Energy Industries  
Overview

4

Environmental Technologies  
Industries Overview

7

Climate Change  
Finance Roundtable

9

Industry Representatives  
Get Update on Major Economies  
Process, G8 Summit

10

Workshop Promotes  
Renewable Energy

12

Calendar of Events

## Energy Industries Overview

Although competition is intense, the United States remains a global energy industry leader.

BY JERRY MORSE

The United States is the world's largest energy consumer and a leader in producing and supplying world energy. U.S. energy companies produce oil, natural gas, and coal, as well as supply energy technology to almost every country in the world. U.S.-made energy equipment (except for renewable energy equipment) dominates the U.S. market and commands a strong market share in most countries.

Energy industries include the following:

- Oil and gas (field equipment, exploration, and production)
- Coal
- Fuels and electricity transport
- Industrial processing (oil refining)
- Electric power generation, transmission, and distribution equipment
- Power plants (including nuclear)
- Energy services
- Renewable energy equipment
- Alternative fuels and future energy technologies
- Energy-efficiency technologies

### Market Estimates and Competitive Outlook

U.S. energy companies have developed and use the most advanced technologies in the industry, have a highly trained workforce, and are consistently competitive with bids for new projects.

The U.S. energy industry includes small, medium-sized, and large companies; however, most companies that operate abroad tend to be large. Large companies dominate the manufacturing of oil and gas field equipment, while small and medium-sized companies dominate the manufacturing of renewable energy equipment.

### Oil and Gas

Increased world demand, little spare production capacity in major oil-producing countries, and security concerns have brought soaring oil prices and record profits to U.S. oil companies. In its 2008 *World Energy Outlook*, the International Energy Agency predicts that, by 2015, those factors could cause a gap of 12 million barrels per day between world oil supply and demand.

“ U.S. renewable energy equipment commands significant market shares in many countries, but competition is fierce.

”



### **Coal**

More than 95 percent of U.S. annual coal production goes toward electricity generation. In 2007, U.S. coal exports totaled approximately 58 million short tons. That level has not been reached since 2000, when 58.5 million short tons were exported. Exports of U.S. coal to overseas destinations are expected to increase again in 2008 because of international coal demand, a weak dollar, and production and transportation issues in other supplier countries.

### **Renewable Energy**

U.S. energy companies produce, build, own, and operate renewable energy resources for electricity generation worldwide. There is also significant foreign investment, primarily from Denmark, Germany, and Spain, into the U.S. market, where foreign firms have acquired a significant number of renewable energy producers during the past few years. U.S. renewable energy equipment commands significant market shares in many countries, but competition is fierce.

### **Nuclear Energy**

The United States generates about 20 percent of its electricity from nuclear energy, which is produced by 104 nuclear power plants in 31 states. For the United States to maintain this share, it will need to commission 50,000 megawatts of new nuclear generation by 2030.

### **Energy Efficiency**

Industry revenue from energy services grew by 20 percent from 2004 to 2006, totaling almost \$3.6 billion by the end of 2006. The U.S. industry includes utilities; heating, ventilating, and air conditioning; and energy control equipment manufacturers, as well as independent, dedicated energy service companies (ESCOs).

Exports by ESCOs have been fairly minimal because of foreign lenders' unfamiliarity with such companies, limited knowledge about performance contracts, and concern about the lack of collateral and unfamiliar sources of cash flow. Europe's ESCO industry is the most developed; Germany has 480 ESCOs, which generate an annual revenue of roughly \$4.4 billion.

## Market Drivers

**Oil and gas.** The U.S. oil and gas industry has a strong market position in most of the world's oil- and gas-producing countries. Because U.S. equipment and services suppliers can contract directly with national oil companies, they can enter new markets that U.S. major and independent energy companies have difficulty accessing.

U.S. oil and gas companies are particularly interested in Iraq, Kazakhstan, Libya, Russia, Turkmenistan, and West Africa.

**Coal.** The United States is a leader in clean-coal technologies and emissions-abatement equipment, which can alleviate global environmental concerns associated with using coal as a primary energy source. The Department of Energy's activities in clean-coal research, development, and deployment support the U.S. private sector in global commercialization, investment, and competitiveness. Australia, China, India, Poland, and Russia are the most attractive international markets for U.S. clean-coal technology companies.

*Potential Exports of U.S. Clean Coal Technologies through 2030*, a report recently published by the International Trade Administration, offers more detailed information on the best markets for U.S. clean-coal technology exports. The report is available on the Internet at [www.ita.doc.gov/media/Publications/pdf/coal2007.pdf](http://www.ita.doc.gov/media/Publications/pdf/coal2007.pdf).

**Renewable energy.** Western Europe leads the world in the use of renewable energy, and many Western European countries plan to increase their share of electricity produced by renewable resources, especially wind. Particular examples include Germany and the United Kingdom. Germany is already the largest producer of wind energy and plans to double the amount of energy produced from renewable resources by 2010. The United Kingdom plans to generate 10 percent of its energy from renewable resources by 2010 and 20 percent by 2020.

**Nuclear energy.** There is growing public and political support for nuclear energy as a source of

emission-free energy and as a means of addressing energy security concerns. The global nuclear industry is developing at a strong pace. Currently, approximately 34 nuclear plants are under construction in 11 countries worldwide. Approximately 35 more plants are planned in the next 10 years. The best market prospects for U.S. companies include China, Europe, India, Japan, Russia, and South Korea.

**Energy efficiency.** Although the export of energy services has been minimal until now, the potential for U.S. ESCOs is high in markets with rising energy demand, electricity reliability issues, and government emphasis on reducing energy usage. China and India are prime candidates for ESCOs.

## Barriers to Trade and Competitiveness

The following are barriers to trade and competitiveness in the energy industry:

- **Oil and gas.** Regulations can delay operations and increase costs, such as the Clean Water Act, Clean Air Act, Endangered Species Act, and Coastal Zone Management Act, as well as Forest Service restrictions. International restrictions can hamper access.
- **Wind.** Public disputes regarding birds can cause delays.
- **Renewable energy.** Differing domestic state interconnection standards can cause manufacturers to make different products for each state with different regulations.

---

*Jerry Morse is a the team leader for energy industries in the International Trade Administration's Office of Energy and Environmental Industries.*

## For More Information

For more information on the outlook for U.S. energy industries, please contact Jerry Morse, tel.: (202) 482-1180; e-mail: [jerome.morse@mail.doc.gov](mailto:jerome.morse@mail.doc.gov).

“ Although the export of energy services has been minimal until now, the potential for U.S. ESCOs is high in markets with rising energy demand, electricity reliability issues, and government emphasis on reducing energy usage. ”

# Environmental Technologies Industries Overview

The United States is the largest producer and consumer of environmental technologies in the world, but it needs to focus on technological and emerging market development to remain globally competitive.

BY CATHERINE VIAL

In general, the environmental technologies (ET) industry is defined as comprising all goods and services that generate revenue associated with environmental protection and assessment; that comply with environmental regulations; that involve pollution control and prevention, waste management, remediation of contaminated property, and design and operation of environmental infrastructure; and that provide and deliver environmental resources.

The following are key subsectors for goods and services in the ET industry:

- Air pollution control
- Water treatment (for industrial and municipal water use)
- Soil contaminant control
- Solid and hazardous waste management
- Industrial pollution prevention and resource recovery
- Site remediation
- Environmental monitoring and instrumentation
- Recycling

## Market Estimates

In 2006, the global ET sector was estimated at \$690 billion according to the Environmental Business International database. The United States is the world's largest producer and consumer of ET worldwide.

Small and medium-sized enterprises (SMEs) account for the majority of U.S. ET companies. But they generate only approximately 22 percent of the total U.S. revenue, while large companies account for almost 47 percent.

As the U.S. market growth slows, U.S. ET imports continues to grow, which results in a loss of market share for U.S. ET manufacturers. Foreign markets, particularly those of developing countries, continue to grow at a higher rate. The U.S. share of foreign ET markets increased from approximately 5.7 percent in 1997 to 7.9 percent in 2005.

## Competitive Outlook

During the past decade, the U.S. ET industry has maintained a positive trade surplus. The sector experienced a steady rate of growth from 2002 to 2005. In 2005, the industry's annual rate of export, as a percentage of its total production, was 12 percent. In contrast, the annual rate of export for U.S. industry's key competitors—France, Germany, Japan, and the United Kingdom—currently exceeds 20 percent annually.

The U.S. ET industry can increase its global competitiveness as it focuses greater attention on key international markets and introduces new state-of-the-art products and services (for example, membrane and nanoparticle filtration for water treatment—particularly applicable for water usage and desalination—and applications for comprehensive environmental management systems).



### Market Drivers

Although environmental laws and regulations are often seen as a cost for most industry sectors, such regulations drive demand and economic opportunity for the ET sector. Compliance with environmental regulations requires investments in goods and services that prevent, remediate, or alleviate environmental degradation—all of which encompass the ET industry. Core regulations driving the industry include the Clean Air Act; Clean Water Act; Resource Conservation and Recovery Act (RCRA); and Comprehensive Environmental Response, Compensation, and Liability Act.

The Office of Energy and Environmental Industries (OEEI) has been working with the Environmental Protection Agency (EPA) on revising the definition of hazardous waste for regulatory purposes. Under the RCRA, certain waste streams are regulated as hazardous waste, even when they are being recycled. The EPA is working to clarify the RCRA's definition of solid waste so that material destined for recycling is not subject to the same

regulation as hazardous waste because the material is not being “discarded.” The EPA's aim is to lower the costs of recycling and to encourage manufacturers to recycle more hazardous materials.

Domestic policies in the clean-energy and power system sector, such as clean coal and mercury emissions reduction, will potentially add revenue to the ET industry. The National Energy Policy will potentially improve revenues in the renewable energy sector if the policy recommends less dependence on foreign crude imports.

### Reduction of Greenhouse Gas Emissions

Global efforts to reduce greenhouse gas (GHG) emissions and the effects of climate change will provide one of the most significant drivers in the global ET sector. The United States has consistently rejected full ratification of the Kyoto Protocol, and the treaty's first phase is set to end in 2012. Regardless, the U.S. industry will likely have to find solutions for operating in a much more GHG emissions-restricted business climate.

“ Global efforts to reduce greenhouse gas emissions and the effects of climate change will provide one of the most significant drivers in the global ET sector. ”

Major U.S. GHG reduction efforts are likely to stimulate global market demand for U.S. environmental technologies. Such efforts include the Major Economies Process on Energy Security and Climate Change; the Asia-Pacific Partnership for Clean Development and Climate; and myriad voluntary and regulatory, state, federal, and regional GHG trading regimes. OEEI has just released a competitiveness report offering more detail on this issue called U.S. Air Pollution Control Industry Poised To Benefit from Greenhouse Gas Reduction Policies. It is available at [www.environment.ita.doc.gov](http://www.environment.ita.doc.gov) under "Market Research" or "What's New."

#### Barriers to Trade and Competitiveness

OEEI is working closely with the Office of the U.S. Trade Representative (USTR) to lower tariffs on environmental goods internationally. The two are also working to establish new agreements that will facilitate increased access to global markets for U.S. environmental firms by helping to alleviate non-tariff barrier issues. USTR continues to work

with international trade partners and organizations to prioritize action that is directly linked to addressing increased trade in climate change and energy security technologies.

Barriers to trade and competitiveness in the U.S. environmental industry include the following:

- Relatively high tariffs in many major emerging markets
- Standards issues
- Restrictive technical standards
- Labeling requirements
- Packaging and documenting requirements
- Non-transparent government procurement and contracting procedures
- Restrictions on professional services, investment, and ownership
- Product design and life cycle
- Recycling issues

---

*Catherine Vial is the team leader for environmental industries in the International Trade Administration's Office of Energy and Environmental Industries.*

## The U.S. Environmental Technologies Industry at a Glance

Approximately **122,000** companies

**\$282** billion in revenues

**\$36** billion in exports

**1.6** million jobs

Source: Environmental Business International and U.S. Department of Commerce

### For More Information

For more information on the outlook for U.S. environmental industries, please contact Catherine Vial, tel.: (202) 482-2823; e-mail: [catherine.vial@mail.doc.gov](mailto:catherine.vial@mail.doc.gov).

# Climate Change Finance Roundtable

A new roundtable focuses on financing clean-energy, energy-efficiency, and other climate change-relevant technologies.

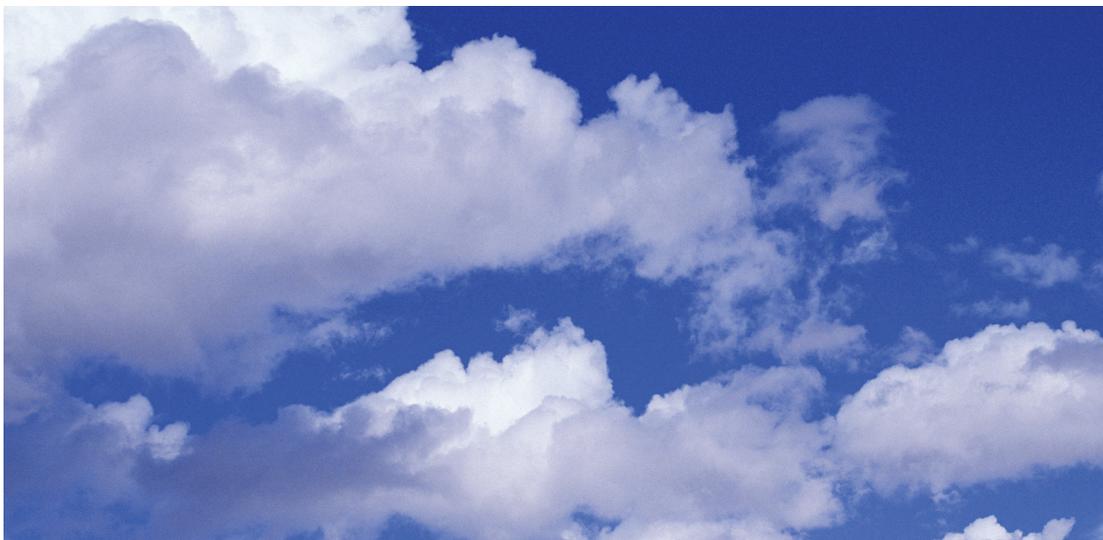
BY RYAN MULHOLLAND

William G. Sutton, assistant secretary for manufacturing and services, and the Office of Energy and Environmental Industries led the Climate Change Finance Roundtable on May 28, 2008. The roundtable was held in anticipation of industry inquiries regarding financing clean-energy and energy-efficient products. The event featured representatives from the Department of the Treasury, the White House Council on Environmental Quality, and the Overseas Private Investment Corporation (OPIC). It also brought together representatives from a number of industries and offered investment information on existing programs and planned initiatives.

Beth Urbanas, director for international development policy at the Department of the Treasury,

described the \$10 billion Clean Technology Fund. The fund will be administered through the World Bank to foster investment in clean energy and energy efficiency worldwide. Urbanas indicated that President George W. Bush is proposing a U.S. contribution of \$2 billion over three years, starting with a \$400 million contribution in fiscal year 2009. Japan and the United Kingdom have also pledged their support, with additional sponsors being sought from the European Union.

Since the roundtable, the World Bank's Board of Executive Directors has granted formal approval of the fund, as well as the Climate Investment Fund, to help developing countries adapt to climate change impacts. The funds have a targeted investment of \$5 billion for projects that contribute to the



“ The Major Economies Process has proven to be a critical forum to bring key global actors together. ”

LANDON VAN DYKE,  
WHITE HOUSE COUNCIL ON  
ENVIRONMENTAL QUALITY

demonstration, deployment, and transfer of low-carbon and carbon-reducing technologies to the developing world. The funds should be available for lending by 2009.

Landon Van Dyke, associate director for international affairs at the White House Council on Environmental Quality, informed participants of the important role that industry plays in shaping the Major Economies Process (MEP) and, ultimately, the post-2012 agreement needed to address climate change. According to Van Dyke, the MEP is currently focused on mid-term carbon dioxide goals, sector-based technology development and deployment strategies, and robust programs on adaptation and forestry. Supporting existing technologies by eliminating tariff and non-tariff barriers for clean-energy goods and services, as well as for more financing tools and improved monitoring and accounting systems, has also been discussed.

“The Major Economies Process,” noted Van Dyke, “has proven to be a critical forum to bring key global actors together to discuss and understand their vision and concerns on addressing climate change.”

Finally, William Pearce, investment funds director at OPIC, discussed the support that the government is already giving investors in clean-energy and energy-efficiency markets throughout the developing world. OPIC has announced the comprehensive Greenhouse Gas and Clean Energy Initiative to promote a cleaner economic development through global U.S. private-sector investment. The initiative will reduce the carbon emissions of

OPIC’s operating portfolio by 20 percent during the next 10 years, and it will cap transactional emissions by establishing an annual emissions cap for all new OPIC-supported projects equal to OPIC’s fiscal year 2007 greenhouse gas emissions. OPIC has also announced a request for proposals that will result in up to \$500 million in financing to new private equity investment funds. The funds will invest in companies or projects in the renewable energy sector in emerging markets worldwide. This endeavor is OPIC’s first one to specifically support clean and renewable energy investment funds.

*Ryan Mulholland is an international trade specialist with the International Trade Administration’s Office of Energy and Environmental Industries.*

#### For More Information

For more information on the Climate Change Finance Roundtable or any of these programs, contact Marc Lemmond of the Office of Energy and Environmental Industries, tel.: (202) 482-3889; e-mail [marc.lemmond@mail.doc.gov](mailto:marc.lemmond@mail.doc.gov).

# Industry Representatives Get Update on Major Economies Process, G8 Summit

International government leaders continue to recognize the need for collaboration in addressing climate change issues.

BY FRANK CALIVA

On Thursday, August 7, 2008, the Office of Energy and Environmental Industries invited James Connaughton, chairman of the White House Council on Environmental Quality, to brief industry representatives on the Major Economies Process (MEP) and the recent G8 Summit in Toyako-cho, Japan. Jamie Estrada, deputy assistant secretary for manufacturing, introduced Connaughton at the summit. Connaughton focused on two texts: the “G8 Declaration on Environment and Climate Change” and the “Declaration of Leaders Meeting of Major Economies on Energy Security and Climate Change.”

The two texts highlight the importance of global participation in climate change cooperation—including the need for China and India to commit to further actions—and make clear the need for a bottom-up, sector-based approach to climate change.

The MEP leaders agreed about the importance of working with scientists from the International Panel on Climate Change and the United Nations Framework Convention on Climate Change. They also agreed that a long-term vision must realistically assess science, technology, and economics and that achievable carbon goals should be set. The leaders, in paragraph 10 of the Bali Action Plan, also recognized the need for urgent action between now and 2012 and gave a commitment to take on actions.

The leaders also recognized that forestry and a comprehensive adaptation policy must address the climate change that has already occurred from past emissions. But the participants agreed that adaptation should be completed in the context of sustainable development and poverty reduction—specifically because developing countries will likely be the most affected by a changing climate.

In his briefing to industry, Connaughton underscored the need for commercial development and deployment of large-scale renewable resources; additional nuclear power stations; and carbon, capture, and storage technology. Connaughton also emphasized the need for climate negotiators to line up their goals within the realm of national possibilities and realities.

Connaughton noted that the G8 leaders agreed to discuss climate change at their annual meeting next summer, before the United Nations climate change discussions take place in Copenhagen in December 2009. He also pointed out the need for all countries to eliminate tariff barriers on clean-energy goods and services as a first step to show their commitment to address climate change.

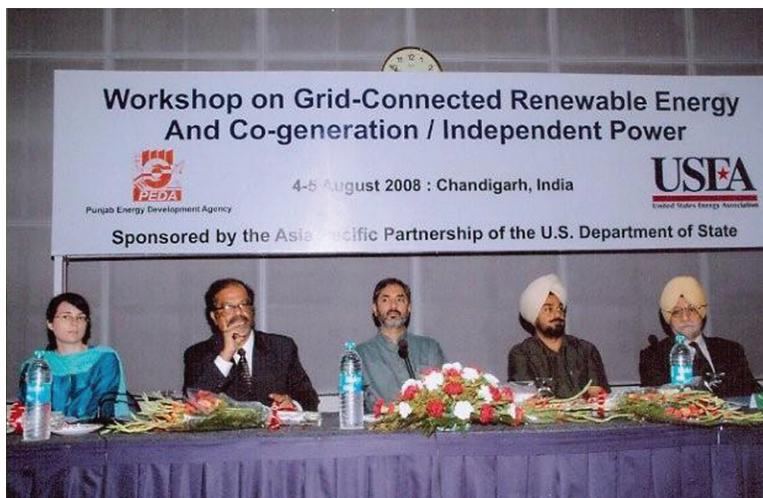
---

*Frank Caliva is an international trade specialist with the International Trade Administration's Office of Energy and Environmental Industries.*

# Workshop Promotes Renewable Energy

At an August workshop sponsored by the Asia–Pacific Partnership for Clean Development and Climate, Punjabi and U.S. renewable energy experts shared their best practices in integrating renewable energy and cogeneration into the power grid.

BY TRICIA C. WILLIAMS



At the opening session of the workshop on Grid Connected Renewable Energy and Cogeneration/Independent Power that was held August 4–5, 2008, in Chandigarh, India (L to R): Tricia Williams, senior program coordinator, USEA; S. Padmanaban, senior energy advisor, U.S. Agency for International Aid (USAID); A. S. Chhatwal, Indian Administration Service (IAS) secretary of environmental and non-conventional energy for Punjab; T. P. S. Sidhu, chief executive of the Punjab Energy Development Agency; and Narendra Singh, former advisor for the Ministry of New and Renewable Energy of India.

On August 4–5, 2008, in Chandigarh, India, the United States Energy Association (USEA) conducted its second workshop on Grid Connected Renewable Energy and Cogeneration/Independent Power. The workshop was funded by the Department of State as part of the Asia–Pacific Partnership (APP) on Clean Development

and Climate. The objective of the workshop was to promote policy and regulatory initiatives and to encourage incentives to accelerate the development and interconnection of renewable energy and distributed generation projects into the Indian power system.

A. S. Chhatwal, Indian Administrative Service secretary of environmental and non-conventional energy for Punjab, opened the session by stating that while experts differ on how long business as usual can be sustained, they agree that it is time to think of innovative solutions beyond conventional energy sources because non-conventional sources are a win–win solution that is economically viable and environmentally friendly. T. P. S. Sidhu, chief executive of the Punjab Energy Development Agency (PEDA), highlighted the many initiatives the agency is taking in the next few years, including biomass projects that will generate 350 megawatts of renewable energy and the agency's intention to generate 600–700 megawatts of renewable energy by the end of 2010. Sidhu also emphasized the need for more interaction through workshops and task force activities to build on the momentum.

Panel discussions centered on exploring successful technologies and projects in wind, biomass, cogeneration, and solar energy; interconnecting

to the power grid while maintaining grid reliability and stability; and creating successful policies, regulation, and incentives for renewable energy and cogeneration development.

At the conclusion of the workshop, the Punjab State Electricity Board requested that PEDAs speak to the Punjab government to encourage the sale of power from independent power providers. PEDAs asked that the board and the Punjab State Electricity Regulatory Commission streamline their procedures to make it easier for renewable energy and cogeneration providers to connect to the grid, especially small generators. PEDAs proposed that a state policy provide renewable energy credits, and it agreed to work with the state government on ways to improve access to biomass fuels. PEDAs plan on suggesting new policies to urge farmers to not burn paddy straw before biomass generators can collect it. Also, PEDAs requested that Orb Energy, an Indian solar project developer, develop projects in Punjab. And, last, PEDAs requested additional information from a project developer and manufacturer of medium-sized gas turbines on their equipment and its potential applications.

A number of private-sector companies and government agencies from India and the United States participated in this event. For a copy of the full article, see [www.usea.org/Publications/punjab\\_article.pdf](http://www.usea.org/Publications/punjab_article.pdf).

---

*Tricia C. Williams is the senior program coordinator with the U.S. Energy Association.*

### **For More Information**

For more information on this event and specific subsectors, contact Tricia Williams of the USEA, e-mail: [twilliams@usea.org](mailto:twilliams@usea.org). For additional information on the APP, contact Brian O'Hanlon of the Department of Commerce, tel.: (202) 482-2823; e-mail: [brian.ohanlon@mail.doc.gov](mailto:brian.ohanlon@mail.doc.gov).

# Calendar

## CALENDAR OF EVENTS

October 18–22, 2008

**WEFTEC.08**

Chicago, Illinois

[www.weftec.org/home.htm](http://www.weftec.org/home.htm)

Contact: Ellen Bohon, tel.: (202) 482-0359; e-mail: [ellen.bohon@mail.doc.gov](mailto:ellen.bohon@mail.doc.gov)

November 5–8, 2008

**International Mining and Machinery Exhibition**

Kolkata, India

[www.immeindia.com](http://www.immeindia.com)

Contact: Shannon Fraser, tel.: (202) 482-3609; e-mail: [shannon.fraser@mail.doc.gov](mailto:shannon.fraser@mail.doc.gov)

December 2–5, 2008

**National Ground Water Association Ground Water Expo**

Las Vegas, Nevada

[www.ngwa.org](http://www.ngwa.org)

Contact: Ellen Bohon, tel.: (202) 482-0359; e-mail: [ellen.bohon@mail.doc.gov](mailto:ellen.bohon@mail.doc.gov)

June 3–6, 2009

**China International Environmental Protection Exhibition and Conference**

Beijing, China

[www.goodwill-exh.com.hk/2009CIEPEC/e/FE.html](http://www.goodwill-exh.com.hk/2009CIEPEC/e/FE.html)

Contact: Todd Delelle, tel.: (202) 482-4877; e-mail: [todd.delelle@mail.doc.gov](mailto:todd.delelle@mail.doc.gov)

June 8–10, 2009

**Groundwater for the Americas**

Panama City, Panama

[www.ngwa.org/development/conferences/details/09-06-08-5077.aspx](http://www.ngwa.org/development/conferences/details/09-06-08-5077.aspx)

Contact: Ellen Bohon, tel.: (202) 482-0359; e-mail: [ellen.bohon@mail.doc.gov](mailto:ellen.bohon@mail.doc.gov)



INTERNATIONAL  
**TRADE**  
ADMINISTRATION

*Energy and Environmental Export News* is published by the Office of Energy and Environmental Industries of the U.S. Department of Commerce's International Trade Administration (ITA). You can read or download the newsletter from ITA's Web site at [www.trade.gov/media/Publications/](http://www.trade.gov/media/Publications/).

For more information and news, visit ITA's Web site at [www.trade.gov](http://www.trade.gov) or contact the Office of Energy and Environmental Industries, International Trade Administration, 1401 Constitution Avenue NW, Washington, DC 20230; tel.: (202) 482-5225.

Material in this newsletter may be reproduced unless otherwise noted. When reprinting, please credit the U.S. Department of Commerce, International Trade Administration.