

Allocating Incentives for Distributed Solar Generation Among Commercial, Residential and Other Customers

The Solar Alliance is dedicated to accelerating the promise of solar energy in the United States. In doing so, we aim to provide balanced and sound technical and policy expertise toward the delivery of solar energy to residential, commercial, and government customers¹. Our goal is to maximize the installed solar capacity within each distributed generation customer segment while minimizing the overall cost of doing so. In order to achieve this goal, solar incentives are needed in the short term to encourage solar deployment. In creating such programs, we advocate the following key principles:

- Solar programs should be developed to support broad solar market development and should acknowledge the distinction between the residential market segment (typically solar installations less than 10 kW) and the commercial and government market segment (generally solar installations greater than 10 kW). Solar programs that support the development of both segments are necessary to create a healthy and self-sustaining solar industry.
- We recognize that the economic incentives of each market segment are different and the dynamics of initiating each segment may dictate different incentive levels or structures for the two. For example, effective incentive schemes for homeowners are usually aimed at defraying the large upfront purchase cost of a system, while programs for non-residential systems are often performance-based, spreading out the incentives over time based on kilowatt-hour production. Also, a variety of financing alternatives, most particularly the power purchase agreement, allow businesses and government agencies to install systems with no up-front costs, paying only for the energy generated by the system over time.
- Funding allocations for each segment should be based on a fair, transparent and equitable metric that balances overarching goals of minimizing the cost of any solar program with a parallel desire to stimulate economic development through job growth.
- Incentive structure and levels should also recognize the impact of other relevant policies. For example, state market incentives may need to be adjusted for the impact of federal tax credits, which are more generous for businesses than homeowners, if broad participation across the market segments is desired.

There are many successful models in use around the world that effectively balance both residential and commercial solar incentives. Examples include:

- Japan: 10-year incentive program for residential systems with declining incentives that ended in 2006; new program for commercial system now underway. As a result, Japan is the largest market for residential PV systems and a world-leading PV manufacturing nation.
- Germany: Feed-in tariff is set at different levels for different project sizes.

¹See www.solaralliance.org for more detailed information as well as model policies from around the country.

- California: The California Solar Initiative requires one-third of the incentive budget be allocated to residential customers, who receive up-front rebates based on expected system output; incentives for larger systems are paid on actual kWh production over five years.
- New Jersey: Provides up-front incentives in combination with Solar Renewable Energy Credit (SREC) revenue for smaller systems and SREC revenue only for larger systems.

One common revenue-raising and incentive-allocation method to ensure broad participation is to base both on the percentage of electricity consumed by each ratepayer class within any specific state or territory. As a point of reference, the residential ratepayer class generally consumes and pays for nearly 35% of the electricity sold in the U.S., while the commercial ratepayer pays for another 35% of the electricity sold, with the remainder used by large industrial customers.² This usually translates into each segment paying for about one-third of any solar incentives made available. For example, the two largest solar programs in the U.S., California and New Jersey, designed their solar programs to provide from 25-33% of the available incentives for the residential segment, with the remainder set aside for non-residential projects, including government buildings.

Policymakers should be aware, however, that residential incentives may require significantly larger budgets to achieve the equivalent MWs of commercial or institutional solar, due to the higher per-watt costs of smaller systems and the need to provide up-front incentives to residential customers (versus spreading the incentives for larger systems out over time when paid on a production basis). In addition, federal tax incentives for residential solar are currently capped at \$2000 while they are uncapped for businesses, and businesses can also take advantage of federal accelerated depreciation to further reduce their overall outlay for a system. Government customers who choose to purchase systems outright are also ineligible for federal tax incentives, which may require higher incentives for this group. As a result of these myriad factors, policy-makers must consider all of the complementary incentives available to their constituents as well as the impact that the differences in system prices and required incentives will have on overall program budgets and goals. Whether the particular allocation method used in California and New Jersey is appropriate for your state is up to you to decide; we only recommend that it be logical, transparent and enjoy broad support among local stakeholders.

In supporting all market segments, incentive programs provide the necessary ingredients to a self-sustaining market that can exist in the future without further incentives. Irrespective of the economics of each segment, we recognize the political, fairness and market development value of ensuring there is an on-site solar offering to all customers. In that way, every customer class sees solar as a viable alternative to fossil fuels; there are differing opportunities for new business creation, local job growth and increased tax revenue for each customer segment; and solar is considered worldwide as a necessary component of a zero- or low-carbon electricity-generation program for any target end-user. Programs that are solely focused on economics might support either the residential segment or the commercial and government segment, and this result would not, in our opinion, represent good solar policy. Providing the means by which each customer segment can obtain cost-effective solar solutions is an essential component for the industry to eventually reach grid parity without incentives.

² Energy Information Administration - Total Electric Power Industry Summary Statistics, 2007 and 2006: <http://www.eia.doe.gov/cneaf/electricity/epm/tablees1a.html>