

Real Estate Journal

COVERING ALL OF LONG ISLAND, NEW YORK CITY AND UPSTATE NEW YORK

U.S. solar industry is growing rapidly with the enactment of a federal solar investment tax credit

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The Solar Center

The enactment of a federal solar investment tax credit, which became effective January 1, has resulted in the development of hundreds of commercial solar energy projects, primarily in California and New Jersey. The 30% federal solar investment tax credit, combined with five-year accelerated depreciation, greatly enhances the economics of renewable energy for commercial applications. Large-scale projects, over \$1 million in size, are now being installed on warehouses, factories, hotels, apartment buildings and big-box retailers. California and New Jersey are leading the way with state solar incentives, that when combined with federal tax benefits, amortize the solar investment in less than 10 years from its energy output.

In 2006 California approved a \$3 billion initiative to support the development of 3000 MW of distributed solar electric systems, representing more than \$15 billion in total projects. In N.J., the state committed in 2006 to achieving a goal of 1500 MW of distributed

solar power by the year 2020. The commitment is embodied in its Renewable Portfolio Standard (RPS). The New York State RPS has a goal of 24% of clean electric supply, but the commitment is actually a fraction of N.J.'s commitment, because New York State started with a level of 18% of its electricity already being produced by hydropower. Thus the N.Y. State commitment is only about one third the relative commitment of N.J., as far as new clean electric generation is concerned.

New York lags behind other states in solar electric activity because it has yet to enact legislation allowing commercial customers to connect solar electric systems to the grid, so they can earn credit at the retail rate for extra electric production sent out to the grid during daytime hours. At present net metering is only available in N.Y. up to 10 kW systems, essentially for residential applications. This is in contrast to the New Jersey Net Metering law, which allows solar systems up to 2000 kW to connect to the grid. Net metering allows renewable energy systems to produce more power than is needed in the building during the day, earning credits for the extra production, as long as total production for the year does not exceed total consumption of the building.

The election of Eliot Spitzer, and the replacement of some legislators opposed to expanded net metering, is expected to clear the way

for a greatly expanded solar energy industry in New York. Earlier efforts to pass commercial net metering legislation were unsuccessful due to the opposition of certain electric utilities to an expanded level of distributed generation. Despite the growing need for increased electric supply in New York, electric utilities continue to have disincentives to strongly supporting growth in renewable energy and energy efficiency, because they see increased energy efficiency and distributed generation as future lost revenue and profits. Early indications are that the Spitzer administration is developing a much more aggressive clean energy policy, which should include reducing the existing barriers to distributed generation, and create incentives for greatly expanded energy efficiency and renewable energy efforts. During the 1990s energy efficiency rebates in N.Y. equated to \$0.03-\$0.04 per kilowatt-hour saved over the life of the efficiency measure, about half the cost of fuel alone to generate a kWh today. At those relative costs the state should be acquiring all the efficiency it can, with aggressive energy efficiency programs. Distributed renewable energy should also be strongly encouraged, because the benefits accrue not just from the kWh produced, but from reducing the need for new generation, transmission and distribution capacity.

In California and N.J., the combined federal and state incentives are sufficient to allow solar systems to amortize their cost in less than 10 years. These attractive economics have led to the birth of a new type of energy supply agreement, called a Solar Service Agreement (SSA), under which electricity is sold to the commercial customer for 20 to 25 year terms, at a fixed price, with no investment required by the customer. The customer makes available the necessary space for the solar system, and in return receives a stable electric price for the electricity produced. This type of energy supply agreement is also starting to be used for the supply of hot water at fixed prices from commercial scale solar hot water systems, for example, to heat the hot water for an apartment building. Wall Street capital sources have been appearing at renewable energy conferences, eager to put capital to work in this next generation of clean solar energy plants. Although Germany has led the world in the installation of solar electric systems, and China in the manufacture and installation of solar hot water systems, industry experts see the U.S. as the next big market, especially if a national RPS or carbon limitations are legislated for the country by the next Congress.

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