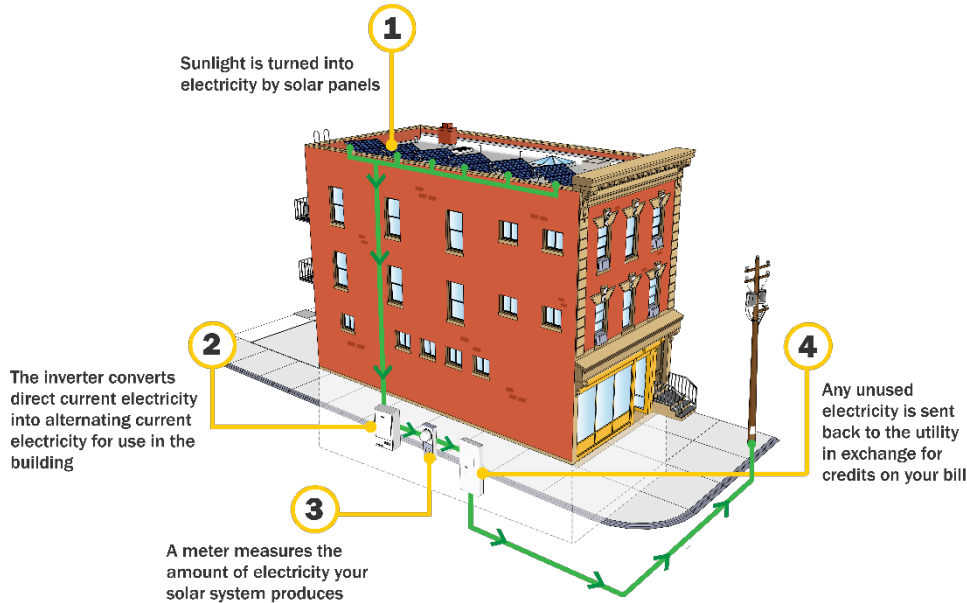


## How Solar Works






### Kilowatts vs Kilowatt-hours

**Kilowatt (kW)** - A solar energy system's capacity is the amount of power that the system could produce in an instant under ideal conditions. System Capacity is measured in Watts, or *kilowatts*, like lightbulbs.

**Kilowatt hours (kWh)** - Over time, solar arrays produce a flow of energy, measured in *kilowatt hours*. One kilowatt hour of solar energy offsets the need to purchase one kilowatt hour from the utility.

## Three Types of Solar Installations

Ballasted Array	Mechanically Attached Planar Array	Raised Canopy Array
		
<ul style="list-style-type: none"> <li>• Low profile</li> <li>• Limited roof penetrations</li> <li>• Cheaper and easier for low-rise buildings &lt;100 ft</li> </ul>	<ul style="list-style-type: none"> <li>• More solar production</li> <li>• No inter-row spacing</li> <li>• Best for space-constrained roofs</li> </ul>	<ul style="list-style-type: none"> <li>• Raised at least 9' above roof</li> <li>• Can cover entire roof area</li> <li>• Most expensive, but has co-benefits</li> </ul>

## Solar Operations and Maintenance

- ▶ Almost no maintenance for solar arrays and inverters
- ▶ Online monitoring allows remote diagnosis of performance issues
- ▶ Solar company should do walkthrough with building staff
- ▶ 5 to 10-year workmanship warranty
- ▶ 25-year panel warranty; 12-year inverter warranty
- ▶ Inverters often replaced around 15 years
- ▶ Solar company can work with roofer to maintain existing roof warranty

## ⚡ Solar Financials



### \$/Watt **increases** when...

- Smaller system
- Mechanically integrated system
- Taller buildings (>7 stories)
- Prevailing Wage
- Creative system designs (e.g. canopy)



### \$/Watt **decreases** when...

- Larger system
- Ballasted installation
- Competitive and bulk procurement
- Solar-Ready design

Sample System Costs				
System Size	Mounting Method	\$/Watt	Turnkey Price	Annual Savings*
8 kW	Planar	\$5.50	\$44,000	\$2,500
30 kW	Ballasted	\$3.50	\$105,000	\$10,000
40 kW	Canopy	\$4.50	\$116,000	\$13,500

*\*Annual savings varies based on electricity rate and solar system type*

## ⚡ Available Solar Incentives

Building Type	NYSERDA	Federal Tax Credit*	State Tax Credit	Accelerated Depreciation	NYC Property Tax Abatement
	NY-SUN Incentive (paid directly to installer)	(30% of system cost)	(25% of system cost)	(Federal and State Bonus Depreciation)	(30% of system cost)
OWNER-OCUPIED COOP/CONDO	\$1.60-\$2/Watt for affordable housing \$0.80-1.00/Watt for market rate	Likely distributed to shareholders	Must be distributed to shareholders	Only available to businesses	Only eligible if taxes are owed, not compatible with some other abatements
FOR-PROFIT RENTAL	\$1.60-\$2/Watt for affordable housing \$0.80-1.00/Watt for market rate	Commercial Tax Credit can be taken	N/A (homeowners only)	Available, pending owners' income tax liability	Only eligible if taxes are owed, not compatible with some other abatements
NON-PROFIT RENTAL	\$1.60-\$2/Watt for affordable housing \$0.80-1.00/Watt for market rate	Commercial Tax Credit can be taken through Direct Pay	N/A (homeowners only)	No tax liability	No tax liability

*\*Federal Investment Tax Credit is 30% + adders for certain buildings in low-income census tract or projects benefiting low-income tenants. For some sites it may be possible to sell tax credits through transferability. See Inflation Reduction Act IRS guidance.*

## 🗣️ Questions?

Solar One is a 501(c)(3) not-for-profit organization whose mission is to design and deliver innovative education, training, and technical assistance that fosters sustainability and resiliency in diverse urban environments. Our programs help individuals and communities explore new ways of living and working that are more adaptive to a climate-change impacted world. The official IRS 501c3 designation is CEC Stuyvesant Cove, Inc.

Affordable buildings can receive free technical assistance from Solar One and the NYC Dept of Housing Preservation and Development by emailing [affordable@solar1.org](mailto:affordable@solar1.org). We can also serve any NYC building larger than 5,000 square feet through the NYC Accelerator – contact [info@accelerator.nyc](mailto:info@accelerator.nyc) for more details.