



Governor's Energy Summit

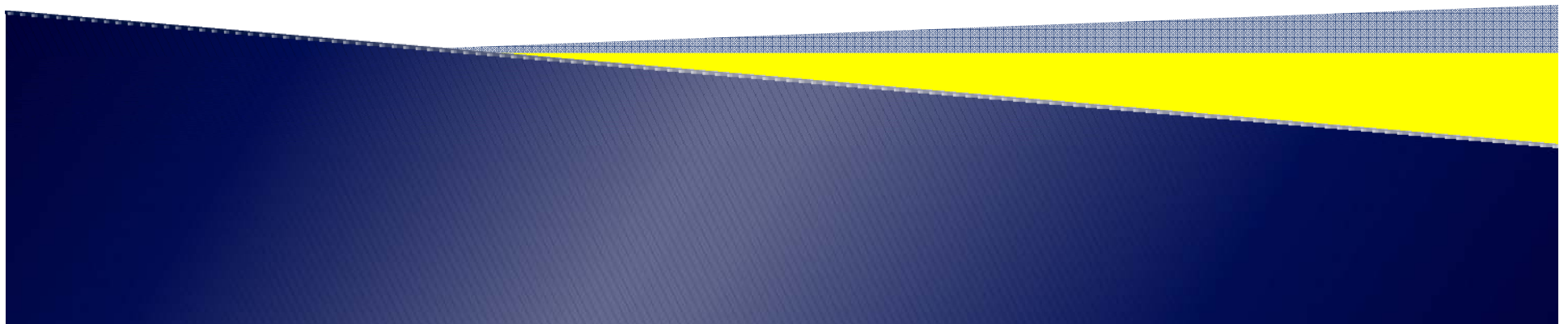
West Virginia: Maintaining Energy Leadership

Tuesday, December 7, 2010

Industries of the Future – West Virginia (IOF–WV)

Carl Irwin

WVU National Research Center for Coal & Energy



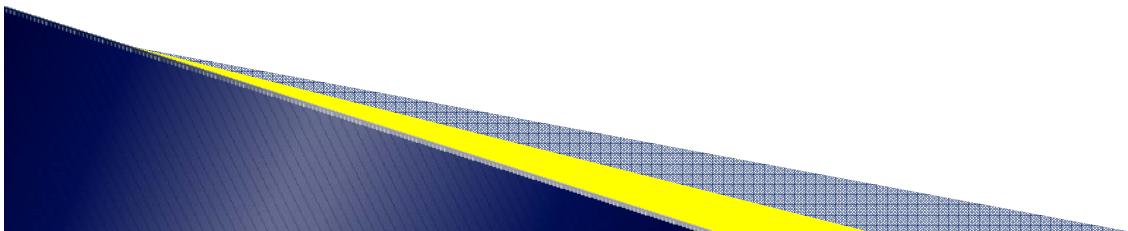
WV Industry Comparisons

Industry Sectors	Employment	GSP (\$M)
Primary Metals	6,121	\$ 481
Fabricated Metals	6,756	\$ 564
Stone, Clay, & Glass Products	3,555	\$ 285
Chemicals & Allied Products	10,092	\$ 1,990
Rubber & Plastics	3,758	\$ 321
Lumber & Wood Products	7,207	\$ 285
Total for Energy Intensive Sectors	37,489	\$ 3,926
Total for WV Manufacturing	58,967	\$ 5,880
Energy Intensive Sectors % of Total Manufacturing	64%	67%
Coal Mining	22,175	\$ 5,310
Natural Gas	11,865	\$ 667
State Totals	926,776	\$ 61,671

Source: U.S. DOC Bureau of Economic Analysis,
<http://www.bea.gov/>, 2008 data

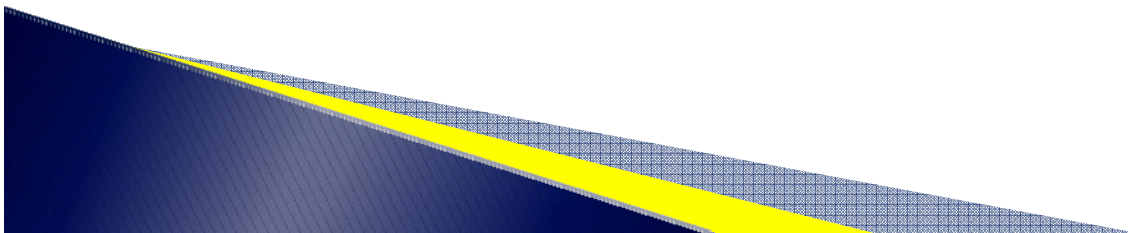
IOF-WV Industry Heroes

- ▶ Ric Love – Century Aluminum
- ▶ Beri Fox – Marble King
- ▶ Tim Duke – Steel of West Virginia
- ▶ Pat Minehardt – HK Engine Components
- ▶ Bill Glasscock – Laurel Creek Hardwoods
- ▶ Dotty Clayton – Quad Graphics
- ▶ Dick Nestor and Frank Mollica – Wheeling Nisshin



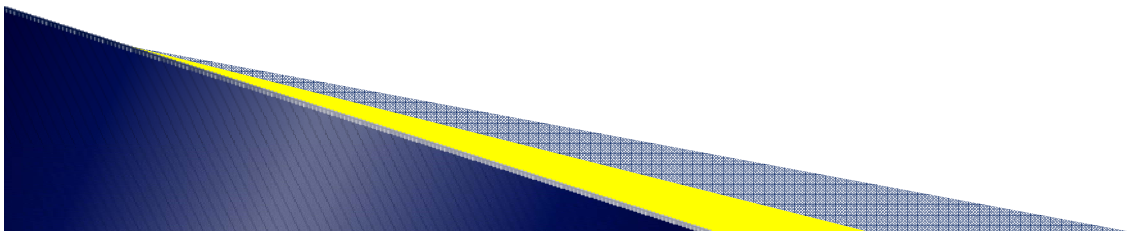
Some IOF–WV Activities

- ▶ Develop and write proposals
- ▶ Networking, Symposia, workshops, newsletters
- ▶ Conduct research projects, partnerships and cost sharing
- ▶ Energy efficiency and assessments



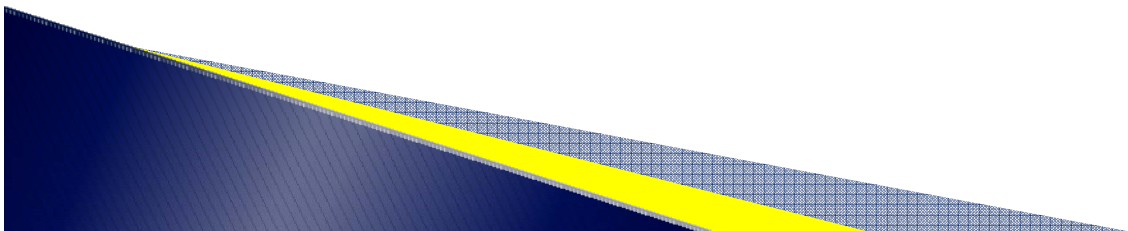
Energy Efficiency and Assessment

- ▶ Step #1 in reducing CO₂ emissions
- ▶ Closely allied with WVU IAC
- ▶ Credits for energy efficiency in WV Alternative and Renewable Energy Portfolio Standard
- ▶ Opportunities for manufacturing energy efficiency products, doing assessments, installations, energy management, etc.



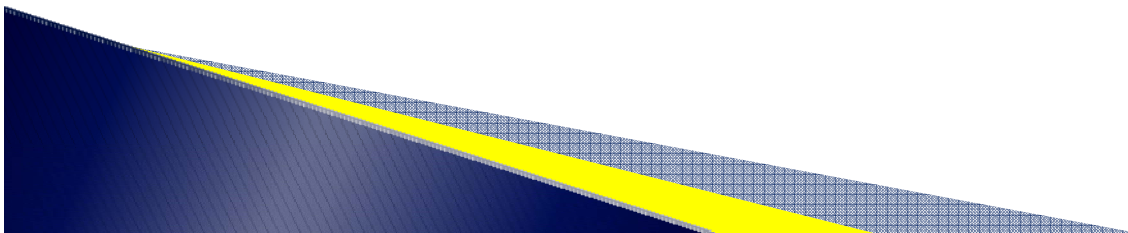
Project areas for West Virginia Leadership

- ▶ Energy Efficiency and Assessment
- ▶ Beneficial uses of CO₂
- ▶ Energy recycling
- ▶ Geothermal energy
- ▶ Co-firing



New Business Development Opportunities

- ▶ Opportunities for start up companies and projects
- ▶ Modeled after NREL “Industry Growth Forums”
- ▶ Focus on TransTech Energy Technologies



The Future of Energy, Coal, Carbon, Efficiency, Innovation, Jobs, and the Economy (see www.iofwv.nrcce.wvu.edu)

1. [*A Business Plan for America's Energy Future*](#), prepared by the American Energy Innovation Council
2. [*Investing in Energy*](#) – WSJ Report, Sept 13, 2010.
3. [*Dirty Coal, Clean Future*](#), the Atlantic (Monthly), December 2010, James Fallows.
4. [*Carbon Capture and Sequestration Deployment Act of 2010*](#), a bill introduced in the 111th Congress, 2nd Session by Senators Rockefeller and Voinovich.
5. [*The High Cost of Copenhagen*](#), Dec 3, 2010 WSJ article by Richard K. Lester, Professor and head, Department of Nuclear Engineering, MIT.
6. [*The Innovation Delusion*](#), March 1, 2010 Huffington Post, Ralph Gomory, Research Prof. NYU, Pres Emeritus, Alfred P. Sloan Foundation, Former IBM SVP for Science-Tech.
7. [*How to Change the Global Energy Conversation*](#), Nov 29, 2010, WSJ Article by Ted Nordhaus and Michael Shellenberger, founders, Breakthrough Institute.
8. [*A smart energy project at Alloy mustn't be lost*](#) – Secretary Chu needs to look at this one, Charleston Daily Mail, Nov. 12, 2010, An op-ed by Carl Irwin, WVU.
9. [*Technology and the Future of U.S. Competitiveness: Nightmares and Dreams*](#) – by Charles M. Vest, National Academy of Engineering 2010 Annual Meeting – President's Address.

