

GAO Highlights

Highlights of [GAO-16-669](#), a report to the Chairman, Subcommittee on Europe, Eurasia, and Emerging Threats, Committee on Foreign Affairs, House of Representatives

Why GAO Did This Study

The United States and China lead the world in energy consumption, and both are investing in renewable resources and efforts to increase the efficiency of traditional fossil fuel sources in part to address climate change. In 2014, a congressional commission raised questions about bilateral cooperation between the United States and China on clean energy, including potential IP risks to U.S. participants involved in collaborative research projects.

GAO was asked to review government-led U.S.-China collaborative initiatives on clean energy. This report examines (1) how much funding U.S. agencies obligated for clean energy cooperation with China, (2) what is known about the results of key programs and the extent to which they follow leading practices in performance monitoring, and (3) the extent to which DOE managed risks that CERC participants may face. GAO analyzed funding data, reviewed documents and compiled reported results, interviewed agency officials and participants of key programs, and conducted site visits.

What GAO Recommends

GAO is making four recommendations to enhance performance monitoring, including that DOE, USTDA, and State each develop targets for program-level performance and track progress against them for the key programs GAO reviewed. The agencies agreed with GAO's recommendations and plan to take actions to address them.

View [GAO-16-669](#). For more information, contact Kimberly Gianopoulos at (202) 512-8612 or gianopoulosk@gao.gov, or John Neumann at (202) 512-3841 or neumannj@gao.gov.

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U.S.-CHINA COOPERATION

Bilateral Clean Energy Programs Show Some Results but Should Enhance Their Performance Monitoring

What GAO Found

In fiscal years 2008–2015, U.S. agencies obligated a total of about \$97 million for clean energy cooperation with China. Two-thirds of this money was obligated for three key programs (projects of which are depicted from left to right below):

- a Department of Energy (DOE) program, the U.S.-China Clean Energy Research Center (CERC), that has focused on research and development in clean coal, clean vehicles, and energy efficiency in buildings;
- a U.S. Trade and Development Agency (USTDA) program focused on export promotion through projects such as feasibility studies and trade missions; and
- a Department of State (State) program that includes information sharing and technology demonstration projects across various clean energy technologies.

Examples of Projects under Key U.S.-China Clean Energy Cooperation Programs



Sources (and project descriptions from left to right): (1) Department of Energy (clean coal project), (2) Koeppen and Elliott Associates (U.S. Trade and Development Agency trade mission to promote U.S. energy efficiency products), and (3) ©Advanced Power and Energy Program at the University of California, Irvine (Department of State grid modernization project to utilize solar energy). | GAO-16-669

The key programs have yielded some results and have performance monitoring tools but generally lack targets for their performance, making the significance of their progress unclear. Examples of the programs' results include: for CERC, as of the end of 2015, the launch of 15 products, such as software for enhancing energy efficiency of buildings; and for the USTDA program, through fiscal year 2015, about \$230 million in U.S. exports from its clean energy projects. Based on performance monitoring principles in the GPRA Modernization Act of 2010, it is a leading practice for federal programs to link goals to performance measures with established targets. Without targets, it is unclear how results compare with intended performance and what improvements may be needed; this is particularly important as DOE and State officials are planning the next phases of their programs and USTDA emphasizes the role of data in program decisions.

DOE identified intellectual property (IP) risks CERC participants may face, such as participants not having a clear plan for protecting IP, and took steps to manage them. These steps included requiring agreements clarifying IP rights and providing training, in part to encourage participants to share IP created outside of CERC projects. DOE officials said this IP sharing is important for valuable research and development collaboration. CERC participants GAO spoke with reported no significant issues with DOE's management of IP risks but, nonetheless, have been reluctant to share IP. DOE officials acknowledged that participants face a tradeoff between the risks and benefits of sharing IP with Chinese participants and that it is appropriate for companies to assess risks for themselves.