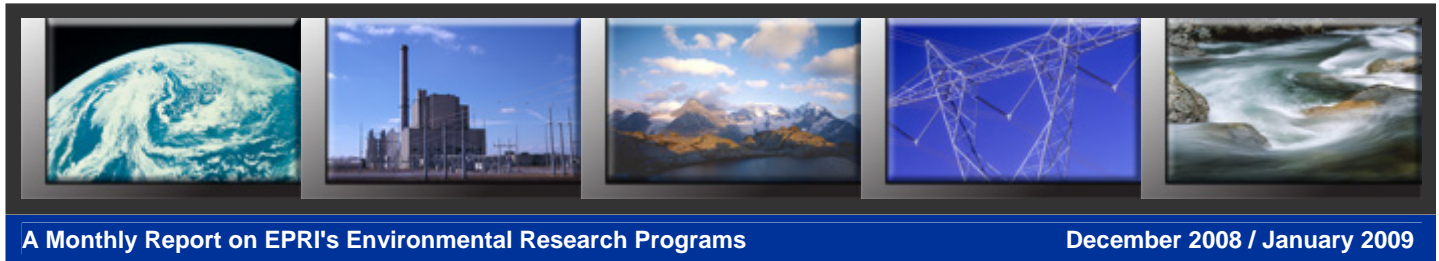


## Environment Quick News



Program members can use their EPRI.com ID and password to download Acrobat PDF files of EPRI technical reports. For assistance, contact the EPRI Customer Assistance Center at (800) 313-3774.

Dear Environment Sector members:

The holiday season is upon us, and for the EPRI staff that means a number of things have to be done before we leave our offices on December 23. Most importantly, we are working feverishly on completing the many deliverables we promised with due dates of December 31. Reports, software, peer reviewed literature papers, and technical updates are among the many products we are completing to communicate the results of our work. Hopefully many of you have already taken advantage of the results through attendance at meetings, participation on webcasts, or discussions with staff.

We have just completed reviewing the responses to the most recent Member Satisfaction Survey, and one area that needs improvement is effective transfer of results to you and other external stakeholders. You told us that we are doing better, but there is still significant room for improvement. While our official response to this message is still being formulated, we can assure you that we will continue to do more webcasts, craft the products to be more user friendly, and continue to enhance our overall communication efforts with members and key stakeholders.

Communications will be even more important as the new Obama Administration assumes office early next year. John Novak and our Washington team are poised to begin this process once the dust settles on new appointees and we feel we can have an audience that will be fruitful in terms of information transfer.

We wish you all the happiest of holidays, and best wishes for 2009.

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## Program 42: Air Toxics Health and Risk Assessment

### *Initial Emissions Estimates for HAPs Complete, Webcast Planned*

EPRI has completed initial emissions estimates for mercury and other hazardous air pollutants (HAPs) released by U.S. coal- and oil-fired power plants. The new estimates will update previous estimates summarized in EPRI's 2000 report *An Assessment of Mercury Emissions from U.S. Coal-Fired Power Plants* (1000608) and its 1994 *Electric Utility Trace Substances Synthesis Report* (TR-104614, V1-4). The methodology for revising estimates included

- developing a current coal composition data set for mercury and nonmercury HAPs;
- developing current fuel consumption data;
- obtaining current power plant characteristics, such as control technologies installed or planned;
- updating existing emission correlations (*Emission Factors Handbook* and *Update: Mercury Removals from Power Plants with SCR*) using new data for mercury and nonmercury HAPs; and
- estimating year 2007 emissions for mercury and nonmercury HAPs with the updated data and correlations.

EPRI is planning a webcast in December to describe the results to members of the PISCES Program (Program 59). Program 42 (Air Toxics Health and Risk Assessment) researchers will also use these updated emission estimates, along with other relevant information, to calculate the additional risk of adverse health effects that may be experienced by people who are exposed to power plant HAPs. For more information, contact Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com), or Paul Chu, (650) 855-2812, [pchu@epri.com](mailto:pchu@epri.com).

### *Fact Sheet Summarizes Program 42 Achievements and 2009 Objectives*

"Program Research Summary 2009—Program 42, Air Toxics Health and Risk Assessment" (1018307). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 42, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com).

## Program 91: Assessment Tools for Ozone, Particulate Matter, and Haze

### *EPRI Holds Webcast on Air/Water Linkages Research*

In 2008, EPRI's Technology Innovation (TI) program funded a project to develop a linkage between existing air quality and watershed management models. On Nov. 24–25, EPRI sponsored two webcasts to discuss the research with funders of EPRI's Air Quality and Water & Ecosystems programs (Programs 42, 91, 92, 53, 54, 55, 56, and 58). The purposes of the webcast were

- to demonstrate the linkages between the two models (AMSTERDAM and WARMF) and the impact such linkages have on estimating loads to a watershed, and
- to discuss how best to address emerging issues that transcend environmental media distinctions of air and water.

The webcast began with a description of work by developers of both models to reconcile the treatment of meteorology, air pollution concentrations, and atmospheric deposition across the two modeling platforms. Participants then discussed the many multimedia environmental issues that are leading to increased interest in coupled air/land/water analyses, including

- acidification, eutrophication, and hypoxia;
- bioaccumulation of toxic substances;
- secondary standards in NAAQS for NO<sub>x</sub> and SO<sub>2</sub>;
- Federal Land Managers' Air Quality Related Values Work Group (FLAG) guidance,
- TMDLs, including regional TMDLs;
- critical loads;

- water quality trading;
- offsets in permits;
- an international nitrogen initiative; and
- the role of nitrogen in greenhouse gas offsets (including N<sub>2</sub>O and N impacts on CO<sub>2</sub>).

Results of the webcast will help EPRI focus on the multimedia environmental issues that are of most concern to members. For more information, contact Eladio Knipping, (650) 855-2592, [eknippin@epri.com](mailto:eknippin@epri.com).

### ***Knipping Participates in Integrated Nitrogen Committee Workshop***

On Oct. 20–22, EPRI's Eladio Knipping attended a workshop of the Integrated Nitrogen Committee (INC) of EPA's Scientific Advisory Board. The committee is charged with developing an integrated approach to nitrogen management to deal with the myriad of environmental issues associated with reactive nitrogen (essentially all nitrogen not in the form of N<sub>2</sub>). These issues include air quality, water quality, ecosystem health, and climate change. Dr. Knipping participated in two breakout sessions, one on combustion NO<sub>x</sub> and another on integrated nitrogen management. He stressed the importance of viewing electrification as an integral part of the solution and described the various reactive nitrogen research activities under way throughout EPRI, including air measurements, N<sub>2</sub>O offsets, water quality trading, integrated air quality/watershed models, passive treatment for nitrogen waste, and electrification as a solution (e.g., nitrogen deposition results from EPRI's study of plug-in hybrid electric vehicles).

The [INC First External Review Draft Report](#) has been posted online, and public teleconferences to discuss the report were scheduled for Dec. 8–10. EPRI will be preparing communications materials to convey its work and accomplishments in this area for presentation to the INC, possibly including an Issue Brief. For more information, contact Eladio Knipping, (650) 855-2592, [eknippin@epri.com](mailto:eknippin@epri.com).

## **Program 92: Assessment of Air Quality Impacts on Health and the Environment**

### ***Article Published on Findings of TERESA–NERC Linkage Study***

Seagrave, J., M.J. Campen, J.D. McDonald, J.L. Mauderly, and A.C. Rohr. Oxidative Stress, Inflammation, and Pulmonary Function Assessment in Rats Exposed to Laboratory-Generated Pollutant Mixtures. *Journal of Toxicology and Environmental Health, Part A*, 71: 1352–1362, 2008; DOI: 10.1080/15287390802271566. This article discusses results of a study conducted by EPRI and the National Environmental Respiratory Center (NERC) based at the Lovelace Respiratory Research Institute in Albuquerque, NM. EPRI's Toxicological Evaluation of Realistic Emissions of Source Aerosols (TERESA) program addresses the relative health hazards of coal combustion emissions, and soon, mobile source emissions, using an acute exposure approach whereby animals are exposed to pollutant mixtures for a single six-hour exposure. NERC conducts daily multihour exposures of animals for up to six months to different concentrations of emissions from key air pollution sources, including diesel and gasoline engine emissions, wood smoke, paved-road dust, and simulated "downwind" coal combustion emissions. Thus, the NERC and TERESA efforts are complementary in nature through their examination of PM sources. The research reported in this article includes evaluation of TERESA endpoints in animals exposed to NERC atmospheres, known as the TERESA–NERC Linkage Study. The article concludes, "In summary, these studies demonstrate subtle effects on oxidative stress and inflammatory responses following short-term inhalation of laboratory-generated atmospheres of widely differing composition." The research was conducted using EPRI's Technology Innovation (TI) funding. For more information, contact Annette Rohr, (650) 855-2765, [arohr@epri.com](mailto:arohr@epri.com).

### ***Fact Sheet Summarizes Program 92 Achievements and 2009 Objectives***

["Program Research Summary 2009–Program 92, Assessment of Air Quality Impacts on Health and the Environment"](#) (1018309). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 92, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Annette Rohr, (650) 855-2765, [arohr@epri.com](mailto:arohr@epri.com).

[Visit the Global Climate Webpage](#)

## **Program 102: Global Climate Policy Costs and Benefits**

### ***Supplemental Project: Enhanced Assessment of Costs and Benefits of Climate Policy Proposals***

[“Enhanced Assessment of Costs and Benefits of Climate Policy Proposals”](#) (1018331). Over the last decade, EPRI has been a leading proponent of the development and application of integrated assessment frameworks for analyzing the potential costs and benefits of global climate change policy proposals. One of the premier organizations to which EPRI has turned for development and application of integrated assessment frameworks is the Massachusetts Institute of Technology’s (MIT’s) Joint Program on the Science and Policy of Global Change. EPRI has been one of the main sponsors of the Program since 1992. However, electric sector funding has diminished in relative terms as a number of new sponsors from other economic sectors (e.g., the petroleum and automobile industries) have joined the Program. These developments could result in the Program’s de-emphasis of issues important to the electric power industry. This project will provide supplemental funds for EPRI’s support of the MIT Joint Program, allowing the Program to conduct additional development and application of integrated assessment tools and ensuring that issues of priority to EPRI members are given adequate attention. Specific examples include updating cost estimates of renewables that take into account their intermittent nature, including load dispatch considerations in the economic cost estimates of these noncarbon electric technologies, and improving evaluations of advanced coal technologies. The research will improve modeling of bioenergy and alternatively fueled vehicles (e.g., plug-in hybrids). In addition, in a related activity, the Program will be developing a new U.S. energy-economy model with regional detail. EPRI supplemental funding provided to the Joint Program will be used to

- improve the representation of the electric power sector in MIT’s modeling system,
- intensify analysis of the implications of climate policy proposals on energy systems domestically and internationally, and
- explore the implications of alternative burden-sharing proposals on different economic sectors.

Results will be published in MIT reports and peer-reviewed literature. The minimum price to participate is \$100,000 per year. Companies that fund any EPRI program can use Tailored Collaboration (TC) funds for up to half their contribution. A three-year commitment is encouraged. For more information, contact Geoff Blanford, (650) 855-2126, [gblanford@epri.com](mailto:gblanford@epri.com).

### ***Fact Sheet Summarizes Program 102 Achievements and 2009 Objectives***

[“Program Research Summary 2009–Program 102, Global Climate Policy Costs and Benefits”](#) (1018316). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 102, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Geoff Blanford, (650) 855-2126, [gblanford@epri.com](mailto:gblanford@epri.com).

## **Program 103: Greenhouse Gas Reduction Options**

### ***EPRI Hosts Third GHG Emissions Offset Policy Dialogue Workshop***

On Nov. 20, EPRI hosted the third workshop in a series that comprises the EPRI Greenhouse Gas (GHG) Emissions Offset Policy Dialogue project. Approximately 70 representatives from the policymaking, environmental, industrial, financial, and research communities participated. The workshop explored offset policy design proposals that are active in the U.S. policy discussion, including

- offset programs being developed by the House Energy and Commerce Committee,
- the offset system incorporated into climate change legislation (S. 3036) introduced by Senators Warner (R-VA) and Lieberman (I-CT) and debated on the Senate floor,
- recommendations made on offsets program design by the Western Climate Initiative (WCI), and
- a proposal developed by the Coalition for Emissions Reduction Projects (CERP).

Each workshop presentation was made by an individual who has been directly involved in the development of the offset proposal being discussed. These presentations were followed by a panel composed of representatives of other organizations that have been active in the development of potential GHG offset policies, including experts from the Offset Quality Initiative, the Nicholas Institute for Environmental Policy Solutions, and the financial community. All project and workshop background materials and presentations are available to Program 102 and 103 members via EPRI's [Global Climate website](#) soon after each workshop. For more information, contact Adam Diamant, (510) 260-9105, [adiamant@epri.com](mailto:adiamant@epri.com).

### ***EPRI Presentation on Climate Policy at U.S.–Mexico Border Energy Forum 2008***

Global Climate Change research program staff member Delavane Diaz participated in a panel discussion at the 15th annual U.S.–Mexico Border Energy Forum, held in Monterrey, Mexico on Oct. 23–24. Ms. Diaz discussed the challenge of cutting carbon emissions from the electric sector and described potential strategies to achieve those emissions reductions under a mandatory climate policy. Her presentation also highlighted results from an EPRI study being done in collaboration with nine utilities in the western United States on the impact of a carbon price on regional power markets. Ms. Diaz's presentation can be downloaded from the EPRI [Global Climate website](#). For more information, contact Delavane Diaz, (650) 855-2332, [ddiaz@epri.com](mailto:ddiaz@epri.com).

### ***EPRI Research Presented at Carbon Market Expo Australasia***

EPRI's Vic Niemeyer made a presentation at the Carbon Market Expo Australasia 2008 conference and trade fair, held Oct. 30–31 in Gold Coast, Australia. Vic's presentation described EPRI's insights on electric sector impacts and the sector's role in climate policy, noting that the key to reducing overall emissions is cutting emissions from existing coal plants and that there are few alternatives to coal in the near term. Australia's power plants burn mainly coal and some natural gas, and the country is currently formulating a program capping utility emissions of CO<sub>2</sub> starting in 2010. Alternatives to coal are being considered, particularly renewables and coal with CO<sub>2</sub> capture and storage; nuclear power is not in use in Australia. The Australian experience in developing and operating this cap-and-trade program is likely to provide tremendous insight to U.S. utilities and policymakers. For more information, contact Vic Niemeyer, (650) 855-2744, [niemeyer@epri.com](mailto:niemeyer@epri.com).

## **Global Climate Change Area News**

### ***Richard Richels and Paco de la Chesnaye Appointed to National Academies' Panel on America's Climate Choices***

Richard Richels and Paco de la Chesnaye have been appointed to the National Academies' study panel on "America's Climate Choices." The effort includes four panels on the topics of, respectively, limiting the magnitude of future climate change, adapting to climate change impacts, advancing scientific understanding, and informing effective decisions and actions. Collectively, the activities are expected to produce a broad, action-oriented, and authoritative set of analyses to inform and guide responses to climate change across the nation. For more information, contact Richard Richels, (650) 855-2602, [rrichels@epri.com](mailto:rrichels@epri.com), or Paco de la Chesnaye, (202) 293-6347, [fdelachesnaye@epri.com](mailto:fdelachesnaye@epri.com).

### ***Steve Rose Joins Global Climate Change Area Staff***

Steve Rose has joined the Global Climate Change Area research staff as a Senior Project Manager. Steve comes to EPRI from the U.S. Environmental Protection Agency, where for the last four years he worked in the Climate Change Division. In that role, Steve was responsible for international and domestic analysis of GHG emissions, mitigation, and climate change impacts. He was also responsible for long-term national and domestic economic modeling of land use and its role in GHG emissions and sequestration, as well as vulnerability to climate change. Steve was active in the IPCC Fourth Assessment report both as a lead author and as a technical advisor to the U.S. IPCC delegation. Before joining EPA, Steve held a variety of positions in consulting and academia. Steve has a BA in Economics from the University of Wisconsin–Madison and a PhD in Environmental and Natural Resource Economics from Cornell University. Steve will be working in EPRI's Washington, DC office on a wide variety of climate issues. He can be reached at (202) 293-6183 or [srose@epri.com](mailto:srose@epri.com).

## **Program 49: Coal Combustion Products—Environmental Issues**

### ***Ladwig Attends ARS Stakeholder Workshop on Agricultural Waste and By-Product Utilization***

On Nov. 4–5, EPRI's Ken Ladwig attended a workshop in St. Louis put on by the U.S. Department of Agriculture's Agricultural Research Service (ARS). The purpose of the workshop was to gather stakeholder recommendations on priority areas for ARS research over the next five years in developing cost-effective management practices, technologies, and decision aids for producers of agricultural waste and by-products. One primary ARS focus area will be the use of industrial by-products in a variety of agricultural applications. EPRI and three member utilities were represented as stakeholders; they had the opportunity to highlight the importance of ARS research on use of flue gas desulfurization (FGD) gypsum and other FGD products and to offer substantial input into planning for that research. EPRI looks forward to working with ARS in this area and benefiting from ARS's expertise, credibility, and potential for leveraging of funds in advancing the use of FGD products in agriculture. For more information, contact Ken Ladwig, (262) 754-2744, [keladwig@epri.com](mailto:keladwig@epri.com).

### ***Supplemental Project: Environmental Monitoring of Fly Ash Use for Road Base Fill***

[“Beneficial Use of Coal Fly Ash for Road Base Fill: Environmental Monitoring”](#) (1018478). Coal combustion products (CCPs) such as fly ash and bottom ash have long been used in structural fill and road base applications. In 2007, U.S. utilities produced 126 million tons of CCPs, of which nearly 12 million tons were used in such applications. Environmental concerns threaten the continued use of CCPs in these applications. This project will develop environmental data to support future commercial fill applications. Fly ash from Georgia Power Company's Plant Yates is currently being transported to a 200 ft x 300 ft section of the southwest Rome bypass, located south of Rome, GA, to serve as road base fill. Detailed environmental sampling will be performed at the site, including ash porewater, soil water, and groundwater along the entire test section. The purpose of the monitoring is to quantify the benefits and the potential for environmental impacts from using ash for highway construction activities, and to compare the use of ash with the use of traditional fill material (e.g., soil). This project will benefit power producers that produce ash or other CCPs that are currently being landfilled, particularly off-spec materials that are difficult to use in concrete or other applications. Project participants will be provided with full access to the Georgia project, status reports, data updates, and all interim and final reports. In addition, participants will have the opportunity to have similar work performed at one of their sites. The cost for participation in the project is a total of \$40,000 over three years. Companies that fund any Environment or Generation program can use Tailored Collaboration (TC) funds for up to half their contribution. Additional funding for separate site-specific studies will be determined based on the scope of work for those studies. For more information, contact Ken Ladwig, (262) 754-2744, [keladwig@epri.com](mailto:keladwig@epri.com).

### ***Fact Sheet Summarizes Program 49 Achievements and 2009 Objectives***

[“Program Research Summary 2009–Program 49, Coal Combustion Product–Environmental Issues”](#) (1018318). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 49, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Ken Ladwig, (262) 754-2744, [keladwig@epri.com](mailto:keladwig@epri.com).

## **Program 50: MGP Site Management**

### ***Technical Update Published on PAHs in Surface Soils in Eastern Pennsylvania***

[Polycyclic Aromatic Hydrocarbons in Surface Soils in Eastern Pennsylvania](#) (1018272). This Technical Update describes the distribution of PAH concentrations in populated areas. It identifies factors that affect distribution, such as urban or rural setting, sample depth, soil type, and proximity to known sources. Finally, it systematically examines chemicals or chemical patterns that provide indications of PAH sources detected in background samples. Such information can prove invaluable in remediation of PAH-contaminated soil and in further differentiating between petrogenic wastes (those from petroleum sources) and pyrogenic (combustion-related) wastes. A total of 71 sites from nine municipalities in eastern Pennsylvania were sampled. The patterns of PAHs seen in the samples were consistent with those in surface soil samples containing PAHs from pyrogenic sources that have been subjected to environmental weathering. These concentrations appear to be

consistent with literature-reported levels for anthropogenic background in small- to medium-sized residential, commercial, and light industrial areas, but notably lower than background observed in more highly populated cities and commercial/industrial areas. For more information, contact Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com).

### ***Technical Update Describes Research on the Biodegradation Component of Natural Attenuation***

***Signature Metabolites at Manufactured Gas Plant Sites*** (1018267). This report presents results of research to demonstrate the biodegradation component of natural attenuation at former MGP sites. Researchers developed a target compound list of “signature” metabolites, biochemical intermediates of mono- and polycyclic aromatic hydrocarbon (MAH and PAH) biodegradation. They identified and tested appropriate methods of chemical analysis for these metabolites in MGP groundwater and sediments. Results showed that:

- Natural biodegradation of MGP tar constituents generates organic acids—signature metabolites—some of which are detectable in impacted groundwater.
- The specific metabolites found in groundwater depend on plume composition (that is, dissolved tar) and whether biodegradation is proceeding aerobically or anaerobically.
- Dissolved oxygen appears to be depleted in MGP plumes, and anaerobic biodegradation processes generally appear to be active. Consequently, 1-naphthoic acid and 2-naphthoic acid—signature metabolites of naphthalene—frequently are found at detectable levels.
- The signature metabolites are not present in the source tar, so their presence in environmental samples is very strong evidence that biological degradation of the chemicals is occurring.
- Some signature metabolites are present at concentrations measurable by common methods, including liquid chromatography with ultraviolet detection (LC/UV) and liquid chromatography with mass spectrometry (LC/MS).
- Solid-phase extraction with LC/UV and/or LC/MS is an effective and relatively simple approach for metabolite identification and measurement, with sensitivity to about 25 ng/l.

The analytical methods in this report allow for the determination of many signature metabolites and are sufficiently robust that other metabolites can be added to the target list as they are identified. Understanding biodegradation of these constituents can help owners manage or accelerate the natural attenuation process for site closure or sale. For more information, contact Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com).

### ***EPRI’s ROAM Used to Model Groundwater Remediation Options at Former MGP Site in Illinois***

***Groundwater Remediation Strategies at the Streator Former Manufactured Gas Plant Site*** (1018278). This report describes the application of EPRI’s Remedial Options Assessment Model (ROAM™ Version 1.0) at a former MGP site in Streator, IL. The goal of this research was to identify a remedial option that would achieve regulatory closure at the site within five to ten years. Using site-specific data and literature values for physical and chemical parameters, the project team calibrated ROAM to site conditions until model results indicated a reasonable match with measured benzene and naphthalene concentrations in groundwater and water in the recovery trench. The team then used ROAM to model alternatives, including no action, natural attenuation, 10 x natural attenuation, and 50 x natural attenuation. ROAM results showed that with no further action or with natural attenuation alone, contaminant concentrations in the groundwater immediately north of the nearby Vermillion River could remain higher than Illinois Surface Water Quality Standards (SWQS) for more than 30 years. Aggressive transformation of the residual contamination will be necessary to lower groundwater concentrations to meet SWQS in the 5–10 year time frame. The report shows how narrowing remedial options with ROAM can help companies avoid costs associated with implementing ineffective solutions. For more information, contact Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com).

### ***Broader Data Set Developed for Res-SAT® Tool for Evaluating Potential Mobility of Coal Tar–Contaminated Soils***

***Coal Tar Detection and Mobility Assessment at Manufactured Gas Plant Sites: Refining the Res-SAT® Tool Protocol*** (1018271). In 2005, EPRI sought to demonstrate at one MGP site that its Res-SAT® Tool would provide a rapid and cost-effective alternative to traditional laboratory-based methods of characterizing sources of coal tar in soils that may need to be managed pursuant to certain regulatory programs. During that evaluation, it was determined that more operational experience on a wider range of soil and coal tar properties

would benefit deployment of the Res-SAT Tool on a broader scale. This project developed a broader data set of Res-SAT Tool performance data on soils and coal tars typically encountered at former MGP sites. The project also demonstrated that the Res-SAT Tool can be used in the field for coal tar mobility screening without prior site-specific laboratory calibration to identify a site-specific critical pressure. A field demonstration program has been identified that will measure mobility potential of coal tar-containing soils. The Res-SAT Tool can be used alone to evaluate potential mobility of coal tar-containing soils from a traditional soil-boring investigation. However, the real power of a dense non-aqueous phase liquid (DNAPL) mobility field tool is realized when it is combined with *in situ* field screening methodologies (for example, TarGOST, cone penetrometer) to generate more-detailed real-time site characterization data and mapping. With this combination, the conceptual site model can be developed or modified in real time as the investigation unfolds. The Res-SAT Tool also can be useful in assessing potential for DNAPL recovery success and for assessing placement of a DNAPL migration barrier. For more information, contact Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com).

### ***EPRI Research Presented at 24th Annual Conference on Soils, Sediments, and Water***

On Oct. 20, approximately 40 people attended a Vapor Intrusion Workshop held in Amherst, MA, as part of the 24th Annual International Conference on Soils, Sediments, and Water at the University of Massachusetts. Topics included the status of activities by the Environmental Protection Agency, the Interstate Technology Regulatory Council, and ASTM International on soil vapor intrusion (SVI); SVI legal issues; background indoor air studies; and several vapor intrusion case studies. Jim Lingle reported on the EPRI SVI study under way at a remediated MGP site in Wisconsin. For more information, contact Jim Lingle, (414) 355-5559, [jlingle@epri.com](mailto:jlingle@epri.com).

### ***EPRI Cosponsors MGP USA 2008***

EPRI was a cosponsor of the Third International Symposium & Exhibition on the Redevelopment of Manufactured Gas Plant Sites (MGP USA 2008), held in Mystic, CT, Sept. 23–25. More than 300 engineers and scientists attended this most recent in a series of international symposia on MGP management, which featured 40 technical presentations, 29 poster sessions, and a number of vendor exhibits. Topics of technical presentations included regulatory and utility perspectives, site remediation technologies, soil vapor intrusion, third-party issues, and sediment management. EPRI researchers Jim Lingle and Andrew Coleman gave papers on EPRI MGP research on air monitoring and the Res-Sat<sup>®</sup> tool, respectively, and Jeff Clock moderated a session on dense non-aqueous phase liquid (DNAPL) remediation. For more information, contact Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com); Jim Lingle, (414) 355-5559, [jlingle@epri.com](mailto:jlingle@epri.com); or Andrew Coleman, (650) 855-2249, [acoleman@epri.com](mailto:acoleman@epri.com).

### ***Supplemental Project: Testing S-ISCO Methodology for Treatment of MGP Contaminants***

[“Surfactant Enhanced In-Situ Chemical Oxidation Treatment of MGP Contaminants”](#) (1018365). This study will combine the efforts of five or more utilities to address the effectiveness of VeruTEK technology for contaminated soil from a variety of MGP sites with different physical and chemical characteristics. VeruTEK's Coelution Technologies<sup>®</sup> Surfactant-Enhanced In Situ Chemical Oxidation (S-ISCO<sup>™</sup>) technology provides treatment that has the potential to enable rapid removal of contaminants and residual non-aqueous phase liquids (NAPLs) from soils and groundwater. The S-ISCO process uses the groundwater to move chemicals that will destroy contaminants to where they are located in the soil. Both laboratory and pilot test methods will be used to evaluate treatment success with MGP-contaminated site soils using the technology. The technology will be tested to determine the effect of ranges of concentrations and soil properties that may impact treatment performance. Various methods used to assess performance will also be evaluated. Significant emphasis will be placed on coal tar and volatile organic chemical (VOC)/polycyclic aromatic hydrocarbon (PAH) destruction, migration of treatment chemicals into heterogeneous soils, and potential latent effects following treatment. The estimated cost to complete this project is \$250,000 over two years. Companies that fund any EPRI membership program can use Tailored Collaboration (TC) funds for up to half their contribution. For each TC participant, the minimum cost for participating in this project is \$25,000, with \$25,000 matched by EPRI, for a total of at least \$50,000. Companies that have not purchased any EPRI program may co-fund this project for a minimum of \$50,000. Participation for two consecutive years is encouraged. For more information, contact Jim Lingle, (414) 355-5559, [jlingle@epri.com](mailto:jlingle@epri.com).

### ***Fact Sheet Summarizes Program 50 Achievements and 2009 Objectives***

“[Program Research Summary 2009–Program 50, Manufactured Gas Plant Site Management](#)” (1018319). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 50, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com), or Jim Lingle, (414) 355-5559, [jlingle@epri.com](mailto:jlingle@epri.com).

### **Program 59: PISCES—Plant Multimedia Toxics Characterization**

#### ***Initial Emissions Estimates for HAPs Complete, Webcast Planned***

EPRI has completed initial emissions estimates for mercury and other hazardous air pollutants (HAPs) released by U.S. coal- and oil-fired power plants. The new estimates will update previous estimates summarized in EPRI’s 2000 report [An Assessment of Mercury Emissions from U.S. Coal-Fired Power Plants](#) (1000608) and its 1994 [Electric Utility Trace Substances Synthesis Report](#) (TR-104614, V1–4). The methodology for revising estimates included:

- developing a current coal composition data set for mercury and nonmercury HAPs;
- developing current fuel consumption data;
- obtaining current power plant characteristics, such as control technologies installed or planned;
- updating existing emission correlations ([Emission Factors Handbook](#) and [Update: Mercury Removals from Power Plants with SCR](#)) using new data for mercury and nonmercury HAPs; and
- estimating year 2007 emissions for mercury and nonmercury HAPs with the updated data and correlations.

EPRI is planning a webcast in December to describe the results to members of the PISCES Program (Program 59). Program 42 (Air Toxics Health and Risk Assessment) researchers will also use these updated emission estimates, along with other relevant information, to calculate the additional risk of adverse health effects that may be experienced by people who are exposed to power plant HAPs. For more information, contact Paul Chu, (650) 855-2812, [pchu@epri.com](mailto:pchu@epri.com), or Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com).

### ***Fact Sheet Summarizes Program 59 Achievements and 2009 Objectives***

“[Program Research Summary 2009–Program 59, Power Plant Toxics Characteristics](#)” (1018317). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 59, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Paul Chu, (650) 855-2812, [pchu@epri.com](mailto:pchu@epri.com).

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## **WATER AND ECOSYSTEMS**

### **Program 53: Water Quality Criteria Development and Assessment**

#### ***Fact Sheet Summarizes Program 53 Achievements and 2009 Objectives***

“[Program Research Summary 2009–Program 53, Water Quality Criteria Development and Assessment](#)” (1018326). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 53, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact John W. Goodrich-Mahoney, (202) 293-7516, [jmahoney@epri.com](mailto:jmahoney@epri.com).

### **Program 54: Fish Protection at Steam Electric Power Plants**

#### ***European Fish Protection Technology Reviewed***

EPRI’s Doug Dixon traveled to Brussels, Belgium and Pau, France in mid-November to review and evaluate a new type of acoustic system, infrasound, for guiding and repelling fish from water intakes at both hydro- and thermoelectric power plants. An infrasound system involves the use of very low frequency sound, or sound having or relating to a frequency below the audibility range of the human ear. Deployment and evaluation of the technology at a nuclear facility in Belgium have demonstrated moderate success for reducing impingement mortality of estuarine fish. Électricité de France is also testing the technology at one of its hydropower plants specifically for guiding downstream migrating European eels to safe passage. EPRI is considering deploying

and evaluating the technology beginning in 2009 as both a Clean Water Act §316(b) fish protection technology and for guiding downstream migrating American eels in the United States. The site evaluations afforded EPRI the opportunity to understand deployment issues, equipment costs, methods for effectiveness evaluation, and preliminary results. This information will allow EPRI to more effectively initiate a U.S. project in the future. For more information, contact Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com).

### ***New Report Evaluating Strobe Light and Acoustic Fish Deterrent Systems***

[Evaluation of Strobe Light and Acoustic Fish Deterrent System: Plant Barry](#) (1014022). This study tested two deterrent systems at Alabama Power Company's Plant Barry Generating Station on the tidal freshwater section of the Mobile River. A hybrid strobe-light-and-sound (sonic and ultrasonic) system and a sound-only (sonic) system were tested under actual field conditions with full-scale deployment of light and sound systems. Results demonstrated that none of the behavioral stimuli evaluated was capable of reducing impingement of freshwater drum, blue catfish, threadfin shad, hogchoker, bay anchovy, blue crab, or macrobrachium under conditions tested at Plant Barry. There is no evidence that the impinged total fish numbers or impinged individual species numbers were reduced when the deterrent systems were operating. Furthermore, hydro-acoustic monitoring within the cooling water intake system (CWIS) during the hybrid deterrent evaluation confirmed that these behavioral stimuli had no effect on movement of fish immediately upstream from CWIS trash racks or inside screen pits. Both deterrent systems operated with light and sound intensities equal to those reported to stimulate responses in some of the same species of fish commonly impinged at Plant Barry. For more information, contact Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com).

### ***Report on ORERP 2006 Ohio River Monitoring Results Published***

[Ohio River Ecological Research Program \(ORERP\): 2006 Ohio River Monitoring Results](#) (1017002). ORERP is the largest collaborative power plant research program in the world. This report provides information on ORERP's methods for assessing fish populations in large rivers and determining the effects of power plants on fish communities. It presents the results of the 2006 ORERP fish population sampling near 12 Ohio River power plants that covered nearly the entire (~1000 mile) length of the river. The sampling program consisted of adult/juvenile fish, habitat, and water quality field studies upstream and downstream of the participating power plants. Results included the following:

- Electrofishing and seining collections yielded nearly 51,000 individuals representing 85 species and four hybrids. All species collected during the 2006 ORERP have been reported previously during the program. No federally listed species were collected; however, 11 state-listed species were collected, mostly in low numbers.
- Electrofishing data indicated that community measures were usually significantly higher in October than in August and/or June. In contrast to the common seasonal differences, relatively few statistically significant differences were noted between the upstream and downstream areas.
- More than half of the common species showed no preference for either upstream or downstream areas; about as many species were more common upstream than downstream, suggesting that thermal avoidance was limited to only a few species.

This report provides one of the most comprehensive evaluations of a temperate large river fish community ever conducted, and builds upon studies sponsored by EPRI in previous years. The information is of value to industry, environmental groups, state and federal resource agencies, and the general public. For more information, contact Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com).

### ***Fact Sheet Summarizes Program 54 Achievements and 2009 Objectives***

["Program Research Summary 2009–Program 54, Fish Protection at Steam Electric Power Plants"](#) (1018327). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 54, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com).

## **Program 55: Watershed and Water Resource Management**

### ***Program 55 Name Changed, Projects Realigned***

Beginning in 2009, the name of Program 55 has been changed to Strategic Water Issues. The program steering committee and advisors approved this decision in order to more accurately and explicitly identify the program's focus. Also, the Program's five projects have been simplified to three: Water Availability, Advanced Cooling, and TMDL/Watershed Issues, the last of which now includes the former Water Quality Trading project and Watershed Assessment of Atmospheric Deposition and Other Nonpoint-Source Pollution project. For more information, contact Robert Goldstein, (650) 855-2593, [rogoldst@epri.com](mailto:rogoldst@epri.com).

### ***Program Steering Committee Considers Research Priorities Through 2012***

On Nov. 13, the steering committee for the Strategic Water Issues program met via teleconference to offer input on program research plans for 2009–2012. The steering committee is an ad hoc group open to participation by any member of the program. Those attending represented AEP, Southern Company, Salt River Project, PNM, Duke, Great River Energy, Hoosier Energy, and Oglethorpe. Working from the 2009 Research Portfolio, attendees discussed their research needs and the deliverables (projects) that would best address those needs over the next four years. The meeting was the first step in the formal prioritization process for the program. After review of the results, committee members will prioritize the deliverables. Results of that process will be reported to the entire Strategic Water Issues program membership at the March Environment Sector and Area Council Advisor Meetings in San Diego. Additional members are welcome to participate in this ongoing process. For more information, contact Robert Goldstein, (650) 855-2593, [rogoldst@epri.com](mailto:rogoldst@epri.com).

### ***EPRI Holds Stakeholder Workshop on Regional Water Quality Trading Pilot Program in Ohio River Basin***

On Nov. 20, EPRI hosted a workshop in Ft. Mitchell, KY, for stakeholders to learn about EPRI's Ohio River Basin regional water quality trading project. If successful, this project will be the first interstate and/or regional water quality trading program in the United States. Project partners include ORSANCO, America Farmland Trust, Kieser and Associates, Hunton & Williams, Miami Conservancy District, University of California Santa Barbara, American Electric Power, and Duke Energy. The project is more fully described in the [September 2008](#) issue of Quick News. For more information, contact Jessica Fox, (650) 855-2138, [jfox@epri.com](mailto:jfox@epri.com).

## **Program 56: Effluent Guidelines and Water Quality Management**

### ***Fact Sheet Summarizes Program 56 Achievements and 2009 Objectives***

“[Program Research Summary 2009–Program 56, Effluent Guidelines and Water Quality Management](#)“ (1018328). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 56, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Paul Chu, (650) 855-2812, [pchu@epri.com](mailto:pchu@epri.com).

## **Program 58: Hydropower Environmental Issues**

### ***EPRI Water Power R&D Workshop***

On Oct. 29–30, EPRI conducted a workshop for the water power industry to identify and prioritize R&D needs. The workshop was held in Washington D.C. at the office of the Federal Energy Regulatory Commission. Almost 90 attendees participated in the workshop, representing power companies, device developers and equipment suppliers, government agencies, consulting firms, and associations with interests in conventional hydropower, pumped storage, ocean energy, and hydrokinetic technologies. The workshop began with a plenary session where perspectives common to conventional hydropower and the emerging water power technologies were presented and discussed. Breakout sessions for conventional hydropower/pumped storage and ocean energy/hydrokinetics followed, during which specific R&D needs were identified and prioritized. Workshop presentations will be posted for public download later this year. Additionally, EPRI will prepare and publish a technical report summarizing the results of the workshop. Results will be used to develop the future EPRI Water Power Program as well as by the U.S. Department of Energy as it develops its own water power program. For more information, contact Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com), or Roger Bedard, (650) 855-2131, [rbedard@epri.com](mailto:rbedard@epri.com).

### ***Fact Sheet Summarizes Program 58 Achievements and 2009 Objectives***

[“Program Research Summary 2009–Program 58, Waterpower”](#) (1018325). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 58, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com).

## **T&D ENVIRONMENTAL ISSUES**

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### **Program 51: T&D Facilities & Equipment: Environmental Issues**

#### ***Technical Update Published on Phase 2 of Feasibility Study on Remanufacturing Out-of-Service Poles***

[Feasibility of Remanufacturing Out-of-Service Western Utility Poles: Phase 2](#) (1015560). Out-of-service treated wood poles (OSPs) represent a large resource, yet much of the wood goes to landfill. This report describes the second phase of a project investigating the feasibility of converting out-of-service Western utility poles into timbers and other products. The purpose of Phase 2 was to develop data on actual costs, yields, and other important factors to allow an accurate assessment of the economics of different utility pole remanufacturing options for Western tree species. The work demonstrated that high-quality products can be made from OSPs; however, more buyers/customers for sawn OSP products need to be identified. Future research could include development of a mobile splitter for making split rail fencing at electric utility yards and collaborative research with fencing companies to determine the market potential of Douglas fir split rails. Partnering with a biomass power generation plant to produce energy from OSPs is another option. For more information, contact Mary McLearn, (650) 855-2487, [mmclearn@epri.com](mailto:mmclearn@epri.com).

### ***Fact Sheet Summarizes Program 51 Achievements and 2009 Objectives***

[“Program Research Summary 2009–Program 51, T&D Facilities and Equipment: Environmental Issues”](#) (1018323). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 51, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact Mary McLearn, (650) 855-2487, [mmclearn@epri.com](mailto:mmclearn@epri.com).

### **Program 57: ROW: Siting, Vegetation Management, and Avian Issues**

#### ***Fact Sheet Published on EPRI Research on ROW Issues***

[“EPRI Research on Rights-of-Way Issues”](#) (1018343). To remain competitive, electric utilities need information and tools to cost-effectively address environmental concerns related to the development and upgrade of rights-of-way (ROW) corridors as well as the management of existing ones. This Fact Sheet lists reports from Program 57 over the last decade related to such issues. Topic areas include the transmission line siting process, public opinion, transmission and distribution line development and vegetation maintenance, vegetation management options, potential environmental and health impacts, potential impacts on wetlands and streams, multiple land use opportunities, enhanced wildlife values, avian interactions, and ROW environmental issues references. In electronic form, the Fact Sheet includes direct links to the abstracts of all reports listed in each topic area. The Fact Sheet is publicly available at no charge. For more information, contact John W. Goodrich-Mahoney, (202) 293-7516, [jmahoney@epri.com](mailto:jmahoney@epri.com).

### ***Fact Sheet Summarizes Program 57 Achievements and 2009 Objectives***

[“Program Research Summary 2009–Program 57, ROW: Siting, Vegetation Management, and Avian Issues”](#) (1018324). This one-page Fact Sheet gives a quick summary of the information and services offered by Program 57, the industry needs and issues addressed, program impacts, key accomplishments, and objectives for 2009. For more information, contact John W. Goodrich-Mahoney, (202) 293-7516, [jmahoney@epri.com](mailto:jmahoney@epri.com).

## **Program 60: EMF Health Assessment and RF Safety**

[Visit the EMF Health Assessment and RF Safety Public Webpage](#)

### ***EPRI Offers Instructional DVD for EMF Workstation***

[EMF Workstation Instructional DVD](#) (1018310). This two-DVD set offers tutorial instruction for users of EPRI's EMF Workstation, a sophisticated modeling program for calculating magnetic fields, electric fields, and audible noise from transmission lines, distribution lines, and substations. In 215 minutes, the tutorial gives clear explanations of the EMF Workstation user interface and program options to supplement information in the help file. It begins with basic concepts needed to understand the modeling environment and continues with simple transmission line and substation models to illustrate key aspects of the software. More-complicated modeling scenarios illustrating advanced program features lead up to a final tutorial in which users learn to produce an accurate EMF Workstation model from a set of substation blueprints. This DVD tutorial will help users understand how to employ this powerful Microsoft Windows-based tool and how to more effectively communicate the information it provides. For more information, contact Brian Cramer, (815) 478-5344, [bcramer@epri.com](mailto:bcramer@epri.com).

### ***Report Evaluates Methods for Assessing Electric Field Exposure***

[Evaluation of Electric Field Exposure Assessment Methods](#) (1016817). This Technical Update reviews the present status of power-frequency electric field exposure measurements and provides guidance for future assessments of electric field exposures. Renewed interest in characterizing these exposures, and the nuisance shocks that accompany them, comes from epidemiologic studies of electric field exposures in residential and occupational settings and from exposure guideline determinations for workers and the public. This report discusses methods of assessing personal exposure (PE) to electric fields, emphasizing field uniformity, exposure parameters, and field perturbation. It discusses the use of portable field survey meters, PE meters, and computational models as methods for evaluating electric field exposures in uniform and nonuniform fields. For more information, contact Mike Silva, (650) 855-2815, [msilva@contractor.epri.com](mailto:msilva@contractor.epri.com).

### ***Personal RF Communication Technologies Reviewed***

[Overview of Personal Radio Frequency Communication Technologies](#) (1016819). This Technical Report describes personal wireless electronic communication devices, such as cellular telephones, and the increasingly complex radio frequency (RF) environment associated with their use in the workplace and home. It addresses the need to educate engineers who will be responsible for ensuring that these devices operate properly in their electromagnetic environments and that safety standards are met. The report offers an overview of wireless communication fundamentals, starting with modulation of the basic radio carrier wave and moving on to frequency choice, Federal Communications Commission rules and allocations, Institute of Electrical and Electronics Engineers standards, analog and digital modulation, frequency and time modulation, multiplexing, bandwidth, and data rate. Examples of personal communication devices described include cordless, analog cellular, and digital cellular telephones; wireless fidelity and local-area networks; Bluetooth; wireless Internet services; and automatic meter reading. Each of these devices is characterized in terms of frequency range, modulation type, multiple access type, and power level. For more information, contact Mike Silva, (650) 855-2815, [msilva@contractor.epri.com](mailto:msilva@contractor.epri.com).

### ***2009 Program Research Summary Now Available***

["Program Research Summary 2009—Program 60, EMF Health Assessment and Radio-Frequency Safety"](#) (1018322). This Fact Sheet describes research planned for 2009 on high-priority residential, community, and occupational health and safety issues related to EMF exposure. Future research also will address the safe and reliable implementation of new RF and wireless technologies in electric power industry environments. For more information, contact Rob Kavet, (650) 855-1061, [rkavet@epri.com](mailto:rkavet@epri.com).

## **Program 62: Occupational Health and Safety**

### ***Supplemental Project: Design of Electric Industry Substations for Enhanced Ergonomics and Worker Safety***

[“Design of Electric Industry Substations for Enhanced Ergonomics and Worker Safety”](#) (1018333).

Participants in this new supplemental project will learn how their substation’s physical configuration and its operation and maintenance tasks may pose risks for workers, and how specific design and ergonomic interventions may reduce those risks. During a three-day site visit, EPRI’s research team will work with each participant to survey equipment, signage, controls, and other substation features; document worker–equipment interfaces; interview workers, supervisors, and OHS professionals about specific task requirements; and review work procedure manuals and training materials. Each participant will receive a detailed report identifying substation design, installation, and task features that require change and describing feasible interventions to improve worker health and safety. Site visits will begin in 2009, and the project will continue through 2010. The cost for this project is \$40,000 per company. Companies that fund any EPRI membership program can use Tailored Collaboration (TC) funds for up to half their contribution. For each TC participant, the minimum cost for participating in this project is \$20,000, with \$20,000 matched by EPRI, for a total of at least \$40,000 per company. For more information, contact Gabor Mezei, (650) 855-8908, [gmezei@epri.com](mailto:gmezei@epri.com).

### ***New Publications Highlight EPRI’s OH&S Research***

- Success Story: [“Public Service Electric & Gas Uses EPRI Handbooks to Build a Case for Ergonomics”](#) (1018282).
- Fact Sheet: [“Program Research Summary 2009–Program 62, Occupational Health and Safety”](#) (1018320).

[For more information on the item below, contact John Novak, 202-293-6180, \[jnovak@epri.com\]\(mailto:jnovak@epri.com\).](#)

### ***International Electricity Partnership***

On Nov. 13, Barbara Tyran, Director of the Washington D.C. Office, and John Novak participated in a meeting with representatives from international associations and companies to begin organizing the International Electricity Partnership. The partnership is the result of an agreement by electric industry leaders representing utilities that provide the majority of the world’s electricity, who met in Atlanta, GA, on Oct. 6–7. At that meeting they agreed to form the partnership to deliver advanced electric technologies to create a global low-carbon future. The purpose of the partnership is to expand an exchange on climate change and hold discussions among those association staff currently involved in international climate negotiations, but also to develop common roadmaps to articulate better the importance of technology development and timing with proposed climate schemes. The industry leaders have asked for EPRI involvement and collaboration in this effort.

### ***EPRI Biomass Interest Group***

On Nov. 18, John Novak gave an update on the prospects for global climate change and energy legislation at a meeting of the EPRI Biomass Interest Group in Baltimore, MD.

### ***FERC Natural Gas Workshop***

On Nov. 21, Revis James, Director of the Energy Technology Center, testified at a Federal Energy Regulatory Commission (FERC) workshop on natural gas. His presentation provided information on the potential impact of global climate change and other factors on natural gas demand in the electric power sector. Barbara Tyran, Director of the Washington D.C. Office, and John Novak also attended the workshop.

# Environment Supplemental Projects

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## Environment General

- [Energy Sustainability Interest Group](#)

## Air Quality

### ***Program 42: Air Toxics Health and Risk Assessment***

- [Screening Risk Assessments of Utility HAPs Emissions](#)
- [Environmental Assessment of Air Regulatory Scenarios](#)
- [Measurement of Mercury Chemistry in Power Plant Plumes: An Intensive Field Study](#)
- [Health Research to Inform the Revision of the Arsenic Cancer Potency Factor](#)
- [Mercury Experiment to Assess Atmospheric Loading in Canada and the United States \(METAALICUS\): Phase II, Evaluating the Effects of Loadings](#)

### ***Program 91: Assessment Tools for Ozone, Particulate Matter, and Haze***

- [Environmental Assessment of Air Regulatory Scenarios](#)
- [Non-Road Mobile Source Emissions Inventory Improvements](#)
- [Secondary Particulate Health Effects Research \(SPHERES\)](#)
- [Regional PM Characterization to Enable Source-Receptor Modeling: Data Collection](#)

### ***Program 92: Assessment of Air Quality Impacts on Health and the Environment***

- [Pittsburgh ARIES: Identification of Air Pollution Components Associated with Health Responses in Pittsburgh](#)
- [Secondary Particulate Health Effects Research \(SPHERES\)](#)
- [Integrated Chamber and Panel Study](#)
- [Tri-City Concentrated Ambient Particle Study](#)
- [Children's Air Pollution Asthma Study: Part of the ARIES Program](#)
- [Health Effects of Air Pollution and Particulate Matter Components: Texas ARIES](#)
- [Reanalysis of Key PM-Health Dataset](#)

## Global Climate Change

### ***Program 102: Global Climate Policy Costs and Benefits***

- [Enhanced Assessment of Costs and Benefits of Climate Policy Proposals](#)
- [Climate Science: Synthesis and Future Work](#)
- [Developing GHG Emissions Offsets by Reducing Nitrous Oxide \(N<sub>2</sub>O\) Emissions in Agricultural Crop Production](#)

### ***Program 103: Greenhouse Gas Reduction Options***

- [Enhanced Assessment of Costs and Benefits of Climate Policy Proposals](#)
- [Creating Greenhouse Gas Emission Offsets from Avoided Deforestation in the Amazon's Xingu River Basin](#)
- [Collaborative Analysis of CO<sub>2</sub> Policy Impacts on Western Power Markets](#)
- [Corporate Climate Change Policy Risk Assessment](#)
- [Greenhouse Gas Risk Assessment](#)
- [Developing GHG Emissions Offsets by Reducing Nitrous Oxide \(N<sub>2</sub>O\) Emissions in Agricultural Crop Production](#)

## Land and Groundwater Issues

### ***Program 49: Coal Combustion Products—Environmental Issues***

- [Beneficial Use of Coal Fly Ash for Road Base Fill: Environmental Monitoring](#)
- [MANAGES Forum – Support for Compliance Managers: Groundwater Monitoring, Data Management, and Site Management](#)
- [Agricultural Uses of Gypsum and Other Products from Flue Gas Desulphurization \(FGD\) Systems](#)

#### **Program 50: MGP Site Management**

- Surfactant Enhanced In-Situ Chemical Oxidation Treatment of MGP Contaminants
- Soil Hydrocarbon Exposure Protocol
- *In Situ* Thermal Stabilization of Coal Tar
- MGP Odor Measurement, Prediction and Control

#### **Program 59: PISCES—Plant Multimedia Toxics Characterization**

- LARK-TRIPP User's Group 2009
- Mercury Characterization and Control Interest Group (MerCCIG)

### **Water and Ecosystems**

#### **Program 53: Water Quality Criteria Development and Assessment**

- Site-Specific Water Quality Criteria for Selenium: Development of Implementation Analysis Protocol
- Health Research to Inform the Revision of the Arsenic Cancer Potency Factor
- Scientific Evaluation of Arsenic Water Quality Criteria: Speciation and Bioaccumulation Issues
- Mercury Experiment to Assess Atmospheric Loading in Canada and the United States (METAALICUS): Phase II, Evaluating the Effects of Loadings
- Development of Site-Specific Water Quality Criteria

#### **Program 54: Fish Protection at Steam Electric Power Plants**

- Best Management Practices for Preventing Cooling Water Intake Blockage
- Environmental and Economic Effects of a Potential National Retrofit of Closed-Cycle Cooling Systems
- Full Range of 316(b) Phase II Compliance Support

#### **Program 55: Watershed and Water Resource Management**

- Advanced Water-Conserving Cooling Technologies Development and Demonstration
- Assessing the Impact of Climate Change on Water Availability for Power Generation
- Western Region Research Consortium on Energy/Water Sustainability
- Watershed Management for TMDLs, Water Quality Trading, and Hydro Relicensing
- Water Demands and Availability for Power Generation

#### **Program 56: Effluent Guidelines and Water Quality Management**

- Mercury and Selenium FGD Water Blowdown Treatment
- Water Utilization in Cooling Systems: Recycling, Re-use, and Dry Cooling
- Biogeochemical Management of Ash Pond Sediments

#### **Program 58: Hydropower Environmental Issues**

- 'Fish-Friendly' Hydropower Turbine Development and Deployment: Phase II

### **T&D Environmental Issues**

#### **Program 51: T&D Facilities & Equipment: Environmental Issues**

- Environmental and Human Health Risk Management for Aging Infrastructure
- *In Situ* Fixation and Sequestration of Metallic Contaminants
- Bioavailability of Arsenic in Contaminated Soils
- Remanufacturing Out-of-Service Treated Wood Poles

#### **Program 57: ROW: Siting, Vegetation Management, and Avian Issues**

- Collaborative, Long-Term Vegetation Management Field Studies on Power Line Corridors in North America
- Assessing Performance of Integrated Vegetation Management on Electric Transmission Rights-of-Way

### **Program 60: EMF Health Assessment and RF Safety**

- Currently no supplemental projects

### **Occupational Health and Safety**

#### **Program 62: Occupational Health and Safety**

- Design of Electric Industry Substations for Enhanced Ergonomics and Worker Safety
- Fleet Vehicle Ergonomics for Operators and Mechanics
- Ergonomics of Vegetation Management Tasks
- Occupational Health and Safety Trends Database: Customized Analysis

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## **Upcoming Events**

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### **Air Quality**

\* denotes EPRI sponsored or cosponsored event

#### **\* Environment Sector and Area Council Advisory Meetings**

Mar. 16–19, 2009, San Diego, CA. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

#### **7th International Conference on Air Quality—Science and Application**

Mar. 24–27, 2009, Istanbul, Turkey. Contact: Arnout Ter Schure, (650) 855-2753, [aterschu@epri.com](mailto:aterschu@epri.com). More information is available at the [event website](#).

#### **9th International Conference on Mercury as a Global Pollutant**

June 7–12, 2009, Guiyang, China. Contact: Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com). More information is available at the [event website](#).

#### **\* Environment Sector and Area Council Advisory Meetings**

Oct. 5–8, 2009, Boulder, CO. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

#### **Air Quality VII Conference**

Oct. 25–29, 2009, Arlington, VA. Contact: Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com).

### **Global Climate Change**

\* denotes EPRI sponsored or cosponsored event

#### **\* Environment Sector and Area Council Advisory Meetings**

Mar. 16–19, 2009, San Diego, CA. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

#### **\* 14th Annual EPRI Global Climate Change Research Seminar**

May 20–21, 2009, Washington, DC. Contact: Ana Montes, (650) 855-2165, [amontes@epri.com](mailto:amontes@epri.com).

#### **\* Environment Sector and Area Council Advisory Meetings**

Oct. 5–8, 2009, Boulder, CO. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

## Land and Groundwater Issues

\* denotes EPRI sponsored or cosponsored event

### ***Fifth International Conference on Remediation of Contaminated Sediments***

Feb. 2–5, 2009, Jacksonville, FL. Contact: Jeff Clock, (845) 608-0642, [jclock@epri.com](mailto:jclock@epri.com). More information is available at the [event website](#).

### ***\* Environment Sector and Area Council Advisory Meetings***

Mar. 16–19, 2009, San Diego, CA. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

### ***\* World of Coal Ash***

May 4–7, 2009, Lexington, KY. Contact: Ken Ladwig, (262) 754-2744, [keladwig@epri.com](mailto:keladwig@epri.com). More information is available at the [event website](#).

### ***9th International Conference on Mercury as a Global Pollutant***

June 7–12, 2009, Guiyang, China. Contact: Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com). More information is available at the [event website](#).

### ***\* Environment Sector and Area Council Advisory Meetings***

Oct. 5–8, 2009, Boulder, CO. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

### ***Air Quality VII Conference***

Oct. 25–29, 2009, Arlington, VA. Contact: Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com).

## Water and Ecosystems

\* denotes EPRI sponsored or cosponsored event

### ***\* Hydropower in a Carbon-Constrained Future: Applications and Markets***

Jan. 20-21, 2009, Mendenhall, PA. Contact: Doug Dixon, (804) 642-1025, [ddixon@epri.com](mailto:ddixon@epri.com).

### ***\* Environment Sector and Area Council Advisory Meetings***

Mar. 16–19, 2009, San Diego, CA. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

### ***\* Second Forum on Energy & Water Sustainability: Increasing Resource Productivity***

Apr. 10, 2009, Goleta, CA. Contact: Robert Goldstein, (650) 855-2593, [rogoldst@epri.com](mailto:rogoldst@epri.com). More information is available at the [event website](#).

### ***9th International Conference on Mercury as a Global Pollutant***

June 7–12, 2009, Guiyang, China. Contact: Leonard Levin, (650) 855-7929, [llevin@epri.com](mailto:llevin@epri.com).

### ***\* Environment Sector and Area Council Advisory Meetings***

Oct. 5–8, 2009, Boulder, CO. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

## T&D Environmental Issues

\* denotes EPRI sponsored or cosponsored event

### ***\* Environment Sector and Area Council Advisory Meetings***

Mar. 16–19, 2009, San Diego, CA. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

**29th International Congress on Occupational Health**

Mar. 22–27, 2009, Cape Town, South Africa. Contact: Gabor Mezei, (650) 855-8908, [gmezei@epri.com](mailto:gmezei@epri.com). The congress will include a special session on EMF. More information is available at the [event website](#).

**The Bioelectromagnetics Society 31st Annual Meeting**

June 14–19, 2009, Davos, Switzerland. Contact: Rob Kavet, (650) 855-1061, [rkavet@epri.com](mailto:rkavet@epri.com). More information is available at the [event website](#).

**Ninth International Symposium on Environmental Concerns in Rights-of-Way Management**

Sept. 27–Oct. 1, 2009, Portland, OR. Contact: John W. Goodrich-Mahoney, (202) 293-7516, [jmahoney@epri.com](mailto:jmahoney@epri.com). More information and a call for papers are available at the [event website](#).

**\* Environment Sector and Area Council Advisory Meetings**

Oct. 5–8, 2009, Boulder, CO. Contact: Adina Kozuh, (650) 855-2991, [akozuh@epri.com](mailto:akozuh@epri.com).

**Occupational Health & Safety**

\* denotes EPRI sponsored or cosponsored event

**\* Environment Sector and Area Council Advisory Meetings**

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