

**Committee on Energy & Natural Resources
United States Senate**

"Clean Energy Development Administration"

**Testimony of Christopher Guith
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U.S. Chamber of Commerce**

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Thank you, Chairman Bingaman, Ranking Member Murkowski, and members of the Committee. I am Christopher Guith, vice president for policy of the Institute for 21st Century Energy (Institute), an affiliate of the U.S. Chamber of Commerce. The U.S. Chamber of Commerce is the world's largest business federation, representing the interests of more than three million businesses and organizations of every size, sector and region.

The mission of the Institute is to unify policymakers, regulators, business leaders, and the American public behind common sense energy strategy to help keep America secure, prosperous, and clean. In that regard we hope to be of service to this Committee, this Congress as a whole, and the Administration.

The Deployment Hurdle

In 2008, the Energy Institute issued its foundational policy document, *Blueprint for Securing America's Energy Future*, where we laid out the structure of a truly comprehensive energy policy, from increasing the efficient production and use of energy to expanding access to the America's energy resources like oil, natural gas, and coal, to ensuring we are producing the necessary engineers, scientists, and skilled workers not only to design and to build the infrastructure of tomorrow, but also to maintain our existing energy infrastructure. We made nearly 90 actionable and substantive recommendations that if adopted, would secure our energy future.

One of the central themes of our *Blueprint* is technology deployment. Irrespective of regulatory regimes we decide to impose in the future, it is clear that the development and deployment of newer, more efficient, and cleaner energy technologies will be needed to secure our energy future. We often hear calls for a "Manhattan" or an "Apollo" project to answer our energy prayers, but I would respectfully argue that these proposals miss the mark because they do not address the structural issues that hamper the deployment of any new energy technology.

The United States does not want for energy technology development. Nearly every technology in use, or even discussed, today owes its invention, discovery, or improvement to America's industry, National Laboratories, and academic institutions. While we absolutely need to maintain a commitment to robust research and development and encourage novel approaches like Advanced Research Project Agency – Energy (ARPA-E), it is the initial deployment of new technologies that is the biggest barrier to their commercialization.

Unconstrained, markets operate in a risk-reward paradigm—the higher the potential risk, the higher the potential reward—and generally fall on the risk averse side when considering the deployment of new technologies, especially in the energy industry. Clean energy technologies face multiple structural inefficiencies in financial markets, inefficiencies that limit their ability to deliver the desired benefits of energy security, environmental quality, and economic development.

These inefficiencies include: financing bottlenecks along the technology development pipeline; the inability of the market to fully account for societal costs, and benefits; and a current infrastructure optimized for traditional energy sources. Over the past six years, the federal government has authorized an array of policy tools to overcome these structural inefficiencies and accelerate clean energy deployment, but the slow pace, and sometimes intransigence, of the federal bureaucracy limits the impact of those existing policies.

A quasi-governmental agency like the Clean Energy Development Administration (CEDA), as included in the American Clean Energy and Leadership Act of 2009 (ACELA), could provide the flexible financial risk management tools currently employed to advance other long-term goals (*e.g.* exports at the Export-Import Bank and emerging market investment at the Overseas Private Investment Corporation) to our capital-intensive clean energy goals. This is why we supported CEDA in 2009 and continue to support it today.

I realize that there have been various versions of clean or green energy bank proposals considered. Often, they are intended to help any and all “clean” technologies, or sometimes just a select few. Mr. Chairman, this Committee's version of CEDA from ACELA is elegantly tailored to address the primary problem of commercializing technologies because of their newness and inherent technological risk, while doing it in a technology-neutral fashion. I must be clear, the label “clean energy” is not reserved solely for renewables, but must be accurately applied to any and all new technologies and processes that reduce environmental impact, whether it be clean coal, advanced biofuels, natural gas vehicles, advanced nuclear, or energy storage to name a few.

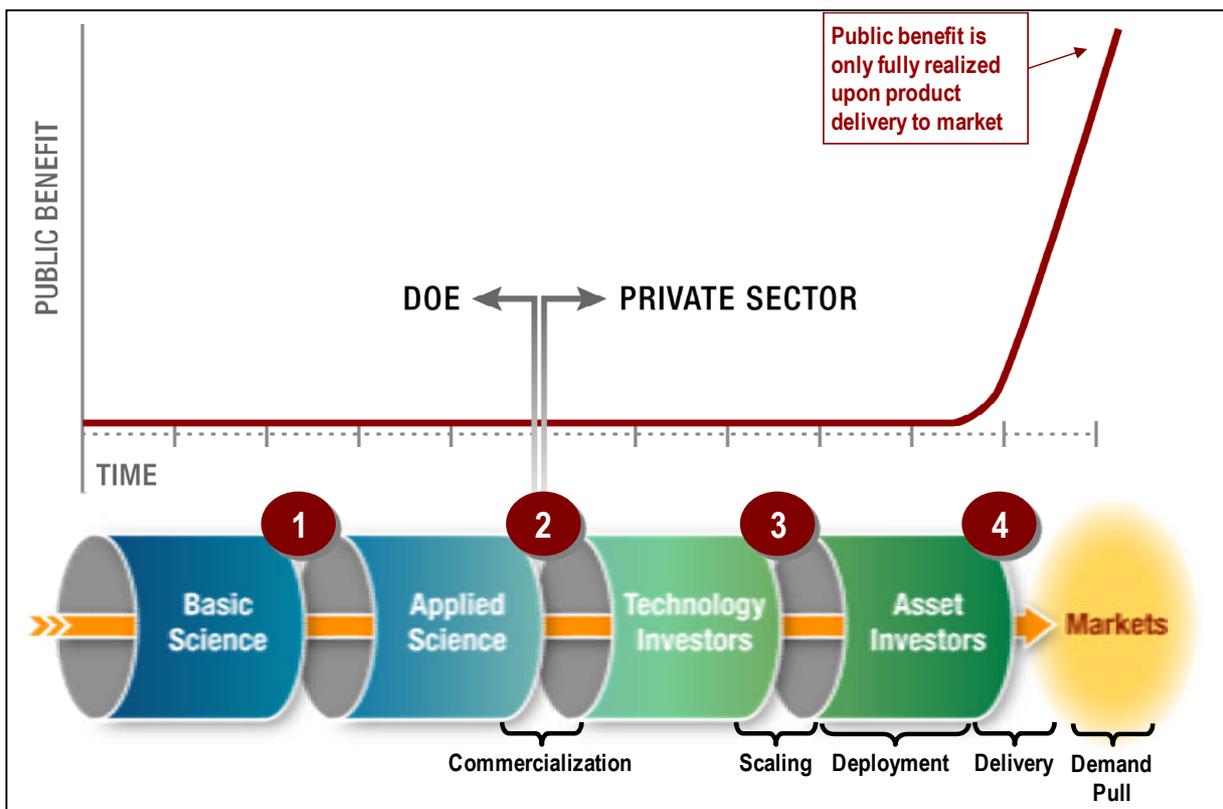
The ability to acquire financing is not the only hurdle to clean energy deployment. Our existing siting process has proven to be an absolute obstacle for dozens of clean energy projects. Without substantive reform to the current National Environmental Policy Act (NEPA) process, clean energy deployment will not reach its potential. The same applies to the siting of necessary

infrastructure to support greater deployment (and cost reduction) of clean energy, such as interstate transmission siting.

It is also important to point out that much has changed since ACELA was reported out of this committee. The country's debt and deficit have grown to damaging and unsustainable levels. We would encourage a broader discussion of how to capitalize CEDA reflecting our fiscal realities. A quicker infusion of private capital through federal bond offerings could reduce budgetary impacts. Additionally, CEDA must be structured to operate revenue-neutral and could be required to repay any initial capital infusion from tax-payers to the U.S. Treasury through successful operation.

Financing Bottlenecks

Limited access to capital is the primary impediment to the timely market penetration of clean energy infrastructure. While the price of clean energy has significantly declined over the past 30 years due to research and development investments, meeting national energy goals implies accelerated market penetration and greater capital investments in the raw materials of the concrete and steel necessary to build the infrastructure needed to generate power, produce alternative fuels, or manufacture batteries.



Source: U.S. Department of Energy

Before advancing national energy goals, an energy technology must evolve from a discovery, to a laboratory experiment, to a technology venture, and to an infrastructure development project. The private sector often struggles to overcome the unique challenges of transitioning between each stage. Incremental research and development funding improves the quantity and quality of technologies coming off the lab bench, but does not address the unique risks between a technology venture and a large-scale infrastructure project.

Project finance investors, who manage access to large volumes of low-cost capital, are risk-averse as they seek to protect and grow their investments. In general, investors will give small amounts of capital to risky projects in hopes of high returns, but offer large volumes of capital to lower risk opportunities in expectation of secure, predictable returns.

Multi-billion dollar energy projects face multiple risks, including engineering risks, construction risks, commodity risks, execution risks, resource risks, technology risks, permitting risks, and policy risks. While clean energy projects can mitigate a majority of these risks using normal project development processes, overcoming the technology hurdle will take years if left to business-as-usual market processes. Mitigating technology risk traditionally takes years of waiting for the empirical results of a pilot project, a demonstration facility, a semi-scale facility and then a full commercial scale project. This lengthy process has resulted in multiple technologies demonstrating promising laboratory results but failing to meet national energy goals because they never reached full commercial scale.

Before the recent financial crisis reversed the upward trajectory of clean energy investment, the market began to respond to the need for clean energy capital investment, with worldwide investment more than doubling in recent years. The baseline, however, is quite small, and unprecedented growth is required. *CEDA could offer tools aimed at catalyzing private market investment, and thereby accelerate the maturity and large scale delivery of clean energy.*

Undervalued Benefits

Clean energy possesses to various degrees and in various ways three societal benefits the free market has difficulty pricing: energy security, environmental quality, and economic development. Competitive markets efficiently deliver optimized results for the costs and benefits directly assumed by the buyer and seller. Competitive forces will yield optimized societal results if all of the costs and benefits of the transaction are solely assumed by the buyer and seller. If costs or benefits are imposed on or enjoyed by parties other than the buyer and seller, competitive forces will depart from the optimal societal outcome, as is the case in clean energy.

Energy Security Oil is not traded in a free market. The members of the Organization of Petroleum Exporting Countries (OPEC) control 67% of proven oil reserves and 40% of current production. The United States is 95% reliant on oil for transportation and consumes approximately 25% of the global oil supply on an annual basis. While the U.S. is the world's

third largest oil producer, our domestic production only covers approximately 40-50% of our demand. The remaining 60% we import largely from countries in the western hemisphere. But since petroleum from any country can be refined into gasoline, the price we pay is set by the world market's supply and demand balance.

Everything else being equal, the proliferation of free trade and oil market globalization has lowered the average price of petroleum and decreased the magnitude of volatility caused by domestic disruptions (e.g. Hurricane Katrina or Alaskan pipeline maintenance) but has increased the frequency of volatility as international disruptions now affect our markets. While these disruptions may be the result of natural causes, this inter-linkage exposes our energy, national, and economic security to terrorist acts on foreign oil assets and the intentional manipulation of the oil market by OPEC.

OPEC, a self-proclaimed international cartel, benefits from both the highs and lows of oil markets. They capture large profits during periods of high prices and capture market share during times of low prices as higher-cost producers leave the market (e.g. like we have seen recently in the U.S. biofuels industry). Anti-trust laws in the United States restrict anti-competitive collusion to protect free market forces, but national jurisdictional boundaries limit the tools available to counteract international collusion.

Recent developments in the oil and natural gas exploration and production provide a fitting example to how quickly and profoundly technology can change the landscape and improve our energy security. Commercial utilization of advanced seismology, hydraulic fracturing, and horizontal drilling have enabled the country to increase domestically produced oil for the first time in years. The potential for further increasing domestic production is tremendous as these new technologies are utilized at larger scales. One of the only limiting factors to this positive trend is access limitations.

Mitigating exposure to oil market volatility requires energy resource diversification and the availability of ready oil substitutes. While such mitigation presents strong benefits to society at-large, the downside risk of low prices impacts alternative energy producers. *Alternative energy reduces oil dependence and price volatility by harnessing domestic resources such as natural gas, electricity, advanced biofuels, and coal.*

Environmental Quality While reliable and affordable energy raises society's standard of living, methods of energy production often incur environmental costs not naturally priced by the free market, and these costs are not always integrated into the cost of energy production. The environmental costs of *clean energy technologies are in many cases lower than those of conventional energy sources.*

Economic Development Free market economics encourage producers to seek the lowest cost of production. Multi-national corporations often benefit from the cost savings of more favorable regulatory environments and lower cost labor in developing nations, but corporate accounting

does not allow them to capture the indirect benefits of the economic development in their home nation caused by local job creation. *The global goals for clean energy require substantial job creation in industries currently on the margins of the economy. Creating a more favorable regulatory environment and utilizing American labor will create domestic economic development by displacing imported products and creating new export industries.*

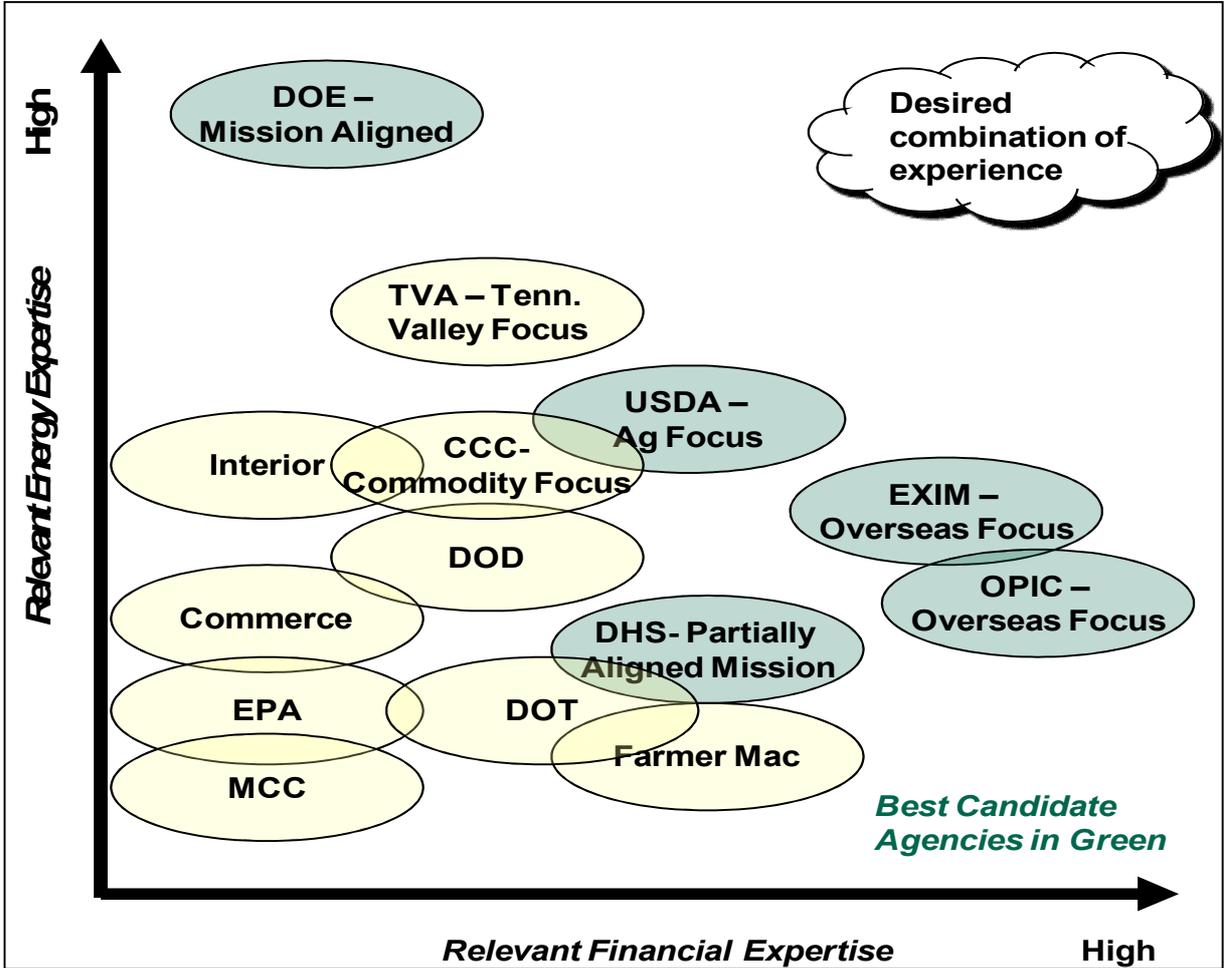
Overcoming incumbent infrastructure

Clean energy also faces an incumbent infrastructure specifically designed to maximize efficient production, delivery, and consumption of traditional energy. Historical U.S. energy policy primarily focused on delivering low-cost, reliable energy. To advance those goals we have built an infrastructure of pipelines, pumps, transmission lines, refineries and generating stations. Today, each new unit of fossil energy production and delivery is made dramatically cheaper by the trillions of dollars of infrastructure investment made decades ago.

While clean energy can leverage some of the existing infrastructure, most of the assets are geographically optimized to connect rich fossil regions and centralized generation stations with demand centers. Clean energy's distributed, intermittent, and often remote resource profile requires a different infrastructure design. While economically feasible in some markets, clean energy's infrastructure build out is slowed by the lengthy permitting processes. *The stable flow of capital to clean energy projects, enabled by CEDA, would encourage infrastructure developers to enter the lengthy permitting process by providing the expectation that clean energy projects will be financed and built.*

Restrictive federal agency management

The magnitude and complexity of the challenges associated with emerging energy technologies demands professional and dedicated financial risk management. While investment in clean energy technologies is wholly consistent with the mission of the Department of Energy (DOE), the cumbersome rules, leisurely pace, and bureaucratic intransigence of traditional federal agencies, especially the Office of Management and Budget, restrict the management flexibility and acquisition of skills necessary to manage financial risk intelligently and in a consequential timeframe. An independent, quasi-governmental agency, such as CEDA, would be able to more effectively administer energy financial services and would avoid the improbable task of reforming an existing Federal entity, such as DOE.



Source: U.S. Department of Energy

Existing quasi-governmental agencies possess sophisticated capital risk management expertise, and have established a strong track record of furthering national goals. Existing entities, however, would need substantial changes to their charters to accommodate the task of domestic energy investment and lack deep energy domain expertise. A new quasi-governmental agency modeled after successful examples, such as the Export-Import Bank and the Overseas Private Investment Corporation, could combine a domestic energy focus with the necessary management flexibility.

Given the potential energy security, environmental quality and economic development benefits potentially generated by clean energy, the government can play a unique role by supporting first-of-a-kind commercial scale facilities that mitigate technology risk for future project developments by providing an empirical reference case. Such support, though, must be done responsibly through intelligent, flexible and swift mechanisms absent in traditional federal

agencies. *CEDA could advance national energy goals by filling financing gaps with the professional risk management of financial products designed to support the scaling of clean energy projects.*

Conclusion

Clean energy possesses the societal benefits of energy security, environmental quality and economic development not easily captured by normal market forces. Independent, quasi-governmental agencies have furthered national priorities in the past and successfully carried out important roles that traditional federal agencies are not designed to fulfill. The urgency and scale of energy security, environmental quality, and job creation requires greater access to the federal policy portfolio to accelerate the clean energy investment necessary to meet our national energy goals. CEDA combines a domestic energy mission with sophisticated financial risk management skills to bring emerging clean energy technologies to the market significantly faster than would occur under current market conditions.