Key Elements for Clean Energy Standard Proposals

NOTE: The Energy and Natural Resources has requested that answers to each question be submitted independently. Answers to each question should therefore be treated discretely, and an apparent repetition in verbiage among questions is intentional.

Executive Summary:

A properly structured CES - combined with existing federal incentives (expanding and extending the 48C manufacturing tax credit, the long-term ITC, 1603 program, DOE loan guarantee, etc.) - will help create clean energy demand, grow the domestic solar market, increase domestic manufacturing, and provide value for the U.S. economy.

The Solar Energy Industries Association (SEIA) favors a Clean Energy Standard that is structured to result in above baseline deployment of solar and other clean technologies and ensure a broad portfolio of energy providers nation-wide. In addition, the federal standard should not preempt states with stronger mandates; a national CES should serve as a floor, not a ceiling, for clean and renewable energy deployment goals. In addition to generating technologies, a federal CES should also include technologies which directly displace electricity, such as solar heating and cooling systems. Including these technologies in the qualifying definition of "clean energy" will help achieve the overall policy goals while reducing the cost of complying with the standard.

A properly-structured CES has the potential to create new demand for domestic clean energy technologies and tens or hundreds of thousands of new jobs. To accomplish this, Congress must design a CES with appropriate deployment goals and set the necessary alternative compliance payments (ACP) to meet them. Any ACPs or payments resulting from a CES should be directed primarily towards energy technologies, such as solar, that generate the least pollution and create the greatest number of jobs. In order to achieve these goals and spur the growth of new and emerging industries, a CES should also include complimentary provisions that guarantee deployment of a diverse portfolio of renewable energy resources, including solar.

If properly structured, a national CES will help build new markets for America's clean energy technologies while increasing energy independence, creating jobs, and creating value for the U.S. economy.

- Should any states or portions of states be specifically excluded from the new program's requirements?

Any new federal requirement should apply to utilities in all 50-states and the District of Columbia. A properly structured federal CES should result in the deployment of solar and other clean technologies and ensure a broad portfolio of energy providers nation-wide.

There is no reasonable policy basis for exempting certain portions of the country or states from a CES. Any exemption would simply weaken the CES standard and would be counter to its purpose of increasing deployment of clean energy technology.

- How should a federal mandate interact with the 30 existing state electricity standards?

Currently, 29 states, as well as the District of Columbia and Puerto Rico have a renewable portfolio standard (RPS). Seven additional states have non-binding renewable portfolio goals. These range from aggressive programs in California (33% by 2020) and Hawaii (40% by 2030) to more modest requirements of 15% in Montana (by 2015), Washington (by 2020), and other states. These state-level requirements have been successful in growing the renewable energy industry, reducing fossil fuel consumption, creating jobs, and improving air quality. Notably, 16 states (and Washington, DC) have also incorporated solar or distributed generation provisions that require a minimum percentage of RPS qualifying resources come from these categories. These provisions—either set-asides/carve-outs, diversity requirements, distributed generation requirements, or other mechanisms—have proven to be effective solar deployment tools.

The federal standard must not preempt states with stronger mandates and must serve as a floor, not a ceiling, for clean and renewable energy deployment goals. Any federally mandated CES must allow more aggressive state and local standards to remain in place and should also not affect any existing state-specific diversity requirements and/or carve-outs. Federal legislation should expressly permit individual states to impose more stringent standards on in-state utilities and also require that a certain minimum percentage of CES resources come from within the geographic boundaries of a state. A federal standard should also protect the integrity of existing state standards by prohibiting double counting of credits.

- Should the standard be focused solely on electricity generation, or is there a role for other clean energy technologies that could displace electricity, such as biomass-to-thermal energy?

A federal CES must include non-electricity-generating clean energy technologies. These technologies, such as solar heating and cooling (SHC), allow electricity providers to utilize direct use renewable energy (in the case of SHC, heat energy) to satisfy their CES obligations. A federal CES must grant Clean Energy Credits, equivalent to the corresponding electrical energy offset by a system, to owners \ operators of these technologies.

These technologies, often distributed and customer-sited, produce direct energy from renewable resources. However, rather than convert a renewable resource to electricity, they use the resource to directly supply the energy needed. In the case of SHC, sunlight is used to create heat which, in turn, can be used for water or space heating and cooling in residential, commercial, and industrial applications. These technologies should not be overlooked merely because they do not directly generate electricity. Using these technologies to displace electricity use is often an inexpensive and economical way for consumers to generate and use renewable energy. SHC technologies are cost-effective, can be deployed locally, require no new transmission infrastructure, and can be utilized in areas throughout the country where commercial-scale power generation facilities are not feasible.

In 2010, over 35,000 SHC systems, totaling over 150 megawatts thermal (MW-th) of capacity was installed. By including technologies such as SHC in the CES, jobs in the engineering, manufacturing, construction, and installation sectors will be created throughout the country while decreasing the use of potentially dirty fuel sources for energy generation. Expanding the use of this type of renewable energy technology has the added benefit of lowering the overall cost of the CES for individual consumers, businesses, municipalities and utilities alike.

- What interim targets and timetables should be established to meet the standard's requirements?

SEIA believes that a properly structured CES will result in the deployment of various forms of clean energy, including solar. An aggressive timetable for implementation of the standard will spur the immediate deployment of solar and other existing clean technologies, while simultaneously supporting research and development of new energy innovations.

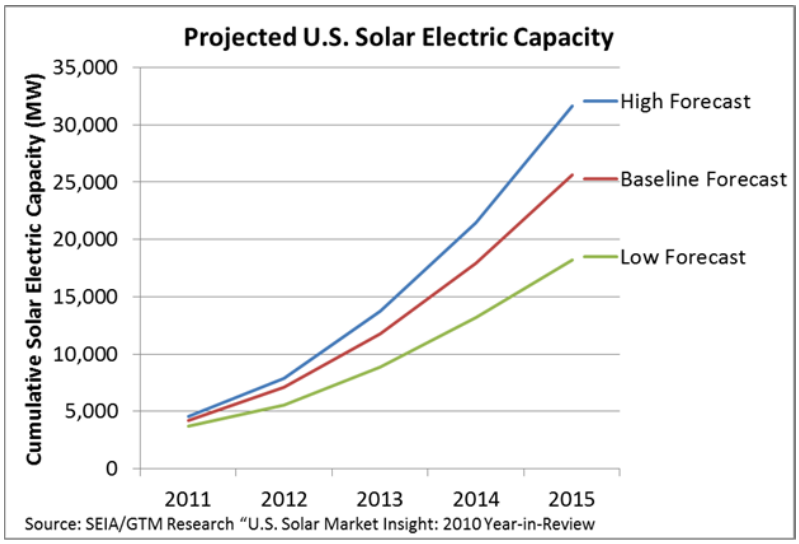
Solar is capable of deploying in a rapid manner to meet an aggressive initial deployment schedule. Between 2009 and 2010, the total size of the solar market grew by 67%. In 2010, 52,600 photovoltaic (PV) systems with 878MW of generation capacity were connected to the grid -- a 102% increase from 2009. 77.5 MW of CSP also came online in 2010. Utility PV installations more than tripled in 2010, reaching a total of 242MW installed. 29,500 solar pool heating systems and 35,500 solar water hearing systems were also installed in 2010, providing clean renewable energy to more than 65,000 homes and businesses.[1]

Inclusion of low interim targets would not allow existing clean energy technologies, such as solar, to leverage their success in the marketplace (see chart below). A slow ramp-up schedule would allow compliance entities to "wait-out" the requirement, and would fail as a mechanism for encouraging above-baseline growth of solar and of other existing renewable technologies.

The global clean energy marketplace is expected to grow by $2.2 trillion in the next 10 years. A federal CES that results in the deployment of solar and other clean energy technologies will help ensure that the domestic clean energy industry remains competitive in this growing sector. The EU has proposed an additional $70 billion in investment and China has invested heavily in the field, resulting in the United States' share of the clean energy market decreasing to 38% in 2004.[2] Other countries also offer very attractive incentives to manufacturers to site renewable energy equipment factories while the federal government currently offers nothing. High initial CES targets would drive near-term investment and help the U.S. emerge as a global leader in clean energy.

[1] 2010 GTM Solar Market Insight, 3

[2] A Clean Energy Standard: Getting the United States Back Into the Clean Energy Race. Third Way. March 2011.



As evidenced by the chart above, solar is positioned to meet an early and aggressive ramp-up schedule. A slow deployment schedule would undermine the goal of a Clean Energy Standard, spurring increased investment in solar and other clean generation.

- What would be the effect of including tiers for particular classes of technology, or for technologies with different levels of economic risk, and what would be a viable way of including such tiers?

Including tiers for particular types of technology, if properly structured, can assure resource diversity, an important goal for a CES. These tiers should result in higher investment, and therefore more projects, for technologies that have the greatest benefits with the greatest environmental, economic and reliability attributes. The CES should strongly incentivize those technologies that have near zero generation emissions and waste, low water utilization, and whose energy source in 100% domestic. Emissions should not just consider GHGs, but regulated CAA emissions (particulates, NOx, SO), heavy metals such as mercury, and carcinogens. CES credits should be highest for power resources such as solar with the lowest emissions.

Solar is an emission free technology that is ready to deploy now. The CES should be designed to allow the industry to continue its successful cycle of growth, economic investment, and job creation while helping to achieve the overall policy goals of a CES.

- Should the same credit be available to meet both the federal mandate and an existing state standard or should a credit only be utilized once?

Currently, 29 states, as well as the District of Columbia and Puerto Rico have a renewable portfolio standard (RPS). Sixteen of those (and Washington, DC) have solar or distributed generation provisions. Seven additional states have non-binding renewable portfolio goals. These range from aggressive standards in California (33% by 2020) and Hawaii (40% by 2030) to more modest requirements of 15% in Montana (by 2015), Washington (by 2020), and other states.

SEIA strongly opposes the double counting of credits and opposes allowing the same credit to meet both a federal and existing state requirement for two different entities. Should a compliance entity meet its federal requirement (or potentially higher state requirement), it may sell excess credits on the open marketplace or voluntarily retire them. However, a utility should not be able to use a single credit to satisfy its high statewide requirement *and* as a saleable commodity to a utility in a state without a statewide requirement (to satisfy a federal CES requirement).

Once a credit is used to satisfy a requirement, it is expended and has no further value.

- How valuable would clean energy credits have to be in order to facilitate the deployment of individual qualified technologies?

A properly structured CES would deploy solar and other clean technologies above baseline conditions. Clean energy credits must be properly valued for this goal to be accomplished.

A CES should complement existing federal incentives as well as state level policies and should result in above-baseline deployment of solar and other clean technologies. It accomplishes this by awarding Clean Energy Credits (CEC) for the production of clean energy. These credits are commoditized and can be bought, sold, or voluntarily retired. CEC's encourage clean energy investment by providing additional production-based revenues over time incentive or by enabling the owner of a system to aggregate and sell their CECs to lower the initial cost of a clean energy system.

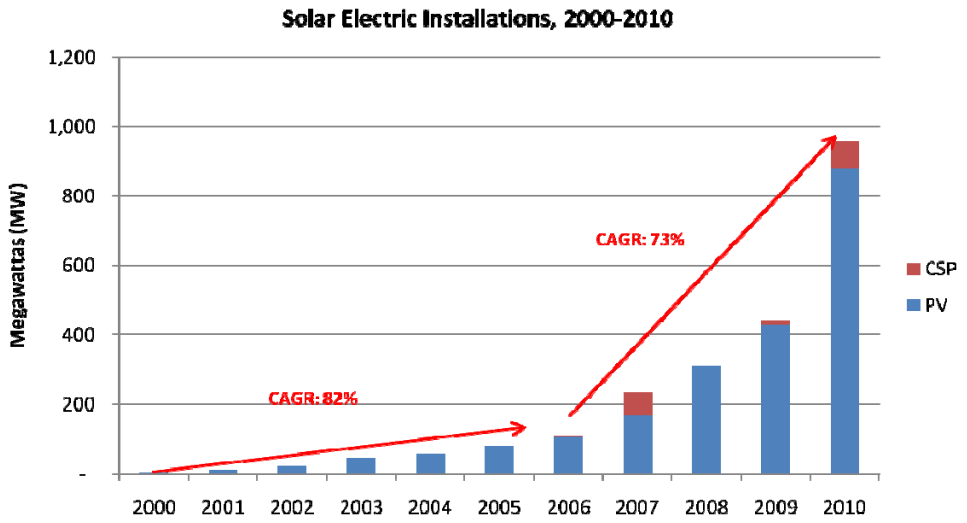
The specific value of a credit is market-driven but typically is limited by the amount of the anti-compliance penalty (ACP) levied on a utility if it fails to meet its CES obligations. The ACP must be high enough to provide reasonable assurance that it is more economic for a utility to obtain the required amount of CES credits rather than pay the ACP penalty. Therefore, a properly structured CES must value Clean Energy Credits in such a way that would deploy solar and other clean energy technologies above baseline conditions.

- What is the expected electricity generation mix for a target of 80 percent clean energy by 2035, under the President's proposal or an alternative construct?

With a combination of continued technological innovation, market access and appropriate incentives, solar can constitute 20% or more of the US electricity mix by 2030.

Since 2006, solar electric annual installed capacity has increased at a compound annual growth rate of 73%.[3] This was the result of technological innovation, the long term extension of the solar investment tax credit, the Section 1603 Treasury program and state RPS solar requirements.

[3] GTM Research



Properly structuring the CES by including appropriately aggressive targets, measures that will assure solar deployment, and an ACP sufficient to encourage investment is essential to continuing this trend, growing the solar industry, and developing a mix of energy generation resources nationwide.

- How might various price levels for the ACP affect the deployment of clean energy technologies?

An aggressive ACP is necessary to ensure the deployment of a suite of clean energy technologies, including solar, within the CES. The price level for an ACP directly affects the value of a clean energy credit, the tradable commodities created by a CES, whose value directly influences outside investment. Inherently, a lower ACP will lead to lower values for clean energy credits. Both the ACP's rate and its legislated purpose must incentivize compliance entities' deployment of clean and renewable technologies. Setting the ACP too low, or allowing inappropriate uses for penalties collected (such as refunds to utilities for "ratepayer reduction") would encourage compliance entities to pay the penalty as the least costly option. In contrast, setting a higher ACP will accomplish the goals of a CES by spurring outside investment in clean and renewable technologies such as solar.

- What are the possible uses for potential ACP revenues? Should such revenues be used to support compliance with the standard's requirements? Should all or a portion of the collected ACP revenues go back to the state from which they were collected? Should ACP revenues be used to mitigate any increased electricity costs to the consumer that may be associated with the CES?

Collected ACPs should be used to incentivize the production of clean renewable energy. Because the economics of energy generation vary geographically, specific programmatic uses will differ by state and utility service area. However, the ACP revenue should be used to help achieve the goals of the CES: widespread and nationwide deployment of a suite of clean-renewable energy generation technologies; a reduction of fossil fuel consumption; air quality improvement; and job creation.

The American Clean Energy Leadership Act (ACELA) from the 111th Congress allowed ACP funds to be refunded to utility customers rather than be used to develop renewable energy projects. This approach further weakened an already low ACP, devaluing the bill's credits and reducing its effectiveness.

- What are the specific challenges facing individual technologies such as nuclear, natural gas, CCS, on- and offshore wind, solar, efficiency, biomass, and others?

Each energy technology sub-sector is faced with its own specific challenges whether it is political, regulatory, financial, environmental, or physical in nature. Beyond direct competition with larger, traditional energy generators in the marketplace, the solar industry currently faces a number of specific challenges, including:

  - Difficulty obtaining access to affordable financing necessary to develop solar projects;
  - Need for continued innovation to further reduce solar costs;
  - Obtaining appropriate and stable federal support through tax, financing and other policies;
  - Lack of market access due to regulatory and other barriers;
  - For utility scale solar, the ability to deliver electricity from remote locations to load due to lack of sufficient transmission;
  - Competing with foreign manufacturers operating in low-cost countries such as China;
  - Managing burdensome and unnecessarily long permitting and siting processes at the federal and state level(s); and,
  - Negotiating various market barriers that prevent the widespread deployment of small-scale, distributed solar generation systems at residential and small commercial buildings.

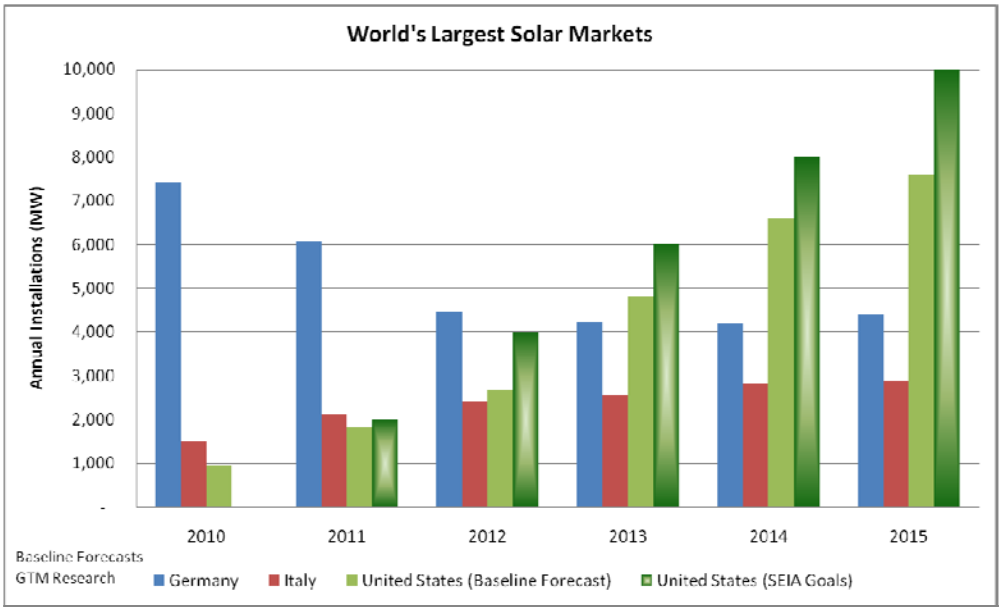
Many of these challenges can be addressed with appropriately tailored policy options that are necessary to accelerate the growth of solar generation above baseline forecasts.

- Will the enactment of a CES be sufficient for each technology to overcome its individual challenges?

No, while enactment of a properly structured CES could streamline the development and deployment of clean energy technologies like solar, a CES will not eliminate all obstacles to any single energy technology group. The CES should be viewed as an additional policy mechanism, within a comprehensive national energy plan and suite of policies, that encourages and incentivizes the growth of clean and renewable energy sources such as solar.

The largest challenge hindering widespread deployment of solar is the relatively high initial cost of entry. Many of the policies and incentives supporting solar at the federal, state, and local level, have been designed to ease the initial cost of ownership and lower the barriers to deployment. Existing policy mechanisms that support the deployment of solar--such as the long-term investment tax credit (ITC), the highly-successful 1603 Treasury Grant Program, and the Federal Loan Guarantee Program--must remain in place so that industry growth, economic

investment, and job creation can continue. In addition, solar manufacturing incentives—such as the 48C Manufacturing Tax Credit--need to be re-established.



SEIA estimates that by 2013, the United States will contain the world's largest solar market, approaching a baseline forecast of 5GW. New long-term federal policy support mechanisms, including a properly structured CES that deploys solar, will help increase capacity. The growing US solar market is expected to spur millions of dollars in investment and create tens-of-thousands of jobs—an estimated 40 jobs/MW, including project development, installation, and manufacturing and supply chain jobs.

Solar is expanding rapidly in a growing marketplace. A 67% increase in the solar market since 2009 corresponded to a drop in system price of 20.5% over the course of 2010. A properly structured federal CES – amplified by these other complementary policies – would help spur continued solar market expansion and corresponding cost reduction.

- Are there specific supporting policy options that should be considered for coal, nuclear, natural gas, renewable energy, and efficiency?

A CES bill should be structured in a way that allows clean energy technologies, such as solar, to operate on a level playing field with larger, traditional energy generators. Specific supporting policy options that address the major challenges listed above could include, but would not be limited to:

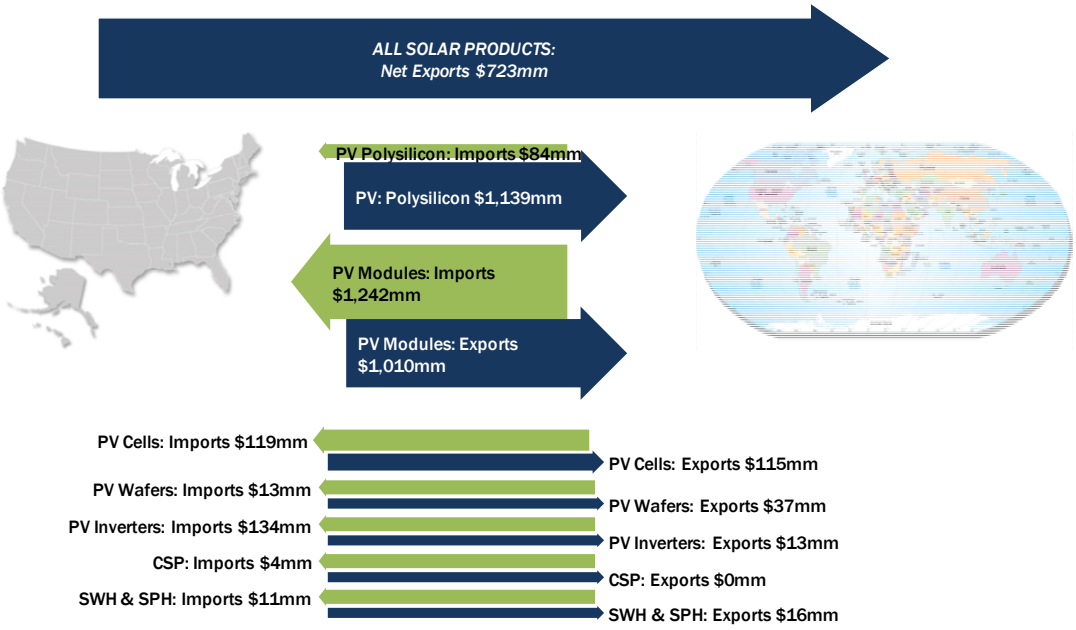
  - Existing state, local, and utility level incentives;
  - Long term investment and production tax incentives;
  - Manufacturing tax credits for renewable energy equipment;
  - Grants-in-lieu of federal tax credit, direct pay mechanisms, or other opportunities to monetize federal tax credits;
  - Federal financing mechanisms (i.e. , clean energy bank, federal loan guarantees);

- Establishment of a long-term federal power purchase authority;
- Streamlining permitting and siting processes for new solar projects;
- Targeting of brown-field development;
- Effective transmission policy – involving rapid planning, siting and financing – to enable solar deployment;
- Clear guidance from FERC about interconnection; and,
- Improved net metering and interconnection rules.

These are just several of many potential policy options that could be implemented to encourage the growth of clean energy technologies like solar and other renewables.

- What is the current status of clean energy technology manufacturing, and is it reasonable to expect domestic economic growth in that sector as a result of a CES?

The solar manufacturing industry has experienced significant growth over the past four years alone, and is expected to continue its upward growth trend into 2011 and beyond. As of August 2010, the solar manufacturing industry employed approximately 25,000 workers in the U.S. and anticipates adding an additional 9,000 employees by mid-2011 (36% growth rate).[4] There are at least 39 active facilities manufacturing photovoltaic components (polysilicon, wafers, cells, modules, inverters) spread across 17 different U.S. states.[5] Additionally, 93% of CSP and 78% of SHC system costs are sourced domestically.[6]



[4] National Solar Jobs Census: A Review of the U.S. Solar Workforce. The Solar Foundation. October 2010. Page 22.
[5] U.S. Solar Market Insight: 2010 Year-In-Review. Solar Energy Industries Association and GTM Research. March 2011. Page 27-28.
[6] U.S. Solar Energy Trade Assessment, 2010. Solar Energy Industries Association and GTM Research. December 2010.

Overall, the United States is a net exporter of solar energy products ($723 million in 2009). The largest solar energy product export is polysilicon, totaling $1.1 billion in exports during 2009. That same year, U.S. solar energy installations created $3.6 billion in direct value, 74% ($2.6 billion) of which accrued in the U.S.[7]

Given these statistics, it is very reasonable to expect the passage of a properly structured CES bill by Congress to lead to significant economic growth within the solar manufacturing industry. However, it is important to note that competition from other foreign countries will also be heightened as the global solar industry as a whole continues to mature.

On January 8, 2010, the White House announced $1.15 billion in Advanced Energy Manufacturing Tax Credit (48C) awards for 47 solar manufacturers across the United States. Facilities are located in at least 21 states and include PV, CSP, and SWH technologies. The Administration estimated that the total $2.3 billion for advanced energy manufacturing facilities would generate more than 17,000 jobs and stimulate as much as $5.4 billion in private sector funding. However, despite the success of this program, other countries including China, Malaysia, the Philippines, and Mexico offer very attractive incentives to manufacturers of new renewable energy equipment factories creating a significant competitive disadvantage for U.S. manufacturers.

Long term policy certainty - including a CES that deploys solar combined with existing federal incentives (expanding and extending the 48C manufacturing tax credit, the long-term ITC, 1603 program, DOE loan guarantee, etc.) - will help create demand, grow the domestic solar market, and increase domestic manufacturing.

[7] U.S. Solar Energy Trade Assessment, 2010. Solar Energy Industries Association and GTM Research. December 2010