

Looking Forward Through the Eyes of Materials Manufacturers

NASEO Fall Meeting

September 11, 2012

R. Neal Elliott , Ph.D., P.E.

Associate Director for Research



American Council for an Energy-Efficient Economy (ACEEE)

- ACEEE is a nonprofit 501(c)(3) that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments & behaviors.
- 50 staff in DC, DE, MI, WA & WI
- Focus on end-use efficiency in industry, buildings, utilities & transportation
- Other research in economic analysis; behavior; national, state & local policy.
- Funding:
 - Foundation Grants (52%)
 - Contract Work & Gov. Grants (20%)
 - Conferences and Publications (20%)
 - Contributions and Other (8%)
- www.aceee.org



Outlook for North American Manufacturing



Mostly positive outlook:

- U.S. recovering faster than Europe & Japan
- Manufacturing has lead the overall economic economy—34 consecutive months of growth (until past 3) & substantial hiring
- Demand driven in part by increased exports

Some clouds on the horizon:

- Softening of U.S. & global economy
- European banking crisis
- Political challenges in U.S. & Europe—shift to austerity & political gridlock

Reshoring

“Sometime around 2015, manufacturers will be indifferent between locating in America or China for production for consumption in America,” Hal Sirkin of **BCG**



The Economist

BCG Reports that :

- Factory worker pay in China soared 69% between 2005 and 2010
- Labor is a small and diminishing fraction of total costs
- Complex supply chains turn out too risky & expensive
- Reshoring could cut U.S. merchandise trade deficit with rest of world ~\$100bn by 2020

Carlyle Group & others betting on U.S. Manufacturing

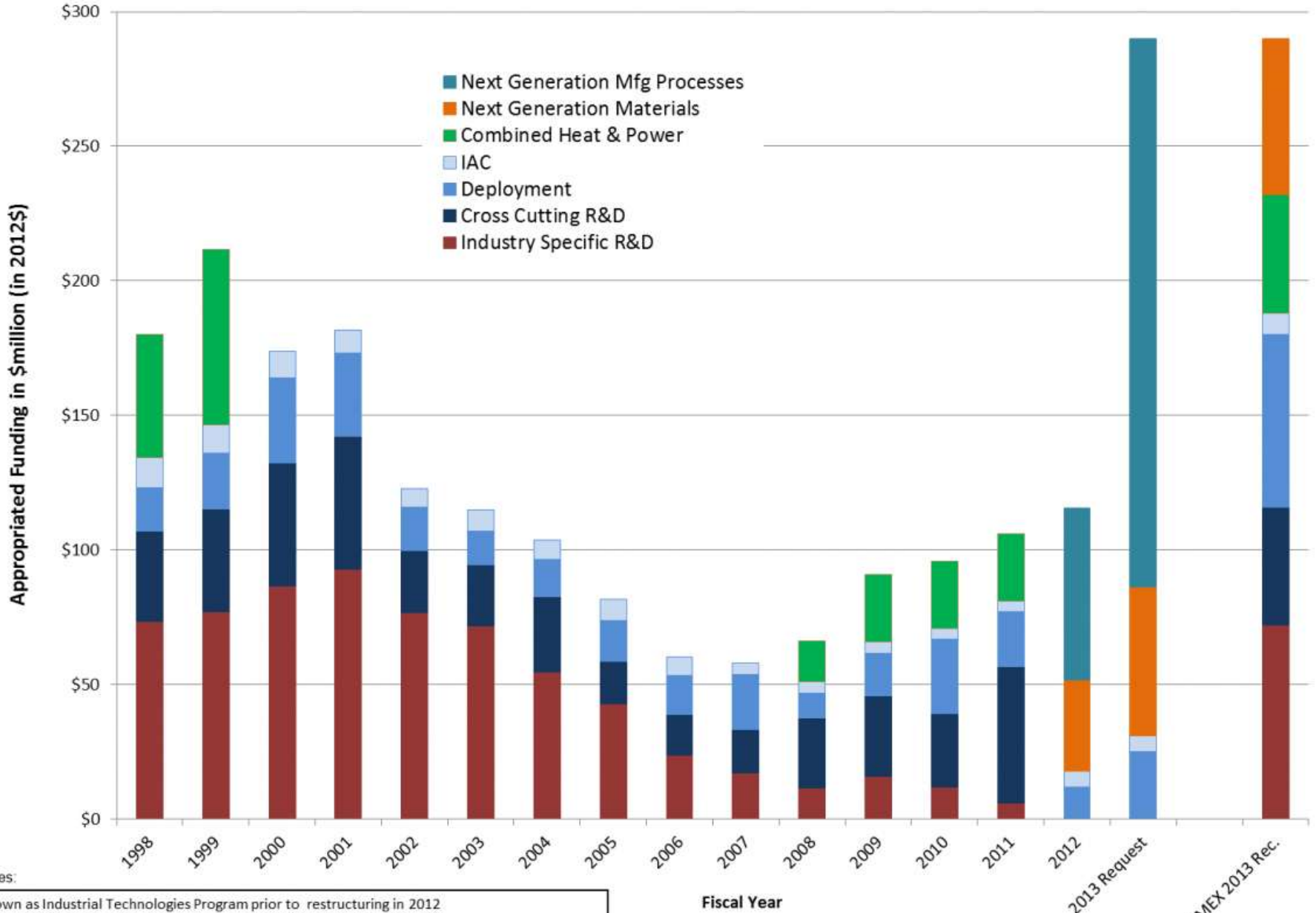
Factors Supporting Materials Manufacturing

- Low, plentiful natural gas for fuel, electricity & feedstocks
- Availability of trained workforce
- Advanced technologies & materials
- Culture of innovation

Importance of Research & Investment

- Competitiveness & efficiency linked to vintage of capacity
- Need new technologies in the pipeline for today AND tomorrow
- Key to success is application of technologies in specific industries
- DOE Industrial program was among most successful government funded programs—balance of near & long-term R&D with deployment tools

DOE Advanced Manufacturing Office Budget Requests and Appropriations



Notes:

- Known as Industrial Technologies Program prior to restructuring in 2012
- CHP activities were active under other programs from 2000 through 2007
- 2009 Recovery Act funds not included
- IAC is a subset of deployment; 2012 and later values are estimates

AMMEX 2013 Rec.

Leadership Shifting to States

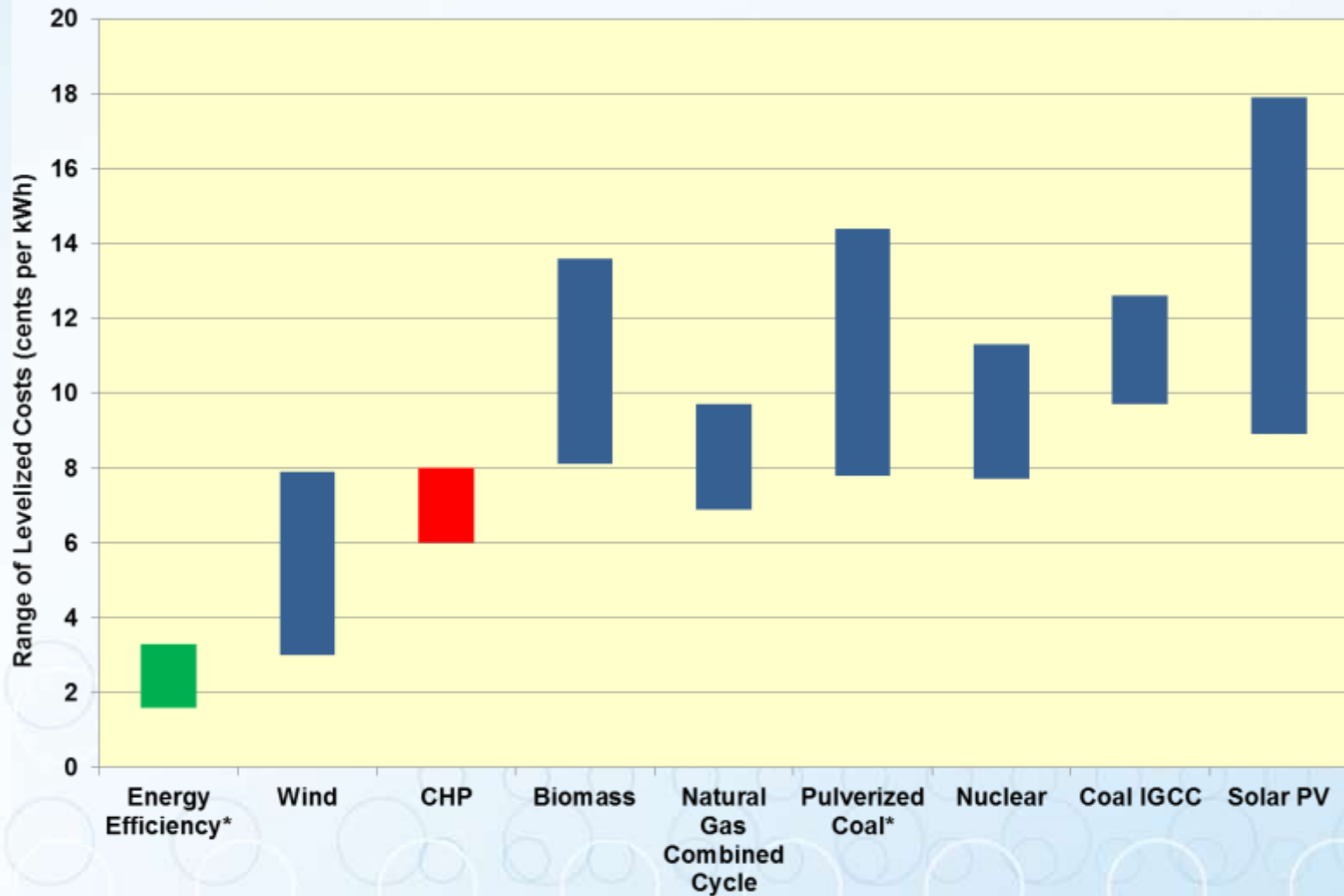
- Allows offerings to be targeted to local industries—enabling partnerships that leverage local resources
- Public benefit programs offer stable & growing funding base
- Industrial EE among least-cost resources—help keep energy affordable to ALL customers

2010 Industrial Program Spending

	Spending (rounded)	Percent (actual)
Federal	\$149,000,000	14.32%
State	\$75,000,000	7.22%
Utilities/PBF	\$776,000,000	74.66%
Other/Non-Prof	\$39,000,000	3.88%
Total	\$1,039,000,000	
ARRA	\$109,000,000	additional (2010 est.)

Source: ACEEE 2012

Utility Cost of Electric Resources



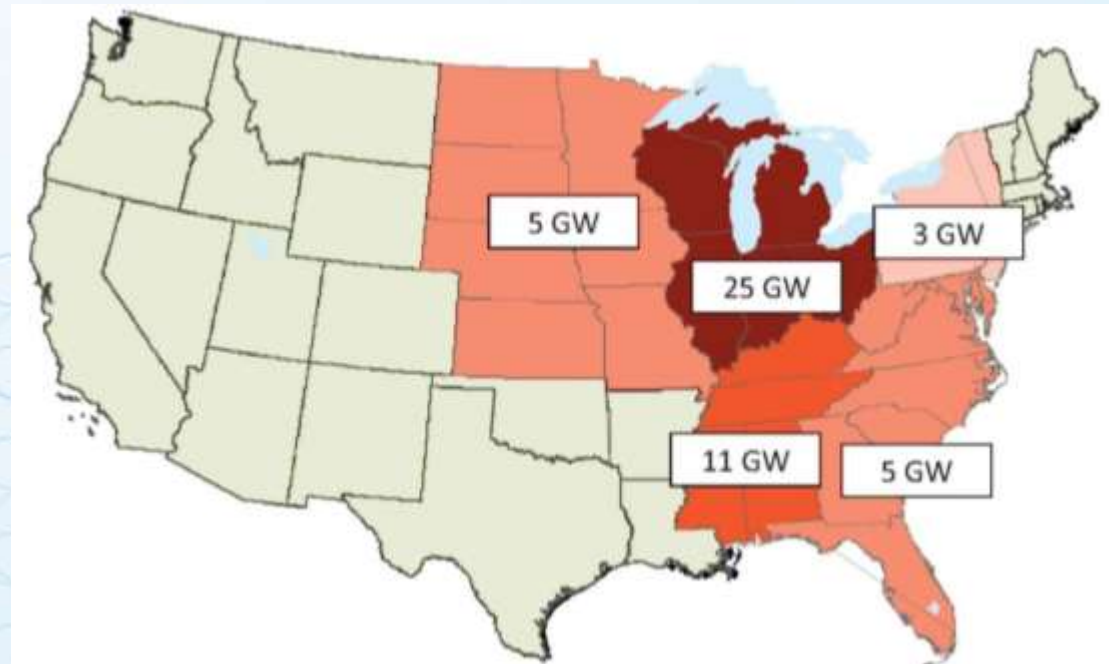
*Notes: Energy efficiency average program portfolio data from Friedrich et al. 2009 (ACEEE); CHP data ICFI (2009); All other data from Lazard 2011. High-end range of advanced pulverized coal includes 90% carbon capture and compression.

Future Trends

- Access to capital still a problem:
 - Loan Guarantees
 - Third Party Financing
- Alternative business model where industry & utility partner on EE & CHP investments
- Need for expertise never ends:
 - ISO 50001, Superior Energy Performance, Strategic Energy Management
 - Workforce Training
- State, utility & regional groups assuming a *clearing-house* role

IEE/CHP—A Response to “At Risk” Coal Generation

- ~40 GW in likely retirements due to economic considerations & environmental regulations
- Midwest & Southeast most heavily impacted
- Utility investments will increase industrial rates significantly
- IEE/CHP lower overall electric rate by reducing utility capital investments
- Investments modernize industry & reduce firms energy bills



White House Executive Order on Manufacturing Efficiency & CHP

- Promote investment in manufacturing
- Focus on states
- Coordinates & leverages federal resources to support state efforts
- Seeks to leverage utility capital & programs to support industrial modernization & investment in CHP

Conclusions

- U.S. becoming low-cost materials manufacturing country
- Manufacturing poised for modernization
- Non-conventional gas & oil key driver
- Program focus shifting to the states
- States need to assume leadership if opportunities are to be fully realized

Contact Information:

R. Neal Elliott, Ph.D., P.E.

ACEEE

rnelliott@aceee.org

202-507-4009

Visit us on the Web at: www.aceee.org

Follow us on Twitter at: [@ACEEEdc](https://twitter.com/ACEEEdc)

