



The Clean Energy Manufacturing Analysis Center (CEMAC)

Providing Analysis, Data, and Insights on Global Clean Energy Technology Manufacturing

The U.S. Department of Energy's (DOE's) Clean Energy Manufacturing Analysis Center (CEMAC) provides objective analysis and up-to-date data on global supply chains and manufacturing of clean energy technologies. Policymakers and industry leaders seek CEMAC insights to inform choices to promote economic growth and the transition to a clean energy economy.

CEMAC delivers analysis, benchmarking, and insights of supply chains and manufacturing for clean energy technologies that can inform decisions to promote economic growth and competitiveness. To do this, CEMAC develops innovative models, data, tools, and high-impact publications, and harnesses the first-rate talent of the Department of Energy's national laboratory network, in partnership with industry, universities, and research affiliates.

Methodology and Analysis

CEMAC applies a consistent methodology to investigate the factors affecting manufacturing location decision and the impacts on the U.S. and global economy of expansions in clean energy technology deployment. Our work encompasses:

- **Clean energy innovation analysis**
Understanding the innovation dynamics of clean energy technologies to inform research investment decisions and the impacts of policy on technology deployment.

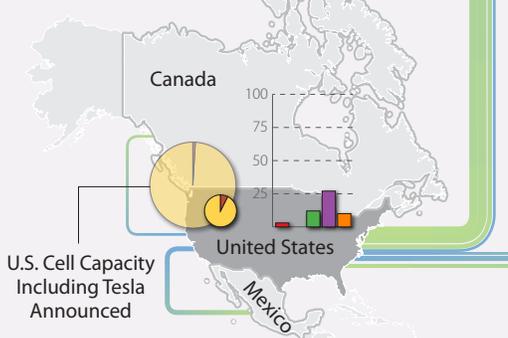
- **Comparative advantage market analysis**
Identifying the key global market drivers and opportunities within various markets.
- **Impacts on economic growth**
Shedding light on economic output related to clean energy deployment at the national, state, and community levels.
- **Cost analysis**
Examining global regional costs of manufacturing as a function of factors such as labor costs, energy costs, access to capital.
- **Supply constraints analysis**
Understanding rare material constraints and how they could affect deployment and manufacturing strategy for clean energy technologies.
- **Workforce development analysis**
Examining specific workforce skills, training, and experience necessary to support large-scale deployment of clean energy technologies.

Work with CEMAC

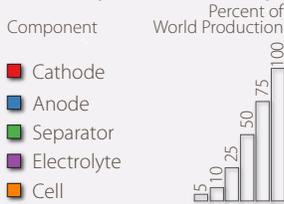
CEMAC's talent and core capabilities translate into meaningful analysis and insights to benefit decision makers, clean energy industry executives, and policymakers. Sponsors provide institutional and programmatic support, from which they gain valuable insights on the global supply chain and manufacturing opportunities for clean energy technologies. To find out how the Clean Energy Manufacturing Analysis Center's team can help inform the answer to your question, or to partner with CEMAC on a research project, contact us at cemac.coordinator@manufacturingcleanenergy.org.

Clean energy technologies are those that produce energy with fewer environmental impacts than conventional technologies, or enable existing technologies to operate more efficiently, consuming fewer natural resources to deliver energy services.

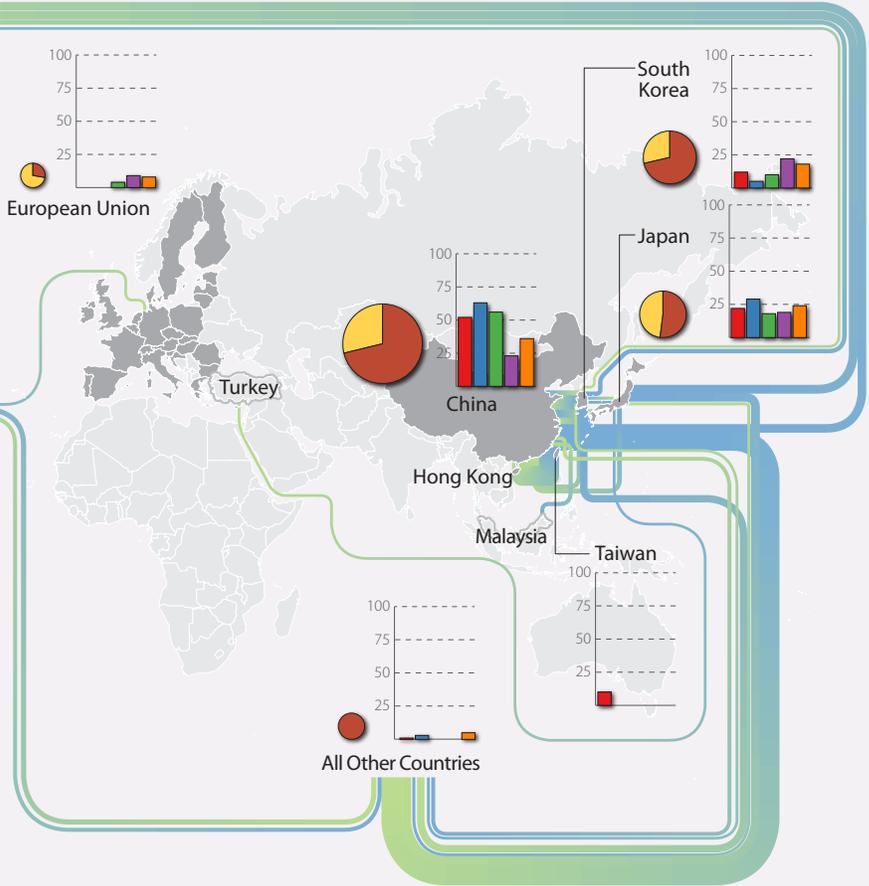
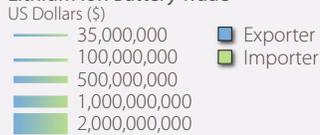
LIB Cell Capacities by Application



Global LIB Component and Cell Capacities



Lithium Ion Battery Trade



Providing Insights Into Manufacturing’s Role in the Clean Energy Economy

In *Automotive Lithium-ion Battery Supply Chain and U.S. Competitiveness Considerations*, CEMAC shows how, with increasing demand for electric and hybrid electric vehicles and with lithium-ion battery (LIB) producers locating in close proximity to automotive manufacturers, the United States has the opportunity to competitively manufacture automotive LIBs. As companies invest in U.S.-based automotive LIB manufacturing, the United States has potential to be a leader in the global automotive LIB market, which is expected to grow from \$9 billion in 2014 to \$14.3 billion by 2020.

CEMAC’s analysis takes a comprehensive look at the supply chain and global trade of LIB components. It highlights how the United States already has a foothold in global automotive LIB production, with U.S.-based manufacturers comprising 17% of global production capacity. This analysis provides the Department of Energy, industry, and policymakers with an objective look at the factors affecting manufacturing location decisions and contributes strategic information that can be used to inform future clean energy manufacturing research and development efforts.

Learn More: <http://www.nrel.gov/docs/fy15osti/63354.pdf>

“CEMAC examines clean energy industry trends; cost, price, and performance trends; market and policy drivers; and the future outlook for these technologies. My hope is that as we add manufacturing analysis to our way of thinking, CEMAC can provide insights to help DOE program offices and our other sponsors allocate their research and development funds in such a way as to increase the likelihood that clean energy technologies developed in the United States will be manufactured in the United States.”

– Margaret Mann
CEMAC Technical Director

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