



What is a solar electric (photovoltaic) system?

December 26, 2011 - Green Buildings

Solar photovoltaic systems consist of solar panels that convert sunlight into electricity. The panels are typically mounted on a roof surface (see pictures below) and produce DC power, which is converted by an inverter into AC power that feeds the building's breaker panel. The owner is compensated for any excess power not used by the building. That power flows back into the utility's grid, turning the customer's meter backwards (net metering). At the end of the year, if the system produced more electricity than was consumed that year by the building, the utility purchases the excess power production.

Economic Benefits of Solar Systems

As a result of generous grants, subsidies, and tax benefits (federal, city and utility), and advances in solar panel efficiency, solar photovoltaic systems (solar PV) have recently become a very attractive investment option for building owners in N.Y.C. This recent window of opportunity has allowed savvy owners to invest in renewable energy by making use of their roofs as electric power plants, locking in their electric costs and hedging against future price increases. These systems lower building operating costs and increase the value of the property.

The final net cost of a typical 25 kilowatt system installed in N.Y.C. this year is under \$12,000, provided that the owner can take advantage of all the available tax benefits. This system would require about 3,000 square feet of usable roof space, and generates approximately \$5,000 of electricity annually (Note: the actual system size to be installed on each building will be determined by the amount of available roof space on the building).

These grants and tax benefits are as follows:

- * 30% federal tax credit
- * Accelerated depreciation deduction
- * Five year bonus accelerated depreciation
- * 20% N.Y.C. property tax abatement
- * 5% per year over four tax years
- * Abatement percentage will go down over time
- * NYSERDA rebate - \$1.75/watt.
- * Rebate has been going down over time and is now capped at \$87,500.

Bill Claps is the regional director of GreenLogic Energy, New York, N.Y.