

Bay Area Solar Installation Report - 2008

A report detailing how much solar PV is installed in the Bay Area as of 12/31/2007. The report includes Top 10 Cities and Counties for a number of categories including Total Watts, Number of Systems, Watts/Capita and Systems/Capita.

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Preface

The following Bay Area Solar Installations Report is another educational effort put forth by the Northern California Solar Energy Association (NorCal Solar) towards its mission: To foster the development and application of solar energy technology through the exchange of information.

Since 1975 NorCal Solar, then known as NCSEA, has promoted solar education and fostered the exchange of information through many venues. Today, from our website www.noricalsolar.org where we maintain a world-wide electronic 'portal' of resources on solar and other renewable energy technologies to our Solar Energy Resource Guide, a publication sold locally while supporting independent reports, studies and classrooms as well as many consumer information and workshops in-between. This year NorCal Solar was a co-organizer of the American Solar Energy Association's conference, Solar 2008, in San Diego where NorCal helped to organize more than 70 consumer workshops. NorCal Solar also participated in the conference committee of the first ever InterSolar Conference in North America. This conference was held in San Francisco where 13,000 visitors received the latest information about the advances of the international solar industry. This was an amazing experience to learn about the reaches of solar into the international markets.

NorCal Solar has been a key step in discovering, and then brining forward, the first-time solar enthusiast and helping them to become the initial implementers and active users of solar technology in their homes and business. We take pride in out 30-plus years of outreach, providing unbiased information and becoming an important part in fostering the increased adoption of solar energy in Northern California. Northern California has been an inspiration to the rest of the state, the nation and the world.

We thank all our members, donors and volunteers for their support of our non-profit efforts in pursuit of our mission.

Yours in Solar,

Claudia Wentworth

President

Northern California Solar Energy Association

Forward

In 2006, California reaffirmed its commitment to solar energy by authorizing the funding a 10-year program to provide incentives to residents and businesses that install solar technologies. The statewide effort is known as the Go Solar California campaign -- and it includes solar programs at our large investor-owned utilities as well as the many small municipal utility districts.

Our state's commitment to customer sited solar generation represents the largest such effort in the country-- and California has more than 60% of the nation's solar installations. Our program has a 10-year budget of over \$3 billion and a goal to transform the market for solar energy by installing at least 3,000 megawatts (MW) of new distributed solar energy. So far, California has almost 400 MW of customer-owned solar installations in the state, and the number is growing fast. Over the past several years, we have installed 30-40 percent more solar than the year before -- and 2008 is expected to show an even higher rate of increase. As the demand for solar grows, we expect that the price of solar will decline -- which in turn will spur on more demand for solar.

California's support for solar energy includes upfront cash incentives for consumers via rebates, but it also includes numerous other policies that help a customer Go Solar. Such policies include net energy metering that allows a customer to receive full retail credit for the value of their solar energy generation, and then apply those bill credits to other times of the day or year when their system is not generating enough electricity for their needs. Also, the state supports solar through important interconnection policies that allow customer generators to connect to the utility grid without paying large fees or system upgrades.

Beyond the policies and rebate programs, the success of our California solar efforts is due to the strong solar market in California, especially in Northern California. The impressive rate of adoption of solar in Bay Area communities stands out across the state -- and also the nation -- in terms of the number of solar energy systems installed, and the number of megawatts installed. Considering figures from just the investor-owned utility portion of the program, known as the California Solar Initiative, more than 66% of the state's solar applications are in Northern California, and those applications will represent about 52% of the state's new solar capacity.

For more information about California's solar efforts, please visit us at www.GoSolarCalifornia.ca.gov

Molly Tirpak Sterkel

California Public Utilities Commission, Energy Division

Program Supervisor, California Solar Initiative and Distributed Generation

Introduction In 2007 the California Rebate program received applications for 208.6 megawatts (MW) of solar power, a record for the California solar industry. Two thousand and seven was a tremendous year for California solar power and for the California solar industry. If this trend continues the California Public Utilities Commission predicts that there will be a 35-40% rate of growth statewide in California during 2007 and 2008. This will translate directly into a significantly higher total number of megawatts installed .

This report by the Northern California Solar Energy Association (NorCal Solar) uses publicly available solar incentive data to describe the number and amount of grid-tied solar photovoltaic (PV) installations as of 12/31/2007 in ten Bay Area counties and 165 communities. NorCal Solar plans to update this data annually. On the Bay Area Solar Installation pages for 1998-2007 and for 2007 only , we have provided the raw data used for the reports, pivot tables totaling the relevant data and sortable lists for both cities and counties. Readers can use these resources to sort and search for specific regional data.

Data Analysis and Rationale

Californians have purchased more than \$2.1 billion in solar electric technology (PV), representing 30,466 PV systems and 244 megawatts (MW) of solar power from 1998 - 2007. In the 10 counties of the Bay Area, \$746 million worth of solar systems have been installed representing 11,563 PV systems and 84 megawatts (MW) of solar power. [1] In 2007, California added another 70 megawatts of solar, with 24 megawatts coming from the Bay Area.

California has offered financial incentives for grid-tied solar electric systems (PV) since 1998, and in January 2007 the state implemented a new incentive program called the California Solar Initiative (CSI). The CSI is a ten-year \$3.2 billion incentive program with the goal of installing 3,000 MW of solar power on the equivalent of one million rooftops. The CSI has been a much heralded program due to its size, length, and cutting-edge policy goal of establishing a sustainable solar industry.

NorCal Solar focused on ten Bay Area counties because this region leads the growing wave of solar adoption across the state. Apparent reasons for strong solar adoption in the Bay Area include solar-friendly utility rates, net metering, ample sun exposure, supportive local governments, a strong environmental ethic, and the attention brought to PV technology through the Vote Solar initiative in 2000.

New this year is a category titled Installations/Capita. This is intended to recognize cities and counties with a high proportion of residential installations. Also new this year is an analysis for calendar year 2007 only in addition to a cumulative report. We felt it was important to recognize cities and counties that are recently most active in solar installations. And finally, we redefined the city size categories for the per capita analysis according to the population ranges outlined by the California League of Cities.

NorCal Solar limited the records used to those indicating installed systems and paid rebates as of the end of 2007. This way we ensure a comparable annual analysis for the duration of this project, including maintaining the integrity of the

data's comparability between the old and new rebate programs. Also, please note that due to changes in the data analysis for this year's report, it is not possible to compare the results to the 2007 Bay Area Solar Installations Report.

In comparing communities equitably, we defined the parameters for cities based on population:

- small - 2,500 - 25,000
- medium -25,000 - 100,000
- large – more than 100,000

The raw data for this report includes Emerging Renewables Program (ERP) incentive records from the California Energy Commission (CEC), data from PG&E for the Self-Generation Incentive Program (SGIP) and California Solar Initiative (CSI), records from Silicon Valley Power (SVP) which serves the City of Santa Clara, and the City of Palo Alto Utilities (CPAU).

One of the key features of the California incentive programs is that they seek to stimulate increased economies of scale and resulting reductions in the price of PV installations over time. That is why the incentives are designed to ratchet down over time on a dollar/watt basis. With this report, we start tracking the average total installed cost so that readers may evaluate the extent to which installed costs actually drop over time. The values for 2007 are shown below:

Average Cost/Watt for 2007:

< 10 kW - \$9.87

10 kW - 30 kW - \$9.44

> 30 kW - \$8.77

To determine the winners, we first established a list of all the zip codes and place names included in all Bay Area counties . The second step was to sort through and correct city and place spellings in the central data file (merged from two ERP files, one SGIP file and one CSI file). Finally, we copied the essential data (date installed, size system, system cost, utility, county) into a new workbook and generated a pivot table. After adding population and county data, we checked our summary data against the original raw data to ensure the error rate was reasonable given the corrections to city spellings and missing city or zip code data . It is estimated that the Top Ten lists are accurate within 5% of the raw data sets used.

It is often said that "what gets measured gets done" and so we seek to shine a spotlight on "what is getting done" in Northern California solar installations. To this end, in this report and subsequent editions we seek to raise awareness of the success communities are having deploying solar PV technologies based on several different metrics. It is our hope that translating program data into a simplified score card makes it fun and interesting to track the progress of the PV installations and to engender a sense of inter-community competition and community engagement in this important market transformation toward solar energy resources. We are thrilled by the progress many communities, small and large, affluent and less so, and urban and rural, are making with adoption of solar energy. We hope you find the Bay Area Solar Installations report useful for assessing the progress of PV in California.

Endnotes

History

The Bay Area Solar Installations and City Solar Awards was an idea brought to NorCal Solar by volunteer member Bill LaCommare. Under the supervision of NorCal Solar, Mr. LaCommare completed the first analysis in July 2006 for solar installations under 15 kW in 7 Bay Area counties. The 2nd report was expanded and completed in July 2007 for solar installations of all sizes in 10 Bay Area counties through December 2006. The 3rd report was completed in July 2008 and included cumulative analysis for "1998 - 2007" and single year analysis for "2007".

Credits

Thank you to those who have made this report possible.

Data:

- Assistance and Support with Data Acquisition: PG&E
- CSI Data Auditing: Melicia Charles, CPUC
- County Data Collection: Energy Solutions
- Data Collection, Cleaning and Merging: Verve Solar Consulting
- Data Analysis: Bill LaCommare

Report:

- Report: Abigail Baxley, Bill LaCommare, Claudia Wentworth, Bryan Steele, Elaine Hebert, Ted Pope and Bruce Lymburn
- Web Pages: Bill LaCommare and Marvin Hamon

About NorCal Solar

Since 1975 the Northern California Solar Energy Association has inspired tens of thousands of people to support and adopt solar energy technology. We are membership driven, independent, public-benefit, 501(c)(3) non-profit organization spanning over 41 counties. Our mission is to foster the development and application of solar energy technology through the exchange of information and the generation of support for our industry. We are extremely lucky to have an active core of volunteers who contribute countless hours to promote solar education.

NorCal Solar serves as an important link between consumers, government, and the solar industry. Our volunteer-based education and grassroots advocacy programs accelerate the use of and demand for clean solar power. We envision a world in which the full potential of solar energy has been harnessed through technology and design in order to provide for a just, secure and environmentally sustainable human existence.

Disclaimer:

All attempts were made to present the actual incentive data within the specified parameters. Please report any missing incentive data to report@noricalsolar.org.

[1] Statewide Totals Summary:

ERP included 27,334 systems and totaled 120 MW - Data Source

SGIP included 795 systems and totaled 112 MW - Data Source

CSI included 2,337 systems and totaled 12 MW - Data Source

[2] Brainy Zip used for zipcodes. Population from city website or Census data from 2000 & 2006

[3] Note: the protocol for records that included city names with incorrect or incomplete zip codes was to maintain the city name and delete the zip code. Approximately 3-5% of the original records included zip code errors.