U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Clean Energy Manufacturing Initiative

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President Obama's Manufacturing Focus

"The path towards sustainable energy sources will be long and sometimes difficult. But America cannot resist this transition; we must lead it. We cannot cede to other nations the technology that will power new jobs and new industries – we must claim its promise."

President Obama, Inaugural Address 2013

"If we want a robust growing economy, we need a robust manufacturing sector. … We cannot remain the world's engine of innovation without manufacturing activity."

President Obama

Presidential Manufacturing Strategy

Advanced Manufacturing Partnership

National Science & Technology Council

Advanced Manufacturing National Program Office

President Obama's Export Initiative & Trade Promotion

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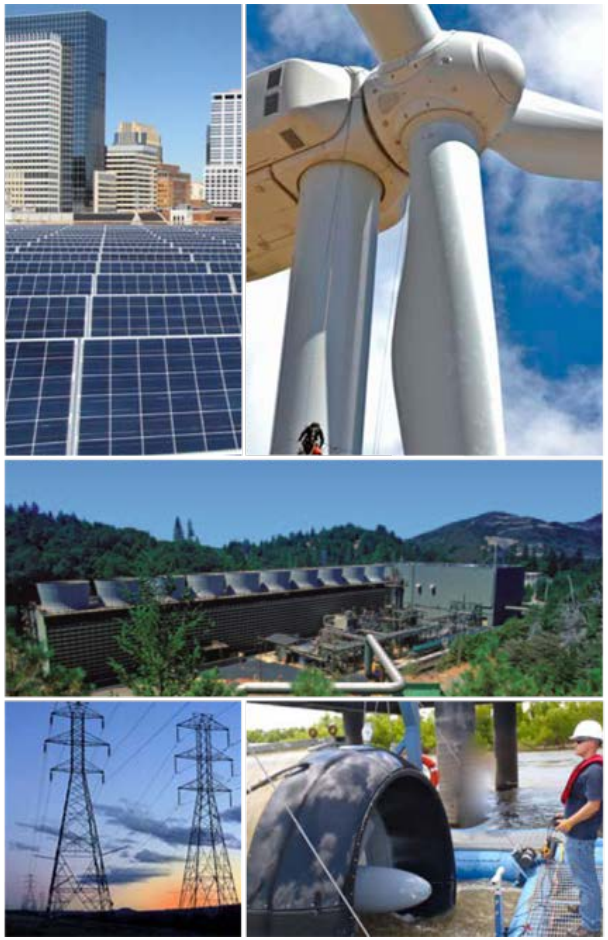
Sustainable
TRANSPORTATION

Renewable
ELECTRICITY GENERATION



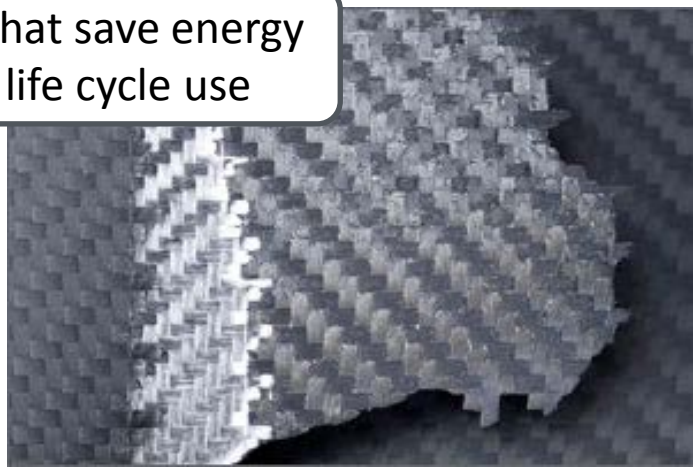
Energy Saving
HOMES, BUILDINGS, & MANUFACTURING

What is Clean Energy Manufacturing?

1. The production of clean energy products

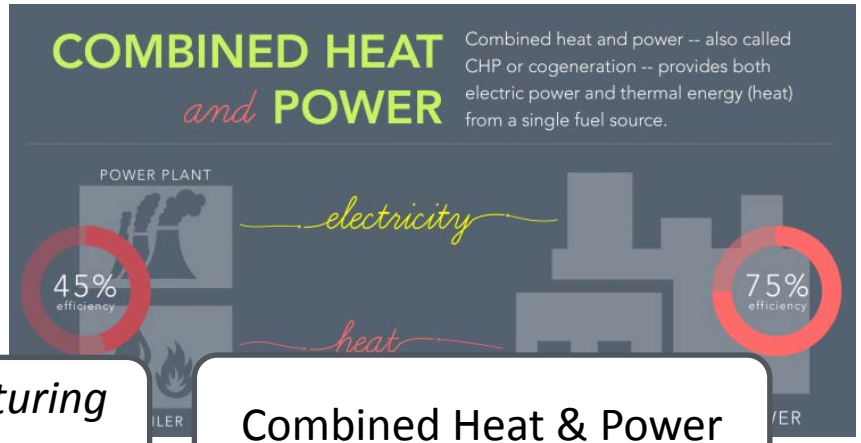
Products that generate clean energy

Products that save energy in their life cycle use

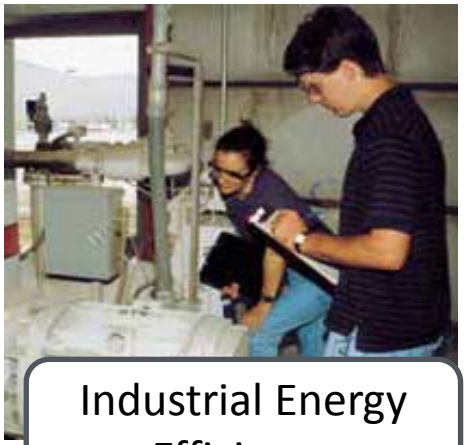


2. Increased energy productivity in the manufacturing sector

Advanced Manufacturing Technologies



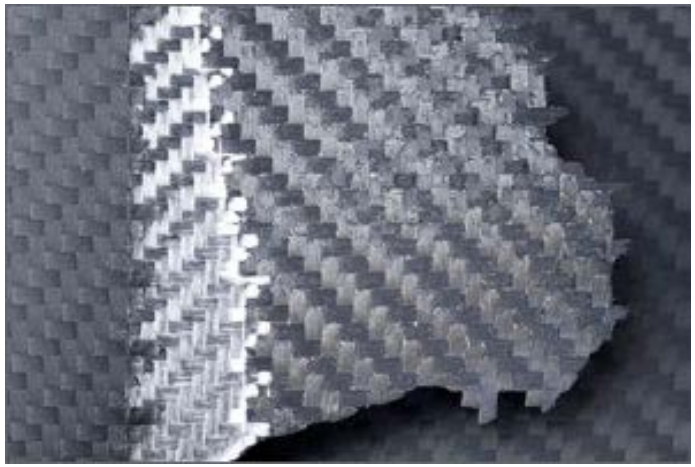
Combined Heat & Power



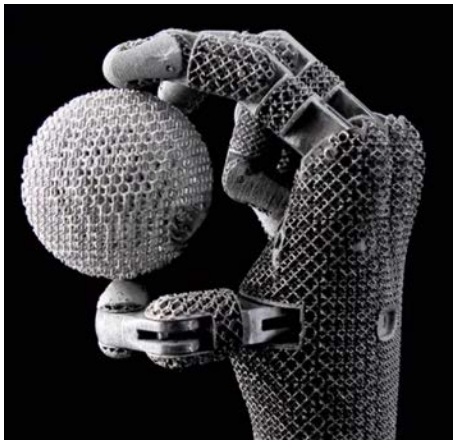
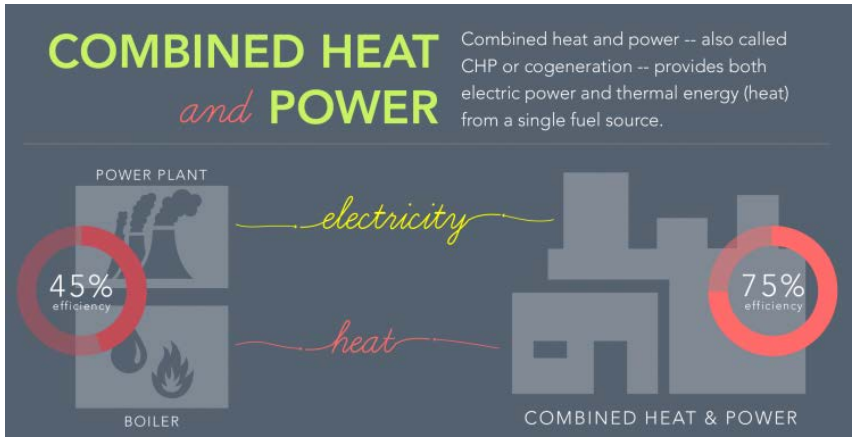
Industrial Energy Efficiency

Clean Energy Manufacturing *Initiative*

1. **Increase U.S. competiveness in the production of clean energy products**



2. **Increase U.S. manufacturing competitiveness across the board by increasing energy productivity**

Clean Energy Manufacturing Initiative

Announced March 26

Carbon Fiber Technology Facility, ORNL

Clean Energy Manufacturing Initiative

An increased commitment to manufacturing across EERE:

- Manufacturing R&D
- Facilities for manufacturing innovation & demonstration
- Energy productivity resources
- Competitiveness analysis
- Partnerships & engagement

Manufacturing R&D

- SolarMaT: $15M Solar Manufacturing R&D
  - 4/26: Proposals due

- Cross-cuttnig Innovative Manufacturing R&D
  - 3/26: $23.5M awarded

    University of Texas at Austin and partners: Smart Manufacturing Leadership Coalition – big data in manufacturing

    The Colorado School of Mines and partners: a room temperature forming process for automotive steel

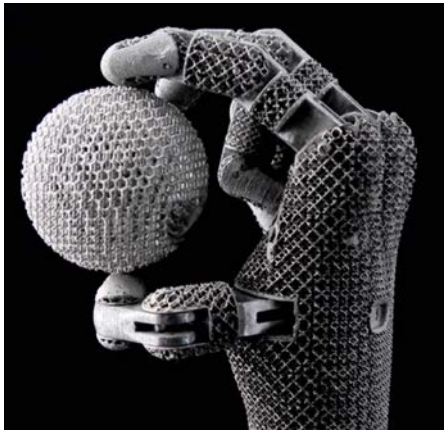
    Novomer and partners: conversion of waste CO2 and shale gas to high-value chemicals

    TIAX and partners: New scroll expander to turn waste heat into electricity

    Ford Motor Company and partners: Rapid, freeform sheet metal forming technology

Facilities

- ORNL Manufacturing Demonstration Facility:



- National Network for Manufacturing Innovation
  - National Additive Manufacturing Innovation Institute
  - Coming soon: New Institute

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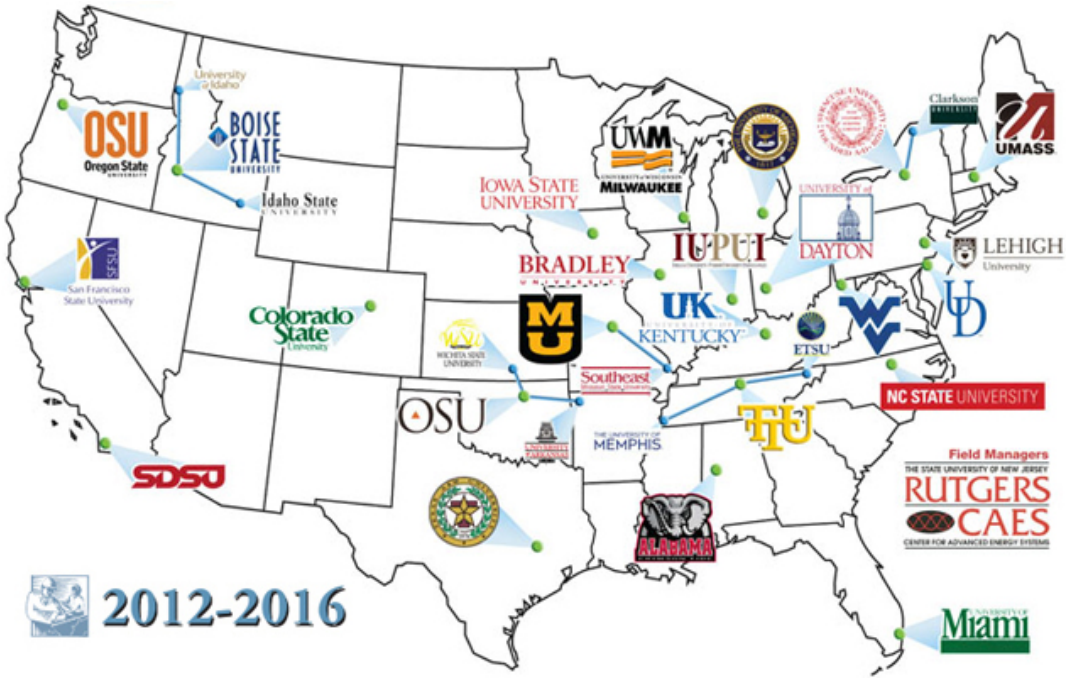
CEMI: Energy Productivity in the Manufacturing Sector

- New programs to beak down market barriers

Better Plants CHALLENGE
U.S. DEPARTMENT OF ENERGY

- Combined Heat & Power Technical Assistance Partnerships
- Industrial Assessment Centers



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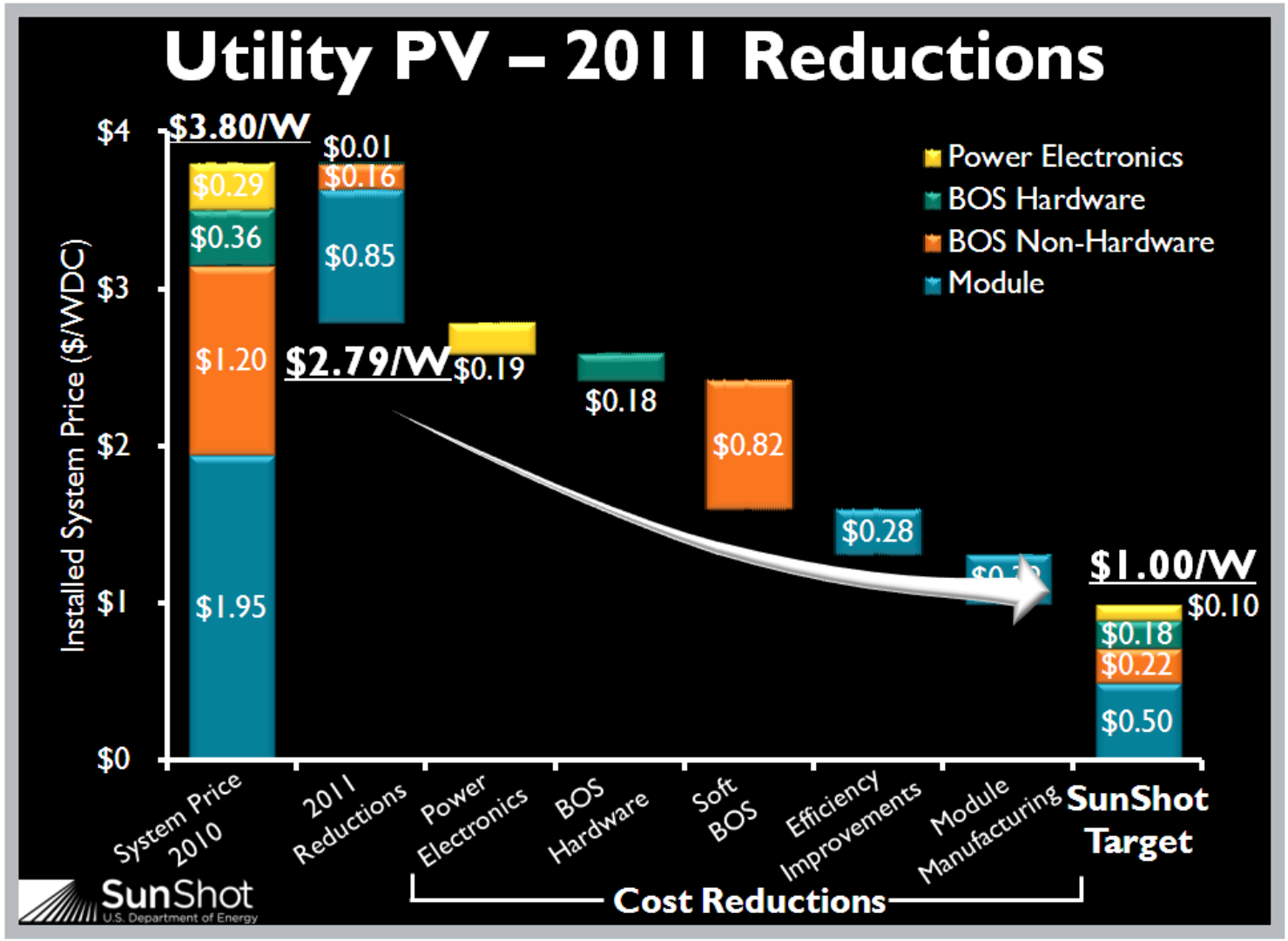
Competitiveness Analysis

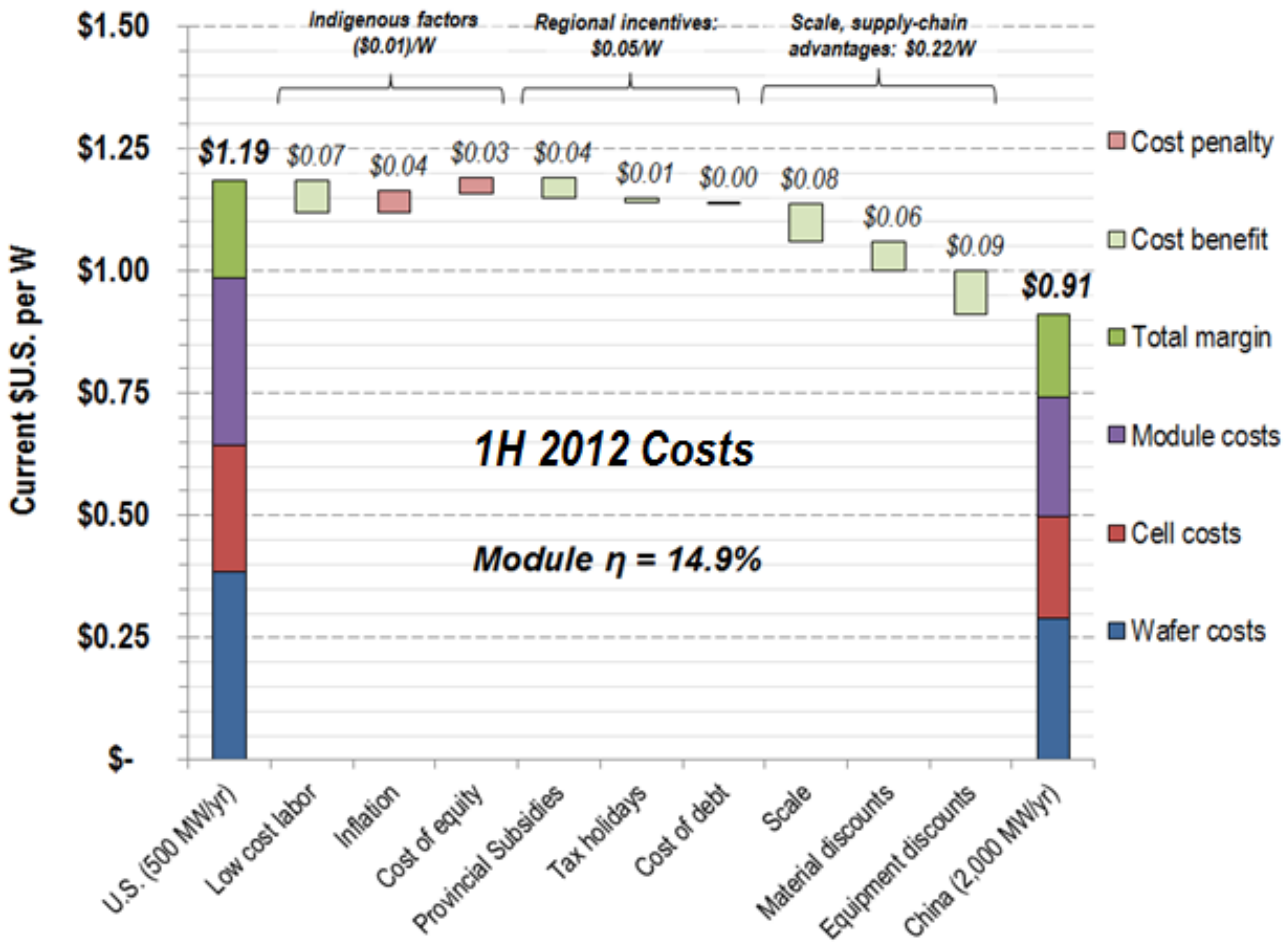
Current Technical Analysis



Source: SunShot Vision

Competitiveness Analysis

Silicon PV: Comparative Cost Assessment

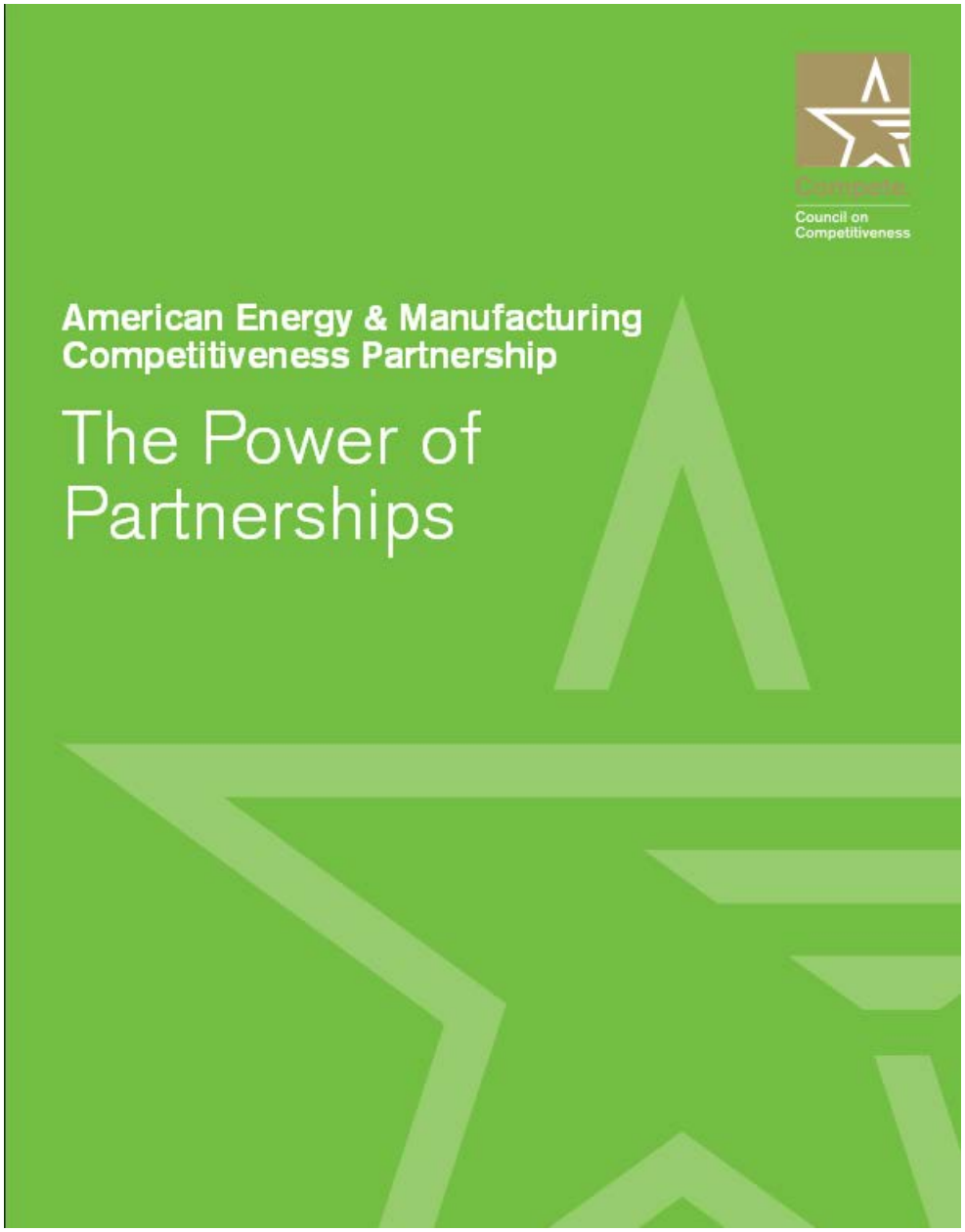


Source: Original Clean Energy Manufacturing Initiative – SunShot research

Goodrich, A.; Buonassisi, T.; Powell, D.; James, T. "Assessing the Drivers of Regional Trends in Solar Photovoltaic Manufacturing", E&ES (submitted), October 2012.

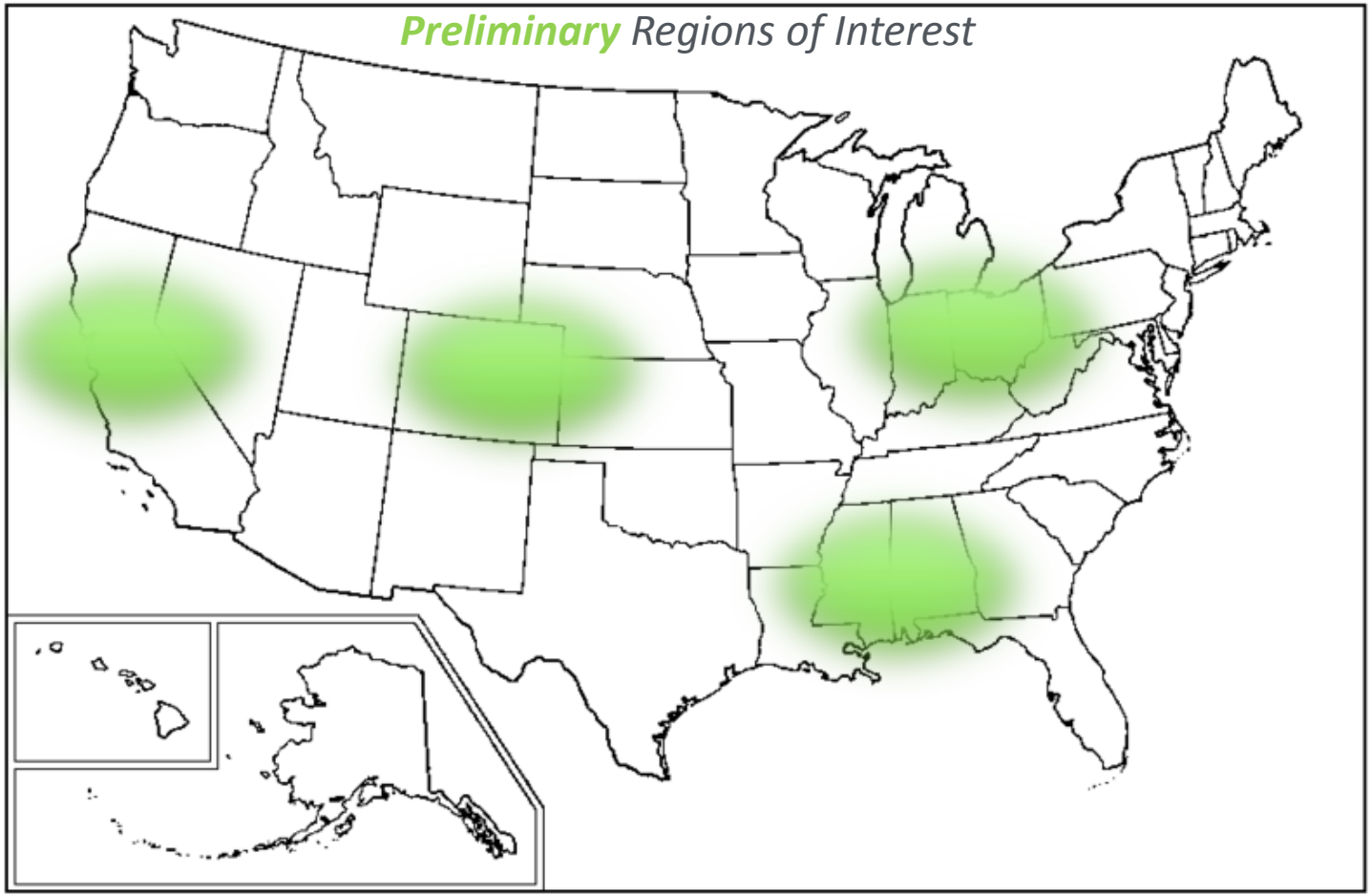
NREL chart using data from Mints, P.; Donnelly, J. (2011). "Photovoltaic Manufacturer Shipments, Capacity and Competitive Analysis 2010/2011." Report NPS-Supply 6, Navigant Solar Services Program. Palo Alto, CA.

Partnerships



CEMI: Regional Engagement: Input & Regional Models

Regional Summits



State & Metro Policy Analysis

Gather Input

Cluster Assessment

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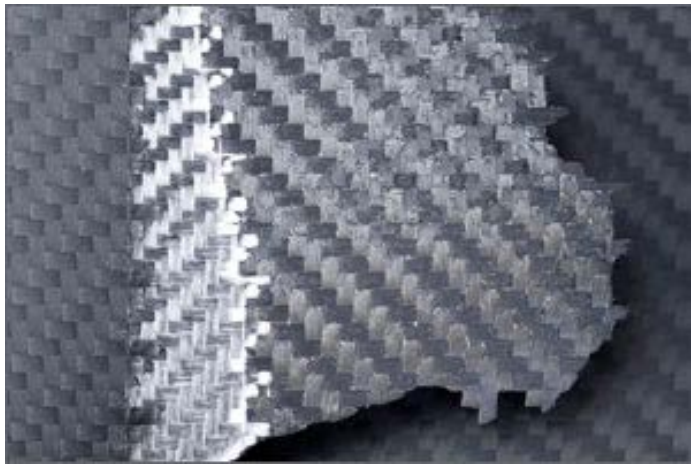

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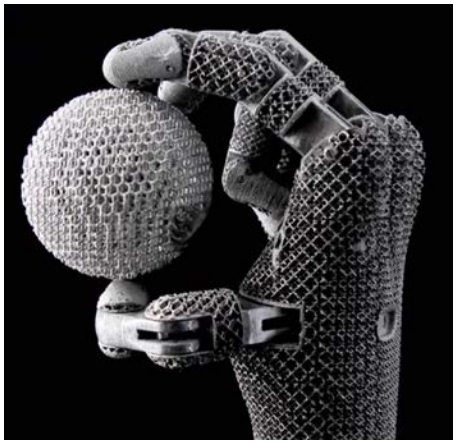

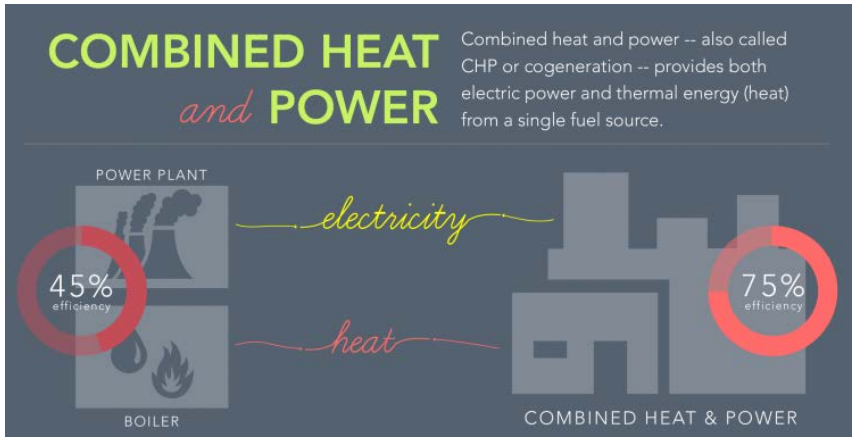

Discussion

- Competitive Analysis
  - Identify the quantitative factors that drive factory location decisions
  - Identify the qualitative factors that drive factory location decisions
  - Extract strategies to increase U.S. clean energy manufacturing competitiveness
- Competitiveness Drivers in Fuel Cells & Hydrogen Industry
- Critical R&D for US Competitiveness in the Hydrogen Industry
- Other critical support for US Competitiveness

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