



Industries of the Future – West Virginia

Industrial Technology Partnerships

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Training Directors (NAISTD)
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West Virginia is a(n) _____ State!

WV Industry Comparisons (2000 data)*

Industry Sectors	GSP (\$M)	Employment	GSP/Emp
Primary Metals	918	10,707	\$85,738
Fabricated Metals	369	6,192	\$59,593
Stone, Clay, & Glass	337	6,604	\$51,030
Chemicals & Polymers	2,899	14,254	\$203,382
Rubber & Plastics	173	3,727	\$46,418
Lumber & Wood Products	591	13,018	\$45,399
Paper & Allied Products	73	1,233	\$59,205
Total for IOF-WV Sectors	5,360	55,735	\$96,169
Total for WV Manufacturing	6,760	84,557	\$79,946
IOF-WV % of Manufacturing	79%	66%	
Coal Mining	2,126	16,140	\$131,722
State Totals	42,271	889,370	\$47,529

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

IOF Industry Sectors

IOF Industries Percent of Total Manufacturing		
State	GSP	Total Employment
West Virginia	79%	66%
Wyoming	69%	48%
Pennsylvania	51%	42%
Maine	51%	41%
Ohio	45%	46%
Tennessee	42%	38%
Iowa	38%	26%
Texas	36%	37%
North Carolina	35%	30%
Georgia	32%	32%
New Hampshire	25%	33%

Concerns for Manufacturing in the U.S.

- California garlic, Alabama cotton, West Virginia glass, North Carolina furniture, South Carolina textiles, Ohio plastics, Pennsylvania steel
- Low cost foreign labor, over capacity, economic slump, exchange rates
- Level playing field – environmental concerns, working conditions, market access

Industry Transitions

- Manufacture high-value, niche products
- Manufacturing jobs are way down, but productivity is generally high – the factory of the future – one man and one dog!
- New business models may help
- We can help create (energy) advantages for U.S. manufacturers – National Commission on Energy Policy

The DOE's Industrial Technologies Program

- Created in 1994 as Industries of the Future
- Managed by the Office of Industrial Technologies (OIT) in the U.S. DOE Office of Energy Efficiency and Renewable Energy (EERE)
- What will energy-intensive industries look like in five years, in ten years, in twenty years? (Vision)
 - Aluminum, steel, glass, chemicals/polymers, wood/forest products, metal casting, mining
- How do they evolve in an energy and resource efficient, economically viable manner? (Technology Roadmaps)
- OIT website: www.oit.doe.gov

IOF-WV Program

- West Virginia was the first state to launch a state IOF program in 1997 in partnership with the WV Development Office
- The IOF-WV goals:
 - Provide forums for interdisciplinary collaboration
 - Engage new technologies for the benefit of traditional industries
 - Develop teams and obtain co-funding for high priority R&D projects
- For further information visit our website:
<http://iofwv.nrcce.wvu.edu>

Industry Working Groups are the Heart of the Program

- University researchers with strong industry ties
- Enthusiastic industry contacts – (that provide cost share)
- National lab expertise
- West Virginia Development Office – industry representatives, energy efficiency program, leadership
- Co-funding agencies and foundations

Examples of IOF-WV Projects

- Targeted energy savings at Century Aluminum of \$15 million per year with new diagnostic and control system
- 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 \$656,000 to date

- \$1.48 million in energy saving opportunities at Bayer Chemical with a payback of 12 months
- Center for Extrusion Compounding of Additives for Superior Plastics Performance. One of six Research Challenge Grants funded by the WV Higher Education Policy Commission
- Laser glass cutting machine that could reduce waste by 25%
- 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

Outreach Activities

- Annual IOF-WV Symposia
- Annual IOF-WV Day at the State Capitol
- Talks, exhibits, and consulting on the IOF-WV “journey”
- Newspaper and magazine articles
- Radio and television interviews
- IOF-WV Video

Some strategies that work

- Link into economic development needs of the state
- Plant visits
- Engage research groups at the land grant universities
- Work with national lab researchers
- Assess R&D priorities, develop teams, and then follow through with proposals

Some barriers (hurdles) to developing industry partnerships

- Companies preoccupied with business climate issues
- No clear cut co-funding opportunities for a particular industry sector
- Research team overly focused on a particular technology
- Matching industry priorities with available research interests
- Cost-share commitments on proposals

What's Next for Specific Industries?

- Both IOF-WV and NAISTD depend upon having specific industries!
- Things are changing rapidly – keeping up with the next generation of industrial technologies and training needs
- Organizations do more with fewer workers – retraining?
- Retirements, restructuring, and relocation – a permanent loss of the “accumulated” manufacturing knowledge?