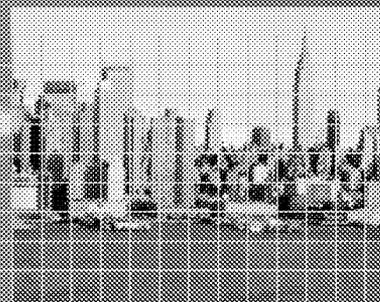


New York's Solar Roadmap

A plan for energy reliability,
security, environmental
responsibility and
economic development
in New York State

MAY 2007

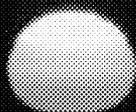


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The purpose of this New York Solar roadmap is to provide a reference document to all stakeholders of the industry. Its objective is to identify the state's specific needs and to recommend innovative solutions to meet the future challenges related to this industry. It enables all industry, university and government participants to plan ahead — based on known and anticipated trends in the industry — as they put in place substantial investments, consortia and commercial cooperative ventures.

A New York State solar energy business outreach workshop was held in February 2007 where about 30 experts convened and discussed the development of a coordinated state-wide commercialization roadmap for solar energy. Following the workshop and the development of a draft document, a second workshop was held in April 2007 to obtain additional recommendations for inclusion. Comments obtained were incorporated in the final Roadmap document released in May 2007.

EXECUTIVE SUMMARY

New York, like the rest of the country, faces rising energy costs, increasingly pressing environmental concerns and stiff economic competition. It is necessary to identify ways to meet our growing energy needs with clean, renewable sources and in so doing create new jobs and new business opportunities in the state. New York State recently announced plans to promote clean, renewable energy, and reduce New York's electricity consumption by 15 percent by 2015 to reduce energy bills, address global climate change and create new jobs. Based on New York's resources and needs, solar electric power should be an integral part of the solution.

Solar energy offers New York the promise of increased energy security, a cleaner environment, and significant economic benefits. New York, long a leader in the semiconductor industry, could become a regional leader in this new surging industry. According to the national solar roadmap¹ each megawatt of installed systems supports 32 jobs, a quarter of which are local installation and sales positions. By building a solar power manufacturing industry and expanding its demonstrated research and development capabilities in the state, most of these jobs can be created in New York State.

Solar power is particularly valuable in reducing stress on New York's electric grid and lowering the risk of major blackouts. Therefore, it is ideally suited for New York's renewable energy portfolio. This semiconductor based technology converts sunlight directly into electricity, with no moving parts, consuming no fuel, and creating no pollution. It is a distributed energy resource that can be deployed throughout the state, improve grid reliability, lower distribution and transmission costs, and be sited at the point of use with minimal or no environmental impact.

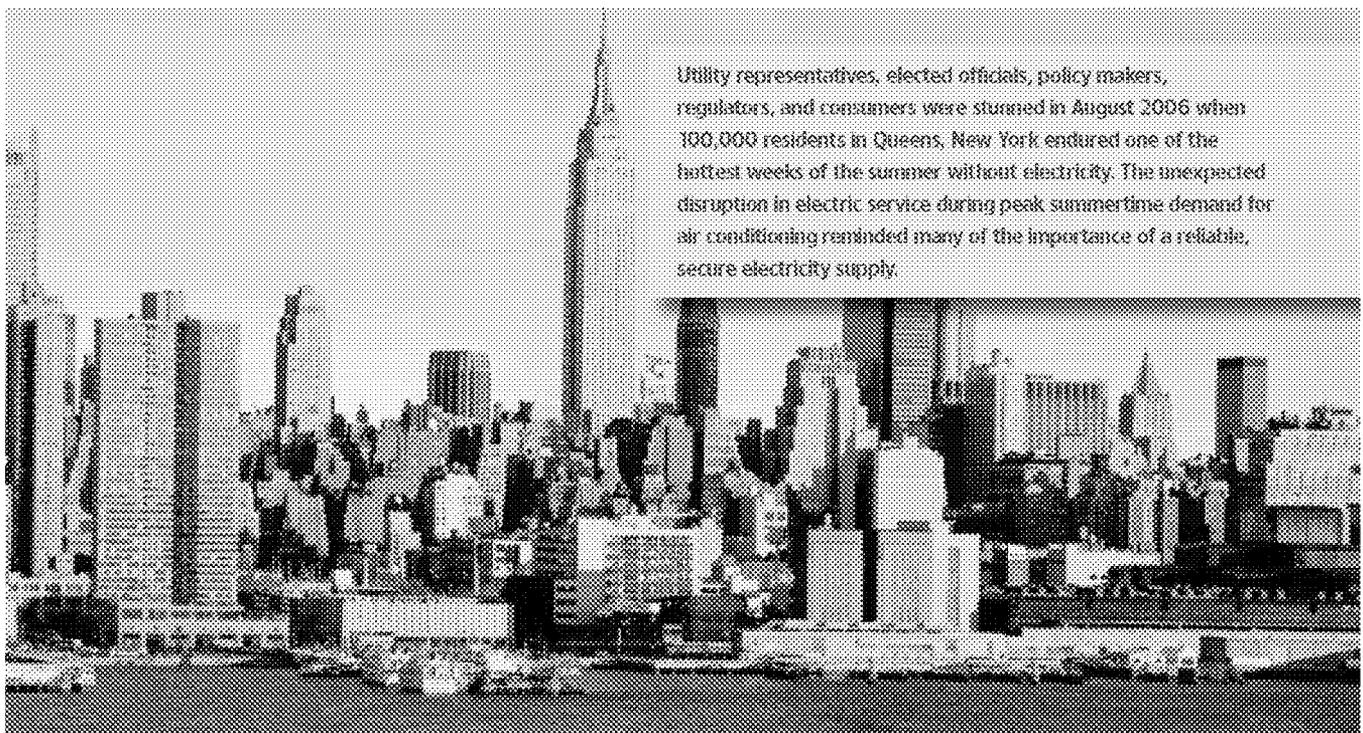
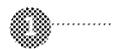
Similar to much of the United States, New York has ample solar resources and more sunshine annually than does Germany, which has installed nearly 3 GW of systems to date. In addition, peak power demand in New York occurs during the same time periods when the greatest sunlight is available (hot, sunny, summer afternoons).

The environment, economy, and energy consumers in New York State could all benefit substantially from a unique and unprecedented alignment of electricity supply, economic development, and high-tech-based manufacturing objectives through a new industry-led initiative to expand the manufacturing and deployment of solar power systems in New York. A private-sector industry initiative launched earlier this year by R&D, manufacturing, and industry leaders in New York State has developed the strategic goal to:

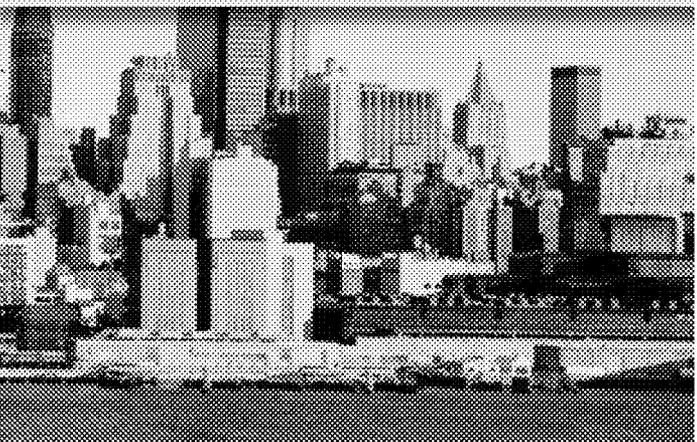
Increase solar power deployment in New York State from a current cumulative total of about 12 MW of grid-connected electricity as of January 2007 to over 2,000 MW by 2017.

As New York's energy needs continue to grow, its obligations to respond to the challenge of global climate change grow as well. According to the Clean Energy Estimator² 2,000 MW of solar electricity in New York State would improve air quality and reduce global warming emissions by removing about 2 million tons of CO₂, 1,800 tons of NO_x and 5,300 tons of SO₂ annually by 2017.

A solar program modeled on best practices would maintain and expand New York's role as a clean energy leader and bring many environmental, employment, and economic development benefits. Such a program would (i) make it easier for systems to **connect to the grid** and capture the value of energy



Utility representatives, elected officials, policy makers, regulators, and consumers were stunned in August 2006 when 100,000 residents in Queens, New York endured one of the hottest weeks of the summer without electricity. The unexpected disruption in electric service during peak summertime demand for air conditioning reminded many of the importance of a reliable, secure electricity supply.



they generate; (ii) establish a **long-term program of incentives** for residential and commercial owners that encourage installing and deploying solar power; (iii) promote an appropriate combination of private and public **investments in manufacturing, infrastructure,** and development to position New York to meet its sustainable demand for systems from within the state, and (iv) support the **creation of technology clusters** to advance the performance of solar systems and reduce cost.

New York can become a leading magnet for this industry, resulting in new manufacturing capacity, increased jobs, additional revenue, and 2,000 MW of clean, renewable, reliable solar power by the end of 2017. 3,000 direct installation or maintenance jobs and over 10,000 highly skilled manufacturing and integration jobs could be created over a period of ten years.



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THE VISION AND MISSION

Solar power technology provides clean, reliable solar electricity in increasing amounts throughout the world. New York has growing energy needs and solar power is particularly well suited to meeting those needs. The mission for the Solar Initiative of New York is to aggressively pursue this technology over the next 10 years so that:

- It provides 5% of the peak electric capacity of the New York power grid by 2017
- It adds over 13,000 highly skilled direct jobs in New York by 2017
- New York becomes a leading center and magnet for research and technology development
- It produces electricity that is price-competitive with conventional energy sources

Essential to realizing the vision is establishing a clear, specific, ambitious, state-level goal: to install 2,000 MW of cumulative solar electric power in New York State by 2017 with the most appropriately designed policies and incentives.

The vision and goal will be realized through substantial and consistent investments by industry and government in research and technology development, manufacturing, infrastructure, training, and market deployment.



Photo: Altaris Energy Systems

Solar Installation at New York's Whitehall Ferry Terminal