



**Statement of The Honorable Andy Karsner
Before the Committee on Energy and Natural Resources
U.S. Senate**

February 12, 2009

Mr. Chairman, Senator Murkowski, and Members of the Committee, it is a privilege to have the opportunity to appear before you this morning to discuss the critical need for rational federal government support for the deployment of clean energy technologies. As the former Assistant Secretary of Energy Efficiency and Renewable Energy at the Department of Energy, I had the honor of appearing before committee on numerous occasions and working closely with members and their staffs to craft meaningful bipartisan legislation. I am pleased and honored to be returning to testify on this important matter.

Since leaving government service, I have been named a Distinguished Fellow for the Council on Competitiveness. The Council is the only place where CEO's, labor leaders, National Laboratory directors, and university presidents are working together to ensure that Americans prosper in an increasingly challenging global economy. Because energy transformation is fundamental to the mission of economic development and competitiveness, the Council has launched an Energy Security, Innovation & Sustainability Initiative (ESISI) designed to enhance the business case for sustainable energy solutions, and ultimately harness market forces to transform our nation's energy production and use.

Mr. Chairman, the intent of this hearing is to examine the progress of DOE's loan guarantee program. I would venture a guess that the examination is not a lengthy one. Despite the need for a bridge between private capital and public priorities, despite the importance of accelerating market penetration for clean energy technologies, despite the clear emphasis that Congress has placed on loan guarantees, very little progress has been made since the Energy Policy Act was signed into law in almost four years ago. Not a penny of the more than \$42 billion in authority has been used. It is not my intent to name names, or to blame individuals. My former colleagues at DOE are dedicated public servants who have invested long hours and are sincerely committed to standing up this program. Rather, I believe that the painfully slow and unacceptable rate of progress on loan guarantees substantially reflects institutional barriers, organizational intransigence, and bureaucratic dysfunction. The present artificial and unfortunate barriers to

successfully administering the program in a predictable, transparent, objective, and timely manner, as Congress and this Committee had originally intended when it authored Title XVII into law, are a direct result of these deficiencies, but they are correctable. Accordingly, even as a new and important Energy Title begins to take shape this year and looks to create a Clean Energy Bank reporting to the Energy Secretary to succeed and supplant the present program, I would strongly encourage Congress to do what is necessary immediately to jump start the existing program and give Secretary Chu necessary tools that strengthen his hand in reforming the rules of implementation.

Such reform would immediately include eliminating the upfront fees and lifting the arbitrary deadlines of application submissions. A loan guarantee program that is conducted through random, discrete solicitations in no way correlates to the ongoing development of technology. Rather, the federal financing mechanisms for explicit policy purposes should be offered through an open window with rolling applications based upon available capacity to fund on a timely basis. The fees placed upon renewable energy projects are artificially high and unreasonable, and are unduly high hurdles that prevent the good projects from coming forward. The statute was elegantly written to allow either appropriations to cover credit subsidy costs or for applicants to self-pay the costs in relation to their project. Conventionally, were DOE operating in a user-friendly mode, seeking to encourage competition among a larger pool of applicants with greater interest in the energy industry, these fees would be collectible upon closing of the transactions and rolled into the project costs. The present method of asking applicants to pay exorbitant sums for the privilege of filing applications that empirically linger for years with no predictable pathway or timetable to closing is unacceptable at best and attracts the wrong applicants at worst.

In order for clean energy projects to be funded, constructed and successfully brought online in a timeframe that supports the President's stated goals, DOE will need new policy and expanded statutory tools to expedite siting, permitting and grid integration that is deemed to be in the national interest. Even if we are able to disburse financing from federal loan guarantees on a timely basis, we will likely fall short of our national objectives if we fail to substantially reform federal eminent domain authority and establish environmental review waivers over transmission and clean energy generating facilities that enable reductions in greenhouse gas emissions under the terms of the statute.

All of the efforts undertaken to accelerate the loan guarantee program may be rendered moot if we fail to comprehensively deal with the protracted and litigious siting and permitting obstacle course that undermines American competition in modernizing its national grid aspirations for a robust clean energy marketplace. The siting and permitting process for new, greenfield projects of any kind in the United States, and particularly for large scale clean energy projects, presently and unattractively inhibits the development process beyond norms seen anywhere in the world. DOE must be empowered to rectify, on an emergency basis, the obvious deficiencies that are barriers to disbursement of funds and new construction even as institutional and organizational changes enable the establishment of a Clean Energy Bank in parallel.

It is my view, having worked meticulously in support of every effort to successfully stand up and make effective the DOE Loan Guarantee Program, that this mission can only be solved by modernizing and reorienting the government's energy financing efforts to interact with private markets using successful quasi-governmental models already deployed by the federal government with great impact and positive effect. Tinkering around the edges and incremental reforms may only prolong the inevitable and ultimately risk politicizing the administration of such large volumes of capital, meant to be directed towards technology diffusion. I recognize that prioritizing the enablement of private sector investment is not necessarily the center of Congress' immediate focus, but as I have testified on many occasions, the fact remains that achieving transformational change in the way we solve our energy and environmental dilemmas will require the involvement of both the public and private sector, if we are going to attain our goals in the near-term.

Although no single technology solution exists to address our nation's energy security and environmental responsibilities, all elements of the solution share a common basis: increased market penetration, diffusion of clean energy technology, and accelerated, continuous and consistent capital formation.

While the private sector is the appropriate and most efficient means of delivering the solutions to the market at scale, only the government can play the indispensable role of availing the federal balance sheet and bridging market inefficiencies and imperfections. I believe that an independent, non-partisan, quasi-governmental entity, like a clean energy bank, should play an essential role of helping to achieve our national energy goals and fulfill the national security mission of DOE.

Mr. Chairman, in the last Congress, you introduced legislation to address this issue, and I applaud your strong bipartisan leadership, along with that of Sen. Murkowski, in identifying the need for systemic change and making it a priority for this Committee and Congress. As you know, this is a matter the Department of Energy fully embraced and sought to push forward in the course of the last Administration, though unfortunately we were unable to convince others in the interagency process of its urgency. I am hopeful that legislation establishing a new, nimble Clean Energy Bank will be enacted this year, with a broad grant of authority that allows clean energy financing transactions to take place as a regularized and routine course of business. Ideally, this would be an entity that is net-positive to the Treasury, or at least be self-sustaining.

In addition, I also want to thank of Senators Dorgan and Bennett, working to expand and enhance loan guarantees in the stimulus package. Despite the continued bureaucratic obstacles placed in front of the program, it undoubtedly remains one of the most cost-effective and immediate ways to stimulate domestic clean energy development. Their leadership on this matter, and many similar issues of paramount importance to our energy future, is deeply appreciated by the clean energy community and I look forward to continuing to support these efforts.

In September, the Council on Competitiveness explicitly endorsed the creation of a Clean Energy Bank to provide debt financing and drive private investment in the development of sustainable energy solutions and supporting infrastructure. The Council recommended that it be modeled on the U.S. Export-Import Bank and Overseas Private Investment Corporation, to provide long-term financing—including loan guarantees, lines of credit, equity investments and insurance—for the market deployment of breakthrough energy efficiency and clean energy products, technologies, services and projects that reduce, avoid or sequester carbon. This recommendation was part of the Council's 100-Day Energy Action plan, which I strongly endorse and would ask for its inclusion in the record. I should also note that then-Council Member, Secretary Steven Chu, was instrumental participant and leader in guiding the Council's recommendations.

Additionally, I have also been advising Securing America's Future Energy and its Energy Security Leadership Council—a distinguished group of business executives and national security leaders led by General P.X. Kelley (Ret.), 28th Commandant of the Marine Corps, and Frederick W. Smith, Chairman, President and CEO of FedEx Corporation—as they advocate a comprehensive solution to our nation's energy security challenges.

The Council's recommendations include a wide range of policies to fundamentally reform and expand both public and private research, development, and deployment. Included in those recommendations is the establishment of an Energy Technology Authority, or ETA, of the United States: a market-driven source of private financing and public-private partnering for the most promising energy technology innovations, similar to quasi-governmental investment organizations such as the Overseas Private Investment Corporation and U.S. Export-Import Bank. The ETA is fundamentally similar to the Clean Energy Investment Bank under discussion here today. It would possess the full backing of the United States government, but would be managed and organized like a private corporation. After an initial capitalization, the corporation would be self-sustaining, generating revenue through projects, interest, and fees, thereby minimizing future appropriations. The ETA's core mission would be to accelerate and scale capital formation for clean and renewable energy production and distribution.

I should also note that, while serving as Assistant Secretary, I met with many groups who are pursuing institutional reform of DOE's capacities to accelerate and scale the diffusion and immersion of clean energy technology. Prominently among these are the Center for American Progress, led by John Deutsch; the MIT Energy Task Force, led by Dr. Ernie Moniz and Melanie Kenderdine. It is notable that all of these individuals have served in senior appointed positions directly impacting energy technology. Given that at all these credible voices are all saying that a different structure for clean energy diffusion at scale is necessary, the time for action is here.

For the past 30 years, DOE has successfully decreased the price of clean energy through research and development, but these national energy goals inherently demand accelerated market penetration and significant capital formation and growth in a new and risky technology arena. Meeting these ambitious goals will require tremendous investment in emerging technologies. A Booz Allen Hamilton analysis concluded that approximately \$1.4 trillion of capital investment is needed through 2030 for clean energy to meet our goals. This is based on reaching pre-stimulus

government goals in the areas of electric generation, transmission, renewable fuels, and alternative fuel vehicles. The International Energy Agency estimates this number to be \$1.5 trillion, McKinsey Global Institute is \$1.1 billion, net of savings from efficiency, and American Society of Civil Engineers estimate is \$1.6 trillion. Some estimates indicate that achieving the President's stated objectives of doubling renewable energy in the next 36 months, \$134 billion of new capital investment will be required by 2011, and \$217 billion by 2012. No matter which estimate one uses, there's little argument that it will take an unprecedented amount of capital to address our national energy goals.

Additionally, while the need for clean energy investment is on the order of \$80 billion per year between now and 2030, 2007 the U.S. only saw \$15 billion in clean energy asset investment according to New Energy Finance. Clearly, a significant gap exists. These numbers underscore the need for every public dollar appropriated to have a multiplier of private investment.

Congress has sought to incentivize deployment of clean energy technologies through tax incentives, which is an important, but limited, lever to influence financial decisions. Tax incentives can only be used by entities with regular tax liability, reducing the number of players who can participate. Many financial institutions and utilities have limited capacity to use tax incentives. While tax policy continues to play an essential, if outsized, role in encouraging domestic clean energy development, a wholly different approach is needed to ensure that vital investments are made now, and in the coming months, to significantly accelerate the rate and scale of clean energy project development, enabling critical policy goals and the President's stated objectives to be met.

Of course, clean energy development may persist at the present growth rates in the United States in a business as usual scenario. The key issue for this Committee, and the Congress, is realizing the benefits of timeframe. How quickly does the United States want to build up and solidify clean energy development? How soon do we want those jobs and that manufacturing here, in America? How quickly do we want to start avoiding greenhouse gas emissions and changing the profile of energy generation in the U.S.? I believe the answer to those questions is: Now. We can not wait any longer, and we should avoid a paradigm in which investment happens only because the cost of energy is so exorbitantly high. We know that we, as a nation, want cleaner energy and the economic growth that comes with those new industries. The private sector is ready to invest, if those investments can be rationalized, replicated, and scaled. The Federal government can provide the vital bridge between public policy and private capital, if it is properly organized and empowered to conduct business in a substantially different way.

Real change only comes with systemic change. Our institutions, and DOE in particular, have a mid-20th Century Cold War posture -- all of its systems are focused on fighting the last war, overcoming the last energy crisis, and short-term firefighting, rather than a managed transition that develops domestic energy in a sustainable manner, while ensuring our national security. Our current energy institutions are not sufficiently agile or equipped with the capability to promulgate and deploy solutions at a pace or scale commensurate with magnitude of the challenges we face. This is true of energy security and it certainly true of economic development

and environmental mitigation. Let me underscore the point. The Department of Energy is inadequate in its present form to satisfy the mission of energy security for which we aspire for it to perform.

The proposal of a quasi-government agency focused on clean energy financing, rather than energy research and development, would be a transformational change – but not a novel one. Indeed, our government is already doing this. Before entering government service, as many of you know, I was an energy infrastructure developer in the private sector, specializing in emerging markets project finance. I can tell you, from personal experience, that if I wanted to build a renewable energy project using any of the technologies that emerged from my portfolio at DOE, the United States Government already has a basket of tools to assist me, and the taxpayer is already on the hook to extend the full faith and credit of the Treasury in support of my project. For example, it has been my experience that if I want government-backed loan guarantees, insurance, or even funding for feasibility and siting studies necessary to build a commercial scale clean energy project, I could do so through multiple institutions with a constantly open door across Washington – with one condition. I must build that project outside the borders of our country. Right now, the Federal balance sheet is available to support project development all over the world, but not within our own borders. I say that not to criticize the Export-Import Bank or the Overseas Private Development Corporation. Rather, those entities are models that demonstrate the opportunity to significantly alter the government's ability to accelerate the rate and scale of clean energy investment in the U.S., bringing those jobs and those benefits to our citizenry.

Traditional federal agencies, however, are not designed to effectively manage complex financial transactions involving such large sums of money, particularly on a fixed timetable. However, by reducing investment risk and lowering the cost of capital, the Federal Government can leverage private capital to multiply its impact and achieve our national goals. A clean energy quasi-governmental entity fills these gaps by offering professional risk management of debt and securitization products, and potentially a full suite of financial services, in support of a robust national energy policy based upon national security, environmental stewardship, and global economic competitiveness.

Our problems are not merely qualitative, they are quantitative, and we must establish credible metrics and milestones to heighten the probability of achieving our goals. The Administration's plans to double renewable energy, for example, are ambitious, but they are achievable, if we move with urgency in orienting the government's nexus with the private sector in a manner that can catalyze unprecedented, continuous, consistent capital formation. In order to understand the need for such a quasi-governmental entity focused on clean energy development, I'd like to discuss the unique obstacles that clean energy technologies face in securing private financing, as well as the particular role that a Clean Energy Bank could fulfill.

CLEAN ENERGY INVESTMENT CHALLENGES

Before achieving any impact on our national energy goals, an advanced energy technology must evolve from a laboratory experiment, to a technology venture, to an infrastructure development project. The transitions between these stages present unique challenges that the private sector often struggles to overcome. Incremental research and development funding improves the quantity and quality of technologies coming off the lab bench, but does not address the economic, political and technological risks between a technology venture and a large-scale infrastructure project.

On the positive side, however, free access to abundant sun, wind, hydro, biomass, and geothermal heat has a fundamental economic advantage over traditional energy sources. While clean energy assets currently cost more per unit of production capacity, the larger future profits realized by lower operating and production costs and zero exposure to fuel price volatility economically justify the investment if appropriate financing is readily available. On the security front, clean energy – with the exception of biofuels imports – is generated from domestic resources which reduces geopolitical leverage surrounding strategic energy commodities and shields the U.S. economy from the detrimental impact of global commodity price volatility and accumulating trade deficits.

Large-scale development of energy infrastructure of any type is a capital intensive business to begin with, requiring debt and stable or predictable cash flows. As indicated earlier, clean energy solutions bear significant risks unique to the infancy of the industry. Overcoming these risks is critical to access to the finance markets. Financial mechanisms are in place to accelerate research and development and project implementation for established technologies, but financing for commercialization of new technologies often falls short based upon risk perception. Many of these risks may be resolved by time, but the urgency of our energy challenges does not grant us the luxury to wait and see.

WHY A CLEAN ENERGY QUASI-GOVERNMENTAL ENTITY MAKES SENSE

Familiarity with the magnitude and complexity of the challenges associated with emerging energy technologies is needed to devise an appropriate investment strategy. While investment in clean energy technologies is wholly consistent with DOE's mission, the strictures of federal agencies inhibit the flexibility and acquisition of skills necessary to effectively manage the complex financial transactions involved in accelerating capital formation at such a large scale and in a consequential timeframe. An independent, quasi-governmental agency would be able to more effectively administer financial services, and would avoid the improbable task of reforming an existing Federal entity.

Existing quasi-governmental agencies possess sophisticated capital risk management expertise, and have established a strong track record for an entity of this type furthering national goals. However, existing administrative entities would need substantial changes to their charters to accommodate the task of domestic energy investment and lack the deep domain expertise for

managing energy security. A new quasi-governmental agency modeled after successful examples could combine a domestic energy focus with capital formation skills and investment flexibility allowing the Federal Government to work effectively with the financial community to develop profitable investment-grade projects that further U.S. energy goals.

POTENTIAL ROLES AND ACTIVITIES OF A CLEAN ENERGY QUASI-GOVERNMENTAL ENTITY

The venture capital community invests relatively small amounts of money (almost exclusively specialized in early stage equity) into companies in anticipation of where the market is headed. Private equity and capital markets (both equity and debt) investors fund much larger projects where the market is presently active. Through a Clean Energy Bank, the Federal Government would be able to accelerate the transition from venture capital funding to large-scale private and public equity by managing the early-stage and scale-up risks on a macro basis, and thus lowering the cost of capital. By seeking to catalyze investment rather than maximize profit on a micro basis, the entity could dramatically accelerate the market penetration of clean energy technologies.

A clean energy quasi-governmental entity could accomplish three main policy goals: 1) consistently, continuously and transparently accelerate and scale capital formation for clean, domestic energy projects; 2) provide management stability, flexibility, agility, expertise, and experience to ensure maximum efficiency and leveraging of taxpayer investments; and 3) rationalize the Federal portfolio by availing time tested tools to today's critical national need for clean energy.

To fulfill its capital formation role, such an entity would mitigate risks facing investors in the production and distribution of clean energy, and increase the amount and rate of private capital deployed in a time frame that is consequential to addressing climate change and our overdependence on foreign oil.

In the area of management agility and experience, the entity could provide the effective capital risk management – largely unavailable in Federal Agencies – necessary for rapid commercialization of clean energy technologies.

Finally, the entity's activities would rationalize the Federal portfolio by applying to clean energy development the policy priorities and tools presently used to support robust US exports, third world development goals and student loans.

A quasi-governmental entity could invest in the full breadth of clean energy technologies, including both renewable generation and energy efficient technologies. These include but are not limited to biofuels, solar (photovoltaic and concentrating solar power), wind, geothermal, nuclear, clean coal, hydrogen, and energy efficient technologies for vehicles, industry, and buildings. Different from DOE's historical focus on lowering the cost of energy technology, the entity could focus on increased market penetration and driving economies of scale in the private

sector. To this end, the entity could offer a variety of debt and risk management products, potentially including direct loans, loan guarantees, working capital loans, lines of credit, delayed payment project financing, insurance, securitization, and innovative financial products designed to accurately capture life-cycle costs. The portfolio of financial services could extend across a number of market segments, to meet the specific needs of power generation, alternative fuels, distributed generation, transmission, and manufacturing, among others.

The market has begun to respond to the need for clean energy capital investment, with worldwide investment more than doubling in recent years, but the baseline is small and unprecedented growth is required. A clean energy quasi-governmental entity could offer mechanisms aimed at catalyzing the private markets and thus accelerate the maturity of the clean energy industry to achieve these goals. The impact of the earlier investment would be similar to the growth effect of compound interest with far greater paybacks for the nation. Considering that all of this can be achieved in a manner that is consistently net positive revenue to Treasury, rather than an annualized cost sink, it is important to commence the effort to organize, even a preliminary pilot running in parallel to DOE's Loan Guarantee Program Office to hedge our efforts to efficiently stimulate the economy.

CONCLUSION

National security, environmental stewardship, and economic growth goals form the basis of robust U.S. energy policy. National security is enhanced through diversifying our energy mix and reducing dependence on petroleum. Environmental stewardship is maintained through the mitigation of greenhouse gas emissions and other negative environmental impacts. Achieving global economic competitiveness entails creating a more flexible, more reliable, and higher capacity national energy infrastructure, as well as improving the energy productivity of the U.S. economy and industry.

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 and greenhouse gas reduction requires full access to the federal policy portfolio to accelerate the immense clean energy investment necessary to meet our nation's goals. A clean energy quasi-governmental entity combines a domestic energy mission with capital formation skills to bring emerging clean energy technologies to market much faster than would occur under traditional market conditions and put us on track to achieve these objectives.

I look forward to supporting the bipartisan and seasoned leadership of this Committee in organizing and modernizing our governmental approaches to our energy challenges in such a way as to reverse decades of failed expectations and realistically maximize the probability that America's succeeds in realizing our national aspirations.