

**Industries of the Future – West Virginia:
An EERE State Partnership Program**

**State Industrial Partnership
Programs – The WV Experience**

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The National Program

- Managed by the Office of Industrial Technologies (OIT) in the U.S. DOE Office of Energy Efficiency and Renewable Energy (EERE)
- What will our energy-intensive industries look like in five years, in ten years, in twenty years? (Vision)
- How do they evolve in an energy and resource efficient, economically viable manner? (Technology Roadmaps)
- OIT website: www.oit.doe.gov

State Industrial Technology Programs

- Industry concerns frequently occur on a state or regional basis
- State IOF programs can incorporate a state's particular industry profile, economic development needs, and research strengths
- IOF-WV was the nation's first state IOF program
- For further information visit our website:
<http://iofwv.nrcce.wvu.edu>

WV Industry Comparisons (2000 data)*

Industry Sectors	Employment	GSP (\$M)
Primary Metals	10,707	918
Fabricated Metals	6,192	369
Stone, Clay, & Glass	6,604	337
Chemicals & Allied Products	14,254	2,899
Rubber & Plastics	3,727	173
Lumber & Wood Products	13,018	591
Paper and Allied Products	1,233	73
Total for IOF-WV Sectors	55,735	5,360
Total for WV Manufacturing	84,557	6,760
IOF-WV % of Total Manufacturing	66%	79%
Coal Mining	16,140	2,126
State Totals	889,370	42,271

*Source: U.S. Department of Commerce, Bureau of Labor Statistics, www.bea.doc.gov

GA Industry Comparisons (2000 data)*

Industry Sectors	Employment	GSP (\$M)
Primary Metals	14,163	926
Fabricated Metals	25,799	1,593
Stone, Clay, & Glass	22,103	1,718
Chemicals & Allied Products	22,801	3,469
Rubber & Plastics	28,622	1,760
Lumber & Wood Products	44,896	2,872
Paper and Allied Products	31,640	3,606
Total for IOF-GA Sectors	190,024	15,944
Total for GA Manufacturing	600,870	49,553
IOF-GA % of Total Manufacturing	32%	32%
Coal Mining	9,482	1,127
State Totals	4,918,306	296,142

*Source: U.S. Department of Commerce, Bureau of Labor Statistics, www.bea.doc.gov

Industry Working Groups are the Heart of the Program

- Enthusiastic industry contacts – Ric Love, Howard Snyder, Pat Minehardt, Bob Baptista, Beri Fox, Brent Blalock, Jan Berkow
- University researchers with strong industry ties – Bob Creese, Rakesh Gupta, Larry Banta, and Syd Peng
- A good Industrial Assessment Center is invaluable
- National Labs bring expertise and industry partners

Examples of IOF-WV Projects

- Targeted energy savings at Century Aluminum of \$15 million per year with new diagnostic and control system
- \$1.48 million in energy saving opportunities at Bayer Chemical with a payback of 12 months
- Energy assessments at eight wood products companies show that West Virginia's wood/forest products industry could save more than 1.2 trillion BTUs per year equivalent to \$8.6 million and approximately 525 million pounds of CO₂ annually

- Energy savings of \$20 million at Weirton Steel since 1998, equivalent to \$8 per ton cost reductions
- Permitting productive reuses of spent foundry sand has saved HK Casting \$650,000 to date

WV Wood and Forest Products Programs

- WV has 12 million forested acres – 94% hardwoods
- Reforestation of Abandoned Mine Land (Sustainable Forestry Program)
- Wood Industry Assistance Program
- Co-firing with wood waste
- Logger Safety Initiative – WV Forestry Association

IOF-WV Outreach Activities

- Annual IOF-WV Symposia
- Annual IOF-WV Day at the State Capitol
- Industry working groups and project teams meet throughout the year
- Newspaper and magazine articles
- Radio and television interviews
- IOF-WV Video

Reassessment of Industry Priorities

- Identified 147 key project topics
 - 64 for metals (aluminum, steel, metal casting)
 - 19 for chemicals/polymers
 - 9 for glass/refractory products
 - 17 for wood/forest products
 - 22 for mining
 - 7 for CHP/distributed and renewable energy
 - 9 crosscut technologies

Project Summary Sheet

- **Tentative project title:**
- **Technical problems to be solved:**
- **Project plan or approach to addressing these technical issues:**
- **Benefits of this project:**
- **Other industry sectors impacted by this project:**
- **Other EERE technology programs such as biomass, distributed energy, renewable energy, hydrogen and fuel cells involved in this project:**
- **Project participants and research team:**
- **Potential co-funding sources for this project:**
- **WVU contact person:**
- **Project spokesperson:**

Titles of some of the higher ranked forest products topics:

- Utilization/market development/ new product opportunities for low-grade materials
- Refining low-grade forest products to produce biofuels
- Meeting IPPC phyto-sanitation requirements for hardwood packaging material in an energy efficient & economical way
- Clustering forest products manufacturing industries to utilize/improve energy efficiencies for waste materials

Project Topics Presented at the IOF-WV Symposium

- Conversion of Biomass to Fuels and Chemicals-
Alternate Feedstocks for Commodity and Specialty
Chemicals & Polymers
- Intelligent manufacturing sensors & controls, including
a structured methodology for energy analysis,
diagnostics, and continuous assessment
- Improved Critical Melter Refractory Products
- Efficient use of Excess Heat and Waste Gas from
Industrial Processes
- Recovery and Utilization of Coal Fines and Waste Coal
- Design and Development of Materials for Molten Metal
Handling and Processing

Concern for Manufacturing in the U.S.

- Asian manufacturers have discovered America!
- Manufacturing morphing into service sector
- Manufacturing jobs are way down, but productivity is generally high – the factory of the future – one man and one dog!
- Our job with industrial technology partnerships is to help create energy advantages for U.S. manufacturing sectors

Drivers for Industrial Energy Efficiency Projects

- Industry commitments to energy efficiency and sustainable development are valuable
 - Dupont – source 10% of global energy needs from renewable sources by 2010
 - Home Depot commitment to sustainable forestry
 - AF&PA's Sustainable Forestry Initiative
- EERE's Industrial Technologies Program is essential – puts energy and resource efficiency values on the front burner

Industrial Technologies Program Directions

- The Administration's '04 budget cuts the ITP budget by 30% (for details see FY 2004 Congressional Budget, Industrial Technologies Program)
- States' focus on understanding "energy footprint" and reducing energy intensity (BTUs/GSP)
- Emphasis on Best Practices near-term benefits and on high-risk, high-return R&D
- Leverage is the key!

Next Steps for the GIT Partnership

- Today's sessions raise hopes and create expectations – follow through!
- Link your program with Georgia's unique strengths and economic development needs
- Get some projects co-funded
- Partner with other states in your region to assess priorities and develop joint projects
- Try an IOF-GA Day at your State Capitol – it's fun!