



Vol. 3, No. 2

SPRING 2000

INSIDE

4

Major steel showcase planned for Pittsburgh in May

7

New "Best Practices" team facilitating motor systems, heating equipment roadmaps

8

Combined heat & power industry, DOE sign partnership compact

12

DOE Secretary Richardson signs compact with petroleum industry

OIT Customers Speak Out!

What Works--And What Doesn't

OIT got an earful from its industrial customers on February 16th—and that's precisely what OIT had in mind. OIT designed its 3rd Biennial Customer Day to get frank feedback on how it might improve its products and services to industry. More than 200 invited customers who attended the one-day event in Washington candidly shared their viewpoints, criticisms, and suggestions in sessions held throughout the day.

"We know we're doing a good job in a lot of critical areas," said Denise Swink, DOE's Deputy Assistant Secretary for Industrial Technologies, "but we also know we can do some things better that will make it easier to work with us." Indeed, the Industries of the Future process has been held as a model for government-industry partnerships but OIT seeks continuous improvement. "We need to hear your experiences and ideas so we can improve the partnering process," Swink explained. She noted that recent customer interviews had shown increased satisfaction in a number of areas, but had indicated the need to improve the handling of intellectual property and contract management. Representatives from DOE procurement offices attended the sessions to hear customer concerns and suggestions. "You can expect a full response from us to each of the issues raised during the sessions," Swink pledged.

The breakout sessions targeted eight topic areas that are summarized below. Lively dialog and criticisms were softened by praise for the overall OIT program and strategy.

OIT customers experienced in each of the topic areas provided briefings while facilitators led the feedback discussions.

Those who attended the sessions on **Financial Assistance and Administrative Processes** expressed concern over safeguards for

intellectual property as well as frustration with the confusing and burdensome process and administrative requirements of contracting. The needs and concerns of industrial companies in these areas were found to vary considerably with the size of the company and type of project. Greater flexibility, better guidance, faster contract processing, simpler contract language, and a more uniform level of service by the field procurement offices would all make the contracting process less difficult for industry.

Top OIT "Partner" and "Technology" for 2000 honored – see page 9

With the **2001 OIT Expo** less than a year away, customers provided timely thoughts on the planning process. Customer input led to the selection of Eamonn Fingleton, internationally renowned author of *In Praise of Hard Industries*, as keynote speaker. Participants also suggested program emphasis areas such as the future of American manufacturing, promising technologies with impacts throughout industry, and tying energy efficiency to your business strategy. The other half of this session sought **Feedback on BestPractices**, OIT's recently revamped program to deliver near term benefits to industry. Discussions centered on the need to establish a steering committee and develop a meaningful plant-wide recognition program.

The session on the **State-Level Industries of the Future** initiative identified the various benefits and hurdles encountered by current state-level activities. The group determined the single greatest need was to develop a mechanism to provide matching funds that

(continued on page 8)



OIT's new Information Resources Catalog, 2000 now available

OIT has just released its *Information Resources Catalog, 2000*. The catalog describes nearly 500 publications, CD-Roms, videos and other resources available from OIT. These resources can help industrial firms improve energy efficiency and competitiveness, while reducing waste and pollution.

The catalog lists products by OIT program area. Because many OIT resources have applications in multiple areas, the catalog contains an index that enables OIT customers to easily find resources depending on their area of interest. For a copy of the *Information Resources Catalog, 2000*, call the OIT Clearinghouse at (800) 862-2086. An on-line version of the catalog will also be available soon through OIT's home page at www.oit.doe.gov.

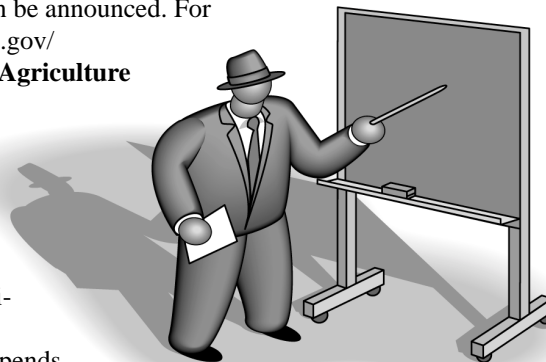
Key OIT publications feted

OIT's corporate brochure received an Award of Excellence from the Society for Technical Communication (STC). *The OIT Times* and *Energy Matters* newsletters and *Energy Tips* received Awards of Merit from the STC.

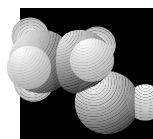
Renewable Bioproducts Education initiative coming



A Bioenergy Vision, created with input from several industries, is currently under industry review and will be published soon. Technology roadmapping workshop sessions will be announced shortly as will plans for a formal compact signing. In addition, new projects addressing integrated bioenergy R&D and bioenergy analysis will soon be announced. For details, go to www.eren.doe.gov/bioenergy_initiative/.... The **Agriculture Team** will soon issue a solicitation to fund an educational initiative. Details are not yet finalized, but university projects will be funded that encourage multi-disciplinary research at the graduate level, including stipends for pioneering graduate students.... The Team's budget has doubled for 2000, enabling it to fund additional high priority R&D projects from the Agriculture technology roadmap. The Team's second annual solicitation will be announced shortly.... An important new study links the increased use of bio-based products and bioenergy to a decrease in greenhouse gases. Go to www.oit.doe.gov/news.shtml.

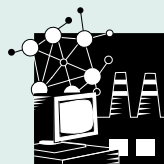


Chemicals Executive Steering Group formed

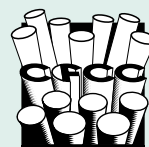


The **Chemical Team** brought stakeholders together to form the Chemical Industry Executive Steering Group (CIESG). The Group provides guidance on OIT's chemical R&D portfolio. The Group's next meeting is in June.... The Group developed an R&D "contest" jointly sponsored by OIT, AIChE, ACS and the Council for Chemical Research. "*The Technology Vision 2020 Challenge*" will identify an industry challenge and ask researchers to propose solutions. Selected proposals will receive partial funding and, if their solution is viable and commercializable, will receive additional funds as a reward.... The Team is working with the Center for Waste Reduction Technology on "*Metrics for the Top 50 Chemicals.*"

The document, available in May, will provide averages and practical limits for energy use, water use, and waste, toxics and pollutants produced in chemical manufacture, and will be valuable in producers' benchmarking and continuous improvement efforts. The document will also be available from AIChE or at www.oit.doe.gov/chemical.

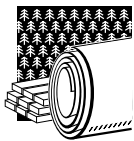


OIT's **Advanced Industrial Materials (AIM)** program, Glass Team and the Sandia Combustion Research Facility, hosted a glass coatings technology workshop at Sandia in mid-January. Coatings experts and technology leaders from the four major segments of the glass industry attended. Break-out sessions allowed representatives from each glass segment to discuss applications and potential for new coatings technologies in their areas of interest. Near-, mid- and long-term production targets; technical barriers to achieving those targets; and prioritized R&D needs that would help overcome the barriers were identified. These discussions laid the groundwork for a Glass Coatings Technology Roadmap that will be available shortly.



The American Society for Testing and Materials (ASTM) recently presented awards to two **Continuous Fiber Ceramic Composites (CFCC)** Program participants. Michael Jenkins of the Univ. of Washington and Edgar Lara-Curzio of Oak Ridge National Lab each received an Award of Appreciation for continued work to develop new test standards for ceramic composites—a process essential for the acceptance and use of new materials in industrial applications. Because of their ongoing efforts and dedication, nine new test standards for CFCCs have been assured.

Forest Products ***Several solicitations*** ***in progress***



The **Forest Products** Team and industry representatives are reviewing R&D proposals in Sustainable Forestry, Sensors and Capital Effectiveness. Selections will be announced in the Summer.... A solicitation focusing on the Energy Performance, Environmental Performance and Recycling areas will open mid-year. Visit www.oit.doe.gov/forest for details.... A group of retired forest products industry executive "ambassadors" will help inform their colleagues about the benefits of new OIT-supported technologies and **Best Practices** opportunities. The first training session for the Business Development Executive Program was held in February, with more to follow. The retired executives represent a program sponsored by Inst. of Paper Science & Technology.... Gasification technology is a major focus of the Forest Products industry vision. The Team has helped the Office of Fossil Energy coordinate two Black Liquor and Biomass Gasification solicitations (visit www.netl.doe.gov/business/solicit/). Proposals are due June 1.



Retired forest products industry executives wanted!!

Are you a retired forest products industry executive who might like to help your former colleagues learn new ways to save money and energy?

If so, contact Valri Robinson, OIT's **Forest Products** Team Leader, at 202-586-0937 and ask her about joining the Institute for Paper Science & Technology's Retired Executive program. OIT will provide training and materials to help you spread the word about new ways the industry can save energy while also cutting costs.



The **Sensors and Controls (S&C)** Program is supporting the development of the MicroElectroMechanical System (MEMS) for use in manufacturing. The system provides a wireless telemetry architecture for intelligent industrial process control systems. Among potential applications: monitoring chemical vapor leaks from refinery pipelines.... Four new projects selected from the S&C FY 2000 Solicitation have been announced on the S&C website (www.oit.doe.gov/sens_cont/), and a new fact sheet for each project will be available shortly.... Fact sheets for four new projects from the DOE SBIR FY99 award process (Topic: Advanced Measurement and Control Technologies for Industrial Manufacturing Applications) have also been posted recently on the S&C website. These are:

- "New Optical Coupling of Infrared Analyzers to Industrial Processes,"
- "Fiber Optic Sensor for Industrial Process Measurement and Control,"
- "High Temperature Micromachined Sensor for Industrial Gas Streams," and
- "Portable Parallel Beam X-Ray Diffraction System for In-Line Process Control in the Steel Industry."



Two projects selected under the **Combustion** Program's first solicitation will start shortly. The "Packed Media/Transport Membrane Boiler Development and Demonstration" project integrates the low-NO_x Forced Internal Recirculation (FIR) burner with a high intensity heat transfer matrix, an innovative transport membrane condenser, and a "smart" control system.... The second project, "High Efficiency Ultra-low Emissions Integrated Process Heater," combines highly efficient, low emission, smart burner technology with a real-time fuel/air sensing system. The latter will feature a heater with on-line process tube temperature sensing and burner management plus an adaptive Predictive Emissions Monitoring System (PEMS) to optimize heat transfer and control emissions.

Steel ***Plans underway for Pittsburgh*** ***Technology Showcase***



The **Steel** Team is finalizing plans for its Pittsburgh Area Steel Technology Showcase, "A Celebration of the New Steel," scheduled for early May. The event includes tours of Weirton Steel and US Steel's Edgar Thomson Works; tutorials and presentations; an exhibit area; and a student track. The event is co-sponsored by the State of PA, AISI and SMA. See article below.... The Steel Team hosted a meeting with steel mill equipment manufacturers to present the Chemical industry's Computational Fluid Dynamics (CFD) Technology Roadmap.... The Team is working with the **Distributed Generation** program and steel manufacturers to develop a less expensive, highly reliable electric load flow and monitoring system. The Team attended the start up of a real-time electric load monitoring system at a NiSource electric utility in Merrillville, IN. DOE Under Secretary Ernest Moniz, Congressman Peter Visclosky and Denise Swink also attended.... The Team's latest solicitation closed recently. Selected projects will be announced shortly.



Metalcasting ***Team efforts recognized*** ***by NADCA***



At the 20th International Die Casting Congress & Exposition, the Chairman of the Board of the North American Die Casting Assoc. presented DOE/OIT's Denise Swink and Harvey Wong (**Metalcasting** Team Leader) with a Special Recognition Award. The award is presented on behalf of the entire die casting industry. It recognizes the Department's outstanding contribution in both advancing the technical understanding of the die casting process, and creating an opportunity for R&D on energy-saving methods in die casting facilities. This recognition is another indication of the outstanding partnership that has evolved between DOE/OIT and the metalcasting industry.... A paper describing Clean Steel work co-sponsored by OIT and the Cast Metals Coalition (CMC) at the Univ. of Alabama received the Briggs Award at the Iron and Steel Society's 57th Electric Furnace Conference. John D. Carpenter of Harrison Steel Castings Co. accepted the award for a paper titled "Acid Steel Making Practice Changes and Results."

OIT, steel industry will "Celebrate the New Steel" at Pittsburgh Showcase

OIT, the U.S. steel industry and the State of Pennsylvania will sponsor "A Celebration of New Steel—The Pittsburgh Regional Technology Showcase." The showcase is scheduled for May 3-5, 2000 in Pittsburgh, PA. The event will attract representatives from the steel industry, trade associations, national labs and universities.

The U.S. steel industry is a participant in OIT's "Industries of the Future" initiative. Through Industries of the Future, OIT, the steel industry and the Pennsylvania state government have partnered to cost-share R&D. The Showcase will highlight energy-saving technologies and processes resulting from this partnership. The event will also emphasize the importance of steel to the U.S. economy and the

valuable role of Federal support in maintaining the industry's long-term competitiveness.

Prominent members of government and industry have been invited to speak at the event. These include Secretary of Energy Bill Richardson, Bethlehem Steel CEO Curtis Barnette and U.S. Steel CEO Paul Wilhelm.

The showcase schedule features plant tours at Weirton Steel and U.S. Steel's Edgar Thomson facilities. During these tours, attendees will see a number of advanced steel manufacturing technologies in operation. Participants will also attend breakout sessions, which have been organized in five tracks:

- State of Pennsylvania
- Plant Technologies

Aluminum Seven new projects selected



The **Aluminum** Team selected seven new cost-shared R&D projects for award. Four relate to the primary industry sector, and three relate

to the semi-fabrication sector. Thirty companies, national lab, academic institutions, and other organizations will partner with OIT in these efforts. Project titles include:



- High Efficiency Low Dross Combustion System
- Aluminum Carbothermic Technology
- Textures in Aluminum Alloys
- Modeling Optimization of Direct Chill Casting to Reduce Ingot Cracking
- Selective Adsorption of Sodium and Aluminum Fluoride Salts from Molten Aluminum
- Wetted Cathodes for Low Temperature Aluminum Smelting
- Reduction of Oxidative Melt Loss of Aluminum and its Alloys

For details, including partner information, go to www.oit.doe.gov/aluminum.

- R&D
- Working with Federal Government, and
- Best Practices.

A special agenda of presentations and plant tours also is being designed for the approximately 100 local college students who will attend. An exhibit hall will feature industry and government displays related to steel technology.

“A Celebration of New Steel” is the second technology showcase jointly sponsored by DOE and the steel industry. The first was held in April, 1999 at Bethlehem Steel’s Burns Harbor facility in Burns Harbor, IN.

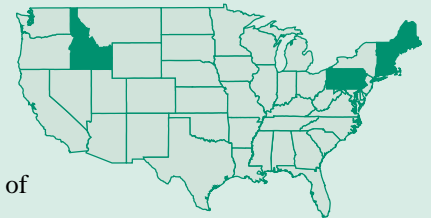
For more information on the Pittsburgh showcase, or to register, please call OIT’s Clearinghouse at 1-800-862-2086.

States Corner New England, Idaho, Pennsylvania partnerships highlighted

OIT’s **States** Team participated in “Energy, Economics, Environment, Keys to Industrial Sustainability in New England: A Forum for Legislators

and Industry Leaders.”

The event —marking the kickoff of state IOF



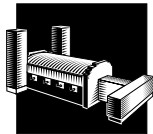
activities in Massa-

chusetts—was hosted with The National Environmental Technology Institute (NETI) at the Univ. of Massachusetts. DOE Assistant Secretary Dan Reicher was keynote speaker.... In February, OIT and the Idaho National Engineering and Environmental Lab launched the State IOF in Idaho. The conference focused on the **Agriculture, Forest Products** and **Mining** industries. An Agreement to Cooperate was signed by Idaho Gov. Kempthorne and Denise Swink. Local groups will present recommendations about an Idaho State IOF program to the Governor’s Science and Technology Council.... The Team is planning a Pennsylvania State IOF symposium for June. Details are available at www.oit.doe.gov/states.



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Glass ***OIT teaming with GMIC*** ***at Glassman***

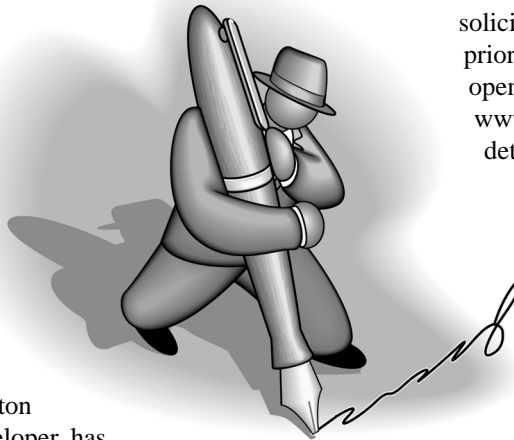


The **Glass** Team and the Glass Manufacturing Industry Council will sponsor a half-day combustion technology workshop at the Glassman International Industry Exposition. The presentation, "Advances in Glass Furnace Combustion, Control and Sensors Technology," will look at energy- and cost-saving concepts in combustion.... The Team has released its FY01 Solicitation for R&D proposals in the areas of Production Efficiency, Energy Efficiency, Environment and Innovative Uses of Glass. About 7-10 new cooperative agreements are expected to be announced in September. To learn more, visit www.oit.doe.gov/glass.... A glass industry project—"Oxygen-Enriched Air Staging Technology"—is being commercialized. The technology is the lowest cost means of reducing glass furnace NOx emissions, and has achieved levels as low as 2 lbs NOx per ton of glass produced. IGT, the primary developer, has licensed OEAS to Combustion Tec Inc.... The Team and the AIM Program sponsored a glass coatings technology workshop at Sandia. See AIM highlights on page 2 for more information.

Petroleum ***Compact signed, solicitation*** ***out shortly***



The **Petroleum** Team hosted a formal partnership compact signing involving DOE and the petroleum industry. Secretary of Energy Bill Richardson and top industry executives pledged to work together to support R&D projects that will enhance the industry's productivity and reduce energy usage. See article on page 12 for details.... The industry-developed vision and a draft of its technology roadmap are available at the team's website. A solicitation for projects based on priorities identified in the roadmap is open until May 17. Visit www.oit.doe.gov/petroleum for details.... In conjunction with the industry's Coordinating Research Council (CRC), the Team has sponsored the publication of a valuable new report "Biodesulfurization of Gasoline; A Technology Roadmap." The Report assesses the applicability and feasibility of using biocatalysis to remove sulfur from gasoline, and can be ordered electronically through the Team's website or by calling OIT's Clearinghouse.

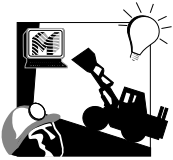


The **Combined Heat & Power** Program held its first International Workshop in February. Co-sponsors included the U.S. Combined Heat and Power Assoc. and the International Cogeneration Alliance. Barriers, successful applications of CHP systems worldwide, global climate change impacts, and available technologies and tools were addressed. DOE Assistant Secretary Dan Reicher and key industry representatives participated in a ceremonial signing of the new CHP vision and pledged to further RD&D and outreach efforts. See article on page 8 for details.... The Program is sponsoring regional workshops on roadmapping (geared toward endusers and researchers) and outreach (to inform elected officials and policymakers about CHP system issues and benefits). For more information about these and other planned workshops, visit www.oit.doe.gov/chpchallenge/events.html.



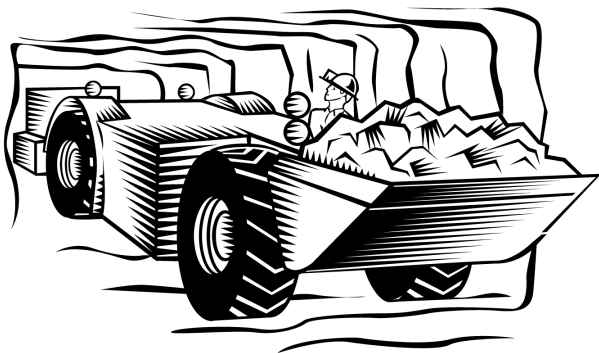
To help maintain the high quality of the **Industrial Assessment Center (IAC)** program, a Critical Review Board has recommended that all IAC host universities be re-competed. A solicitation announcing the competition for participation in the IAC program was mailed to all eligible universities in March. Proposals must be received at the University City Science Center by May 5, 2000. All ABET-accredited university engineering schools will be eligible.... At the request of OIT's **Glass** Team, IAC representatives conducted an integrated assessment at a large Owens-Corning facility. The assessment reflects OIT's increasing effort to provide a seamless, comprehensive package of services to our industry customers. An IAC assessment team performed a similar service recently at a diecasting facility in cooperation with OIT's **Metalcasting** Team.

Mining **Diverse Federal mining** **activities examined**



The **Mining** Team met with several Federal agencies involved with the mining industry, to discuss better coordination of data, regulation, and R&D activities. For more information, visit www.oit.doe.gov/

mining.... The team and the National Mining Assoc. facilitated a Processing Technology Roadmap workshop in January. The participants focused on three areas: comminution, physical separation, and metallurgy. Plans are to publish the roadmap shortly and then use it to help guide the Team's next R&D proposal solicitation beginning Summer 2000.... With ten DOE national lab projects underway from its first round of proposals, the Team is gearing up for the second round of industry-led projects.



The Pump System Assessment Tool is now available from OIT's **Best Practices** program. The PSAT software helps industrial users assess the efficiency of pumping system operations, calculating potential energy and cost savings. The software can be downloaded from <http://public.ornl.gov/psat/>. Call the OIT Clearinghouse for assistance on how to use PSAT or upcoming workshops. National Electrical Manufacturers Assoc. (NEMA) is leading development of a vision and roadmap for electric motor systems, and has asked OIT to help facilitate. A vision workshop is planned to enable motor and drive industry interests to establish collective performance and energy-saving goals. Motor system roadmaps will follow and prioritize tasks needed to reach the vision goals. Representatives from the Air Movement and Control Assoc., the Compressed Air and Gas Institute, the Electrical Apparatus Service Assoc., and the Hydraulic Institute will participate.... The Industrial Heating Equipment Assoc. and the **Best Practices** program sponsored a roadmap workshop to help optimize this aspect of plant operations. More than 35 process heating experts participated. The roadmap will be published soon.



The **NICE3** Program recently announced eight new technology demonstration awards from several OIT industry areas. The projects vary from replacing a traditional metal wheel with a high-temperature ceramic wheel in a gas-powered turbine to a "full-scale 100 ton/hr demonstration of magnetic elutriation technology for processing of iron ore." This latter project will demonstrate a patented process which produces yields of 99% magnetic iron recovery, while eliminating the need for chemicals used in conventional separation practices. For more information on all new projects go to www.oit.doe.gov/nice3/.... A former NICE3 project, "Solex Robotics Maverick Tank Inspection Robot," has been nominated for a National Medal of Technology, an annual award the President of the United States presents to leading American innovators.



The **Inventions & Innovation (I&I)** Program recently announced grants of \$40,000 for 13 concept and up to \$200,000 for 11 technology development proposals. Sample projects: "Laser Sensor for Optimization of Compressor Stations and Refinery Operations" will enable rapid monitoring and leak detection from valves and flanges in natural gas and liquid pipeline compressor stations.... "A New High Temperature Coating for Gas Turbines" will provide enhanced cracking resistance and oxidation protection for hot section components of gas turbines. The coating will provide significant energy savings by simplifying coating steps and extending component life.... "Tough-Coated Hard Powders: A New Paradigm in Mining and Machining Tool Materials" will demonstrate a new process to sinter tungsten carbide particles to increase hardness, strength, abrasion resistance and tool life. For more information, visit www.oit.doe.gov/inventions/.... The next solicitation for both the **I&I** and **NICE3** programs will be released in May.



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(continued from page 1)

would help states move beyond the planning stage (funded by State Energy Program grants) to substantive state-level IOF activities and partnerships.

In exploring the prospect of **Working with the National Laboratories**, participants from large companies identified the biggest impediments as concerns over the protection of intellectual property, the costs involved, and unfamiliarity with lab capabilities and procedures. Smaller companies felt that the labs' expected cost share was a barrier to partnerships and perceived them as posing unfair competition for small research laboratories. Other factors hindering lab use include location, inter-lab competition, and the perception that they are just concerned with energy.

Another session considered **How to Take Advantage of Multiple OIT Products and Services**. Participants determined that technical and information needs vary considerably with the size of the company and level of personnel. OIT needs to develop a comprehensive marketing plan that addresses these different levels among and within firms (especially top management) and involves architectural, engineering, and design firms; state offices and agencies; and trade associations. Case studies were suggested as an effective marketing tool.

The benefits and risks associated with **Hosting a Technology Showcase** were discussed and assessed. Participants expressed concern over the protection of proprietary information, participant safety, and potential plant disruptions. Experienced hosts answered most of these concerns and identified a range of expected and

unexpected benefits, including heightened employee morale and an enhanced public image. To stimulate interest in new showcases, OIT will need to demonstrate their value to the potential host company, perhaps by documenting the experiences of past hosts.

Sessions on **Industries of the Future Partnerships: Reaching for the Next Level** addressed each of OIT's nine partner industries. The benefits emerging from these partnerships and the secrets of success discussed in these sessions amounted to a resounding endorsement for the Industries of the Future approach. Recommended areas for possible improvement include:

- streamlining the procurement process
- maintaining continuity in partnership goals (despite changes in administrations and initiatives)
- integrating the process across industries, OIT, and other agencies to capture wider benefits
- focusing on top corporate commitment
- better and earlier planning for technology commercialization
- lower cost shares for smaller companies
- a stronger education and training component, and
- recognition of the informal benefits of partnership

Denise Swink and the rest of OIT are grateful for the time and thought invested by all those who attended Customer Day. Their insight and dedication is propelling the Industries of the Future to the next level. The staff is eager to respond to all the recommendations, so stay tuned for a full accounting and some meaningful improvements.

DOE, Combined Heat and Power industry sign compact at International Symposium

Combined heat and power (CHP) systems, which generate electricity and thermal energy in a single and integrated system, are a highly efficient alternative to traditional electricity generation. Widespread adoption of this technology could help industry save money, reduce pollution and improve the energy efficiency of its operations.

To promote adoption of these technologies, OIT, the CHP industry, and the Environmental Protection Agency co-sponsored "Combined Heat and Power Energy Solutions for the 21st Century." The interna-

tional symposium, held February 2, 2000, in Washington, DC, addressed opportunities and challenges related to widespread adoption of CHP technology. The event attracted representatives from energy service providers, environmental policy organizations, national laboratories, universities and government.

The highlight of the symposium was a CHP compact signing ceremony. In signing the compact, officials from government and industry pledged to support the continued development and deployment of energy-efficient CHP systems.

Joe Ponteri, Del Raymond, Alzeta Corp. receive inaugural OIT awards

OIT's Customer Day was the setting for its first ever "Partner of the Year" and "Technology of the Year" awards. The award winners, chosen by an outside panel from nominations provided by OIT staff, represent the very best achievements and contributions from literally hundreds of OIT partners and supported technologies.

The selection panel helped narrow the list to three outstanding finalists in each category, with the winners announced from this select group at Customer Day ceremonies. A tie vote for Partner of the Year resulted in two winners in this category. OIT plans to make the awards an annual ritual at Expo, Customer Day or similar events.

OIT "Partner of the Year"

Joseph Ponteri

Mr. Ponteri is President and CEO of Global Metal Technologies, Inc., the parent company of Lester Precision Die Casting. Mr. Ponteri is a committed partner in the Department of Energy's Metal Casting Industry of the Future initiative. Many of the technologies resulting from Metal Casting Industry of the Future R&D have been implemented at the facility and are currently saving Lester an estimated 5 billion Btus/yr. Mr. Ponteri demonstrated his commitment to achieving national energy efficiency goals by showcasing the technologies at Lester in November, 1999.

OIT "Partner of the Year"

Delmar Raymond

Mr. Raymond, of Weyerhaeuser, has been involved with the Industries of the Future since its inception. He has been a pioneer in championing and developing the forest products vision, *Agenda 2020*, a strategic planning document that describes where the industry will need to be in 20 years to be competitive. Mr. Raymond is currently co-chair of the Chief Technology Officers Committee that guides implementation of the forest products vision.

Finalist for OIT "Partner of the Year"

Gunnar Hovstadius

Mr. Hovstadius, of ITT Flygt, has partnered with OIT since 1994. He has primarily worked with the Motor Challenge program, now Best Practices. Some of his contributions include initiating two Motor Challenge showcase demonstrations in 1995, helping to create a regional initiative to promote motor and pump systems

that trained 1,000 people, and helping to instruct an additional 2,000 people on pump system optimization techniques.

OIT "Technology of the Year"

High Temperature Radiant Burner

Alzeta Corp.

For this project, Alzeta identified a high temperature material that can be incorporated into earlier burner formulations at different levels, the highest for the most demanding applications, the lowest for more conventional boiler applications. The burner's four commercial applications include: an award winning VOC destruction system, a high efficiency boiler system, SOGNO, a high efficiency generally residential heater and hot water heater, and Pyrocore radiant burners. This technology is now incorporated into 5000 units per year.

Finalist for OIT "Technology of the Year"

Novel Membrane-Based Process for Producing

Lactate Esters

Argonne National Lab and Partners

This process uses proprietary advanced fermentation, membrane separation, and chemical conversion technologies to convert renewable carbohydrate feedstocks into lactate esters. These esters are environmentally benign solvents that provide a direct replacement for petroleum-derived organic and chlorinated solvents, many of which are toxic or hazardous. Such solvents are widely used as cleaners, degreasers and product ingredients in industries like electronics manufacturing, adhesives, paints, printing, de-inking, and textile manufacturing. The ester solvents have the potential to replace about 80% of the 3.5 million tons of solvents used annually in the U.S.

Finalist for OIT "Technology of the Year"

Waste-Minimizing Plating Barrel

Whyco Technologies, Inc.

Whyco Technologies, Inc., has developed an innovative plating barrel used in the plating of metal parts. This new barrel employs an innovative thin-walled construction, differing from the traditional thick-wall design previously required to provide adequate structural integrity. The thinner wall provides increased flow-through, less clogging, and extended component life leading to 16% energy savings and 40% increased productivity over traditional barrels. To date, more than 395 of these plating barrels are being used throughout the country with an estimated annual savings of more than 150 billion Btu.

INFORMATION CORNER

NEW EMPLOYEES

Mike Canty joins OIT's Mining Team after nearly 30 years in that industry covering everything from exploration to finished products. He's held positions from geologist and engineer to vice president in companies involved with all aspects of mining and processing. Mike's edited three books on the "History of Mining in Arizona." His hobbies include collecting antiques and autographs and caring for his big dogs.

While **Ken Friedman** isn't a new employee, he's been on extended loan to the International Energy Agency in Paris, France. At the IEA, Ken was a diplomat and head of the Energy Technology Policy Division. He was responsible for managing over 20 international energy technology R&D agreements. In OIT, Ken is responsible for program metrics and analysis.

Yolanda Jones Frinks comes to OIT as a program manager on the States Team. She's from DOE's Atlanta Regional Office (manager of the Clean Cities Program), and prior to that she was a Program Manager on the Waste Minimization/Pollution Prevention team at DOE's Savannah River site. She likes spending time with her family and friends, as well as cooking, comedy, and listening to live bands.

Bob Gemmer joins OIT as manager of the Combustion Program. Prior to joining OIT, Bob worked as a principal project manager for the Gas Research Institute in Chicago, IL. During more than 14 years with GRI, Bob managed both basic and applied industrial combustion RD&D projects. In his spare time, Bob enjoys hiking, camping, and canoeing. He is also an avid contract bridge player.

Gary Lyttek is OIT's Senior Budget Analyst and Resources Team Leader. Gary previously was the Lead Procurement Officer for the Office of Field Management. Gary's professional background includes contract management, finance, staffing, and program cost and schedule analysis. Gary enjoys woodworking, weightlifting, photography and playing with his two small children, Erik and Karl.

Thomas Robinson is now OIT's Aluminum Process Lead. He's been a Project Chemical Engineer at a number of industrial facilities producing a variety of products such as printing

NEW PUBLICATIONS

| Title | Area | Product Type |
|---|-------------------------------|--------------|
| Information Resources Catalog, 2000 | OIT | Catalog |
| Emission and Reduction of Greenhouse Gases from Agriculture and Food Manufacturing | Agriculture | White Paper |
| Technology Vision 2020 (Petroleum Vision) | Petroleum | Vision |
| Technology Roadmap for the Petroleum Industry | Petroleum | Roadmap |
| Gas Imaging for Advanced Leak Detection | Petroleum | Fact Sheet |
| Advanced Process Analysis for Petroleum Refining | Petroleum | Fact Sheet |
| Continuous Casting/Inside Rolling of Hollow Rounds | Steel | Fact Sheet |
| Energy-Efficient Process for Hot-Dip Batch Galvanizing | Steel | Fact Sheet |
| Novel Technique for Increasing Corrosion Resistance | Aluminum | Fact Sheet |
| Gas Turbine Cooling Improvement | Industrial Power Technologies | Fact Sheet |
| Tribopolymerization as an Antiwear Mechanism | Inventions & Innovation | Fact Sheet |
| Computer Control Raises Welding from Art to Science | Inventions & Innovation | Fact Sheet |
| Metal Casting Technology Showcase | Metal Casting | Fact Sheet |
| Manufacturing Wear-Resistant Metal Reinforced Carbon | Advanced Industrial | Fact Sheet |
| A Device for Efficiently and Uniformly Drying Nonwoven Materials Using Microwave Energy | Forest Products | Fact Sheet |
| Lumber Defect Detection System | Forest Products | Fact Sheet |
| Solvent Vapor Recovery | Chemicals | Fact Sheet |

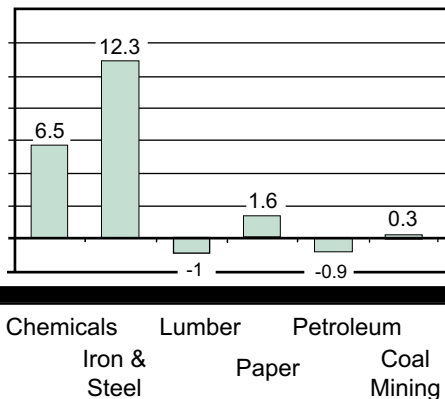
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plates and rollers, currency, stamps, torpedo fuel, nitroglycerine and other nitrate esters, and wastewater treatment chemicals. Thomas likes to ski, play ice hockey, swim, and entertain friends.

INDUSTRY TRENDS

Production

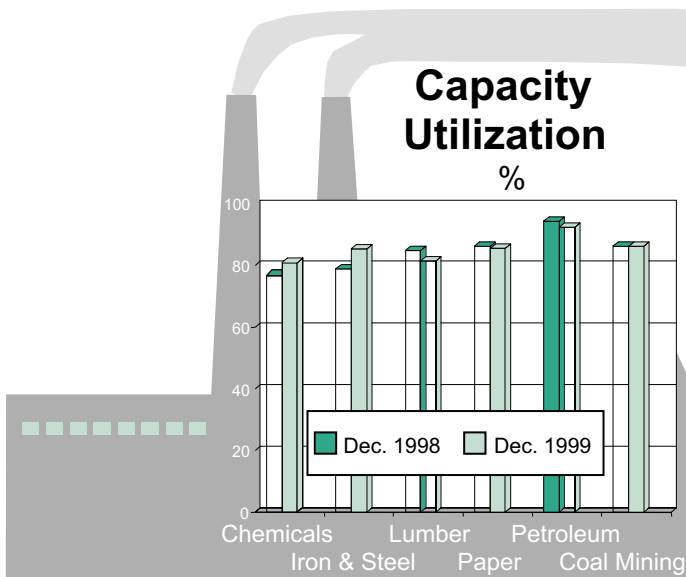
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Dec. 98 to Dec. 99



Source: Federal Reserve Board, Federal Reserve Statistical Release G.17, Industrial Production and Capacity Utilization.

Capacity Utilization

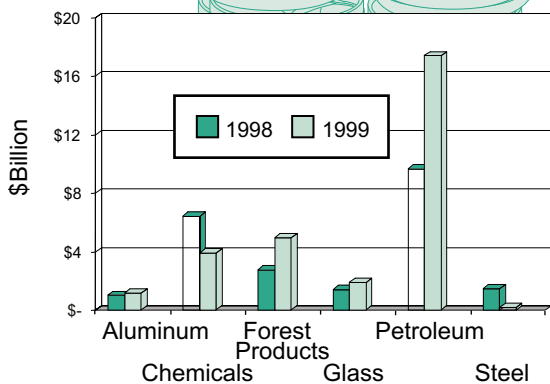
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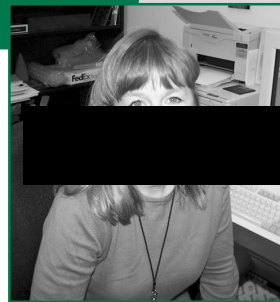
Source: Federal Reserve Board, Federal Reserve Statistical Release G.17, Industrial Production and Capacity Utilization.

Profits

Based on Industry Composites*



Source: Business Week, Corporate Scoreboard, February 28, 2000.



GUEST EDITORIAL

A new vision for industrial materials

By Merrill Smith,
CFCC Program Manager

Expect some exciting changes in OIT's materials programs later this spring. The existing materials programs (Advanced Industrial Materials and Continuous Fiber Ceramic Composites or CFCCs) are merging to become one. This new program, Industrial Materials of the Future (IMF) will allow for a more congruous materials program. All advanced materials R&D, regardless of material type, will be conducted through one program.

This improved materials program will play a critical role in assisting Industries of the Future (IOFs). Anyone familiar with the various industry roadmaps knows that advanced materials are among the most critical needs in achieving industries' technology objectives. The new IMF plan will further align the materials program with the other OIT programs and should be more user friendly. Look for the first changes to take place soon. There will be a combined review of all OIT materials projects later this summer. There will be a solicitation for new materials R&D proposals that support the IOFs later this year.

In addition, look for the informative new publications listed below which will support and provide guidance for the new IMF program:

- Advanced Structural Ceramics Technology Roadmap (late spring/ summer 2000)
- Continuous Fiber Ceramic Composites Program Plan Update, Accomplishments and Program Completion Roadmaps (January 2000)

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DOE, petroleum industry sign compact formalizing technology partnership

Energy Secretary Bill Richardson and leaders of the U.S. petroleum industry recently signed an historic agreement committing to cooperation in developing new technologies to provide the country's energy requirements into the new century. The event, held February 10, 2000, signifies the petroleum industry's official participation in OIT's Industries of the Future strategy.

In his remarks, Secretary Richardson described the partnership as "a great deal of cooperation in the national interest," and noted that the "stroke of a pen will signal a new era...This compact signals how government and industry can work together to promote cleaner air, soil and water."

Petroleum industry leaders who signed the compact included Robert Campbell, Sunoco Inc.; J. Louis Frank, Marathon Ashland Petroleum; Red Cavaney, President of

the American Petroleum Institute; and National Petrochemical and Refiners Assoc. President Urvan Sternfels. Campbell noted that the compact is an "agreement to be proud of. A sensible, necessary, forward-thinking effort." Frank described the event as a "significant step toward ensuring that American refiners remain world leaders."

The petroleum industry "vision" and "draft technology roadmap" were released at the compact signing. The petroleum vision, *Technology Vision 2020*, identifies broad industry goals with an emphasis on downstream activities. It addresses environmental concerns, markets and demand, competitive forces, process improvements as well as energy efficiency. The industry's roadmap expands on the vision performance targets, identifies technology barriers to reaching these targets and establishes the R&D steps needed to overcome these barriers.