

Enabling Resilient Solar Deployment: NYSolar Smart DG Hub



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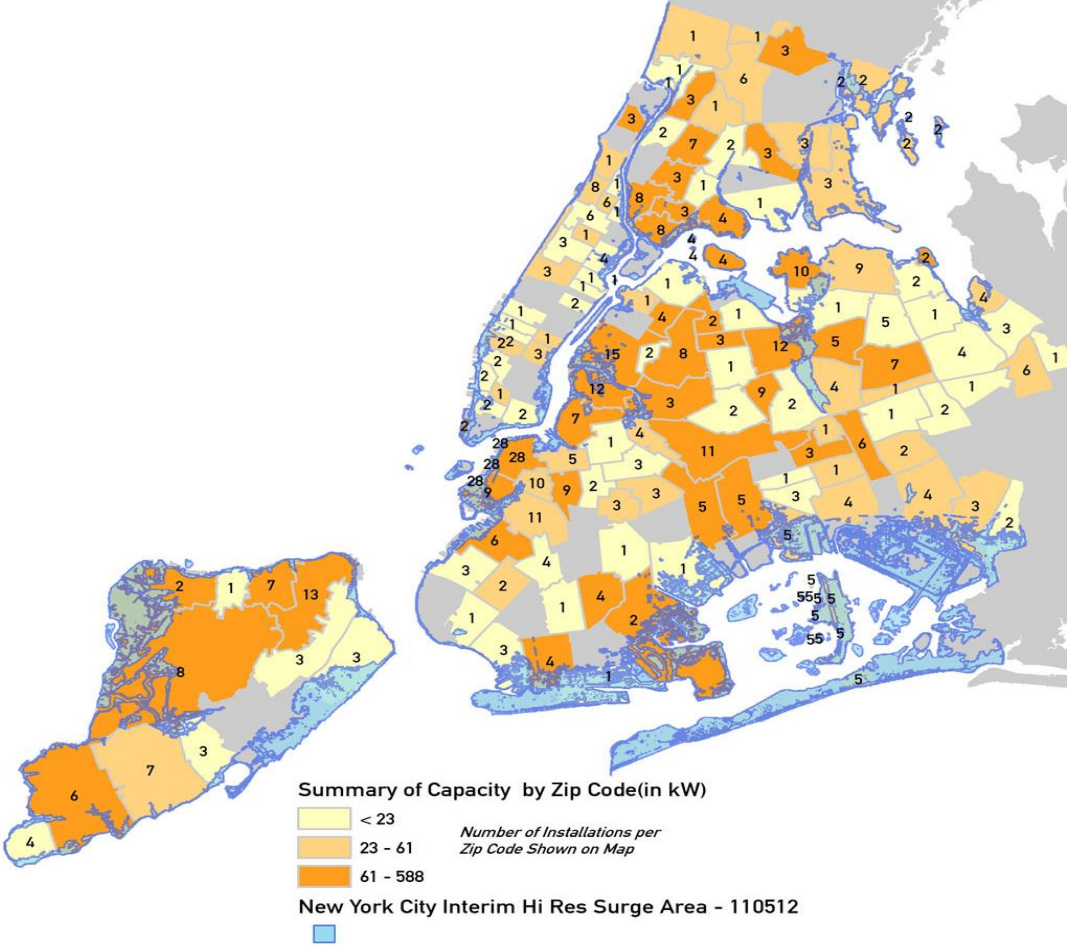
Hurricane Sandy October 29, 2012



5 Million in NY & NJ lost Power- three months later 8,200 were still in the dark



**Estimated untapped solar
energy per day post
Sandy:
6,500 kWh**



Hardware Technologies

Policy & Legal

**Smart DG
Hub**

**Software
Technologies**

**Economics &
Finance**

Over 50 Utility, Agency, Industry, CBO & Research Partners

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ENGAGE MARKET STAKEHOLDERS

- DG Hub Working Groups & Advisory Board
- Installer Workshop
- DG Hub Roundtable Event
- DG Hub Roundtable Listserv



IDENTIFY MARKET NEEDS

- Working Group Discussions
- Resilient PV Roadmap Framework
- Solar and Storage Survey
- DG Hub Roundtable Listserv



CREATE RESOURCES

- Hardware Fact Sheet
- Finance Fact Sheet
- Permitting Guide
- Technical Analysis
- Ideal locations for resilient PV

ACTIONS

Find Your Solar Potential

➔ Enter your address

or jump to

New York State

Which best describes you?

- Residential
 Commercial
 Installer
 Municipal / Non-profit

Available map layers

Installed Capacity

> Add your system to the map



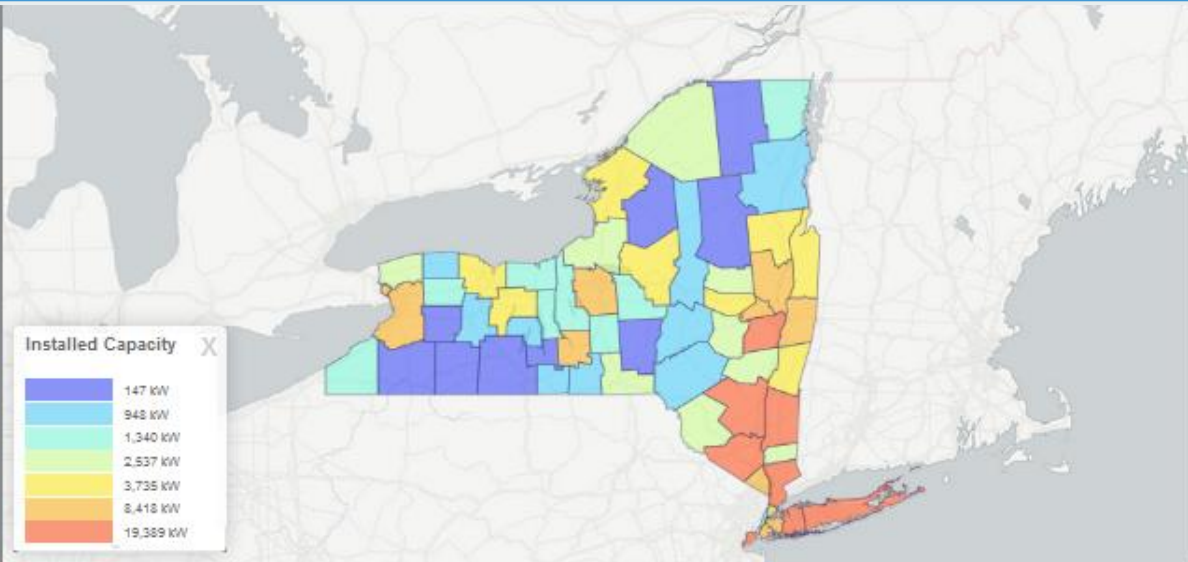
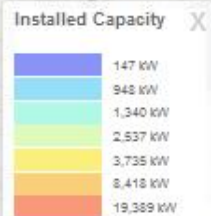
Solar
Statistics



Calculator in Your Area

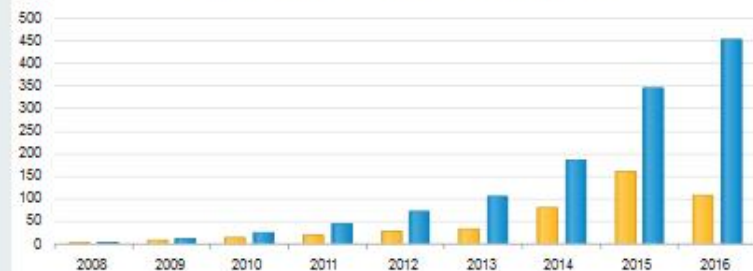


Advanced
Tools

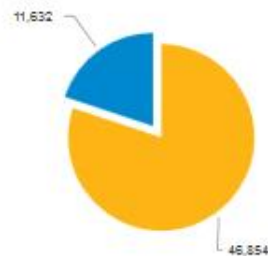


Solar Statistics for New York State

Installed Solar Power Generation Capacity (Megawatts)



Status of Solar Projects



Find Your Solar Potential

→ Enter your address

or jump to

Which best describes you?

Residential Commercial

Installer Municipal / Non-profit

Available map layers

NYC Installed Energy Storage Systems

> Add your system to the map



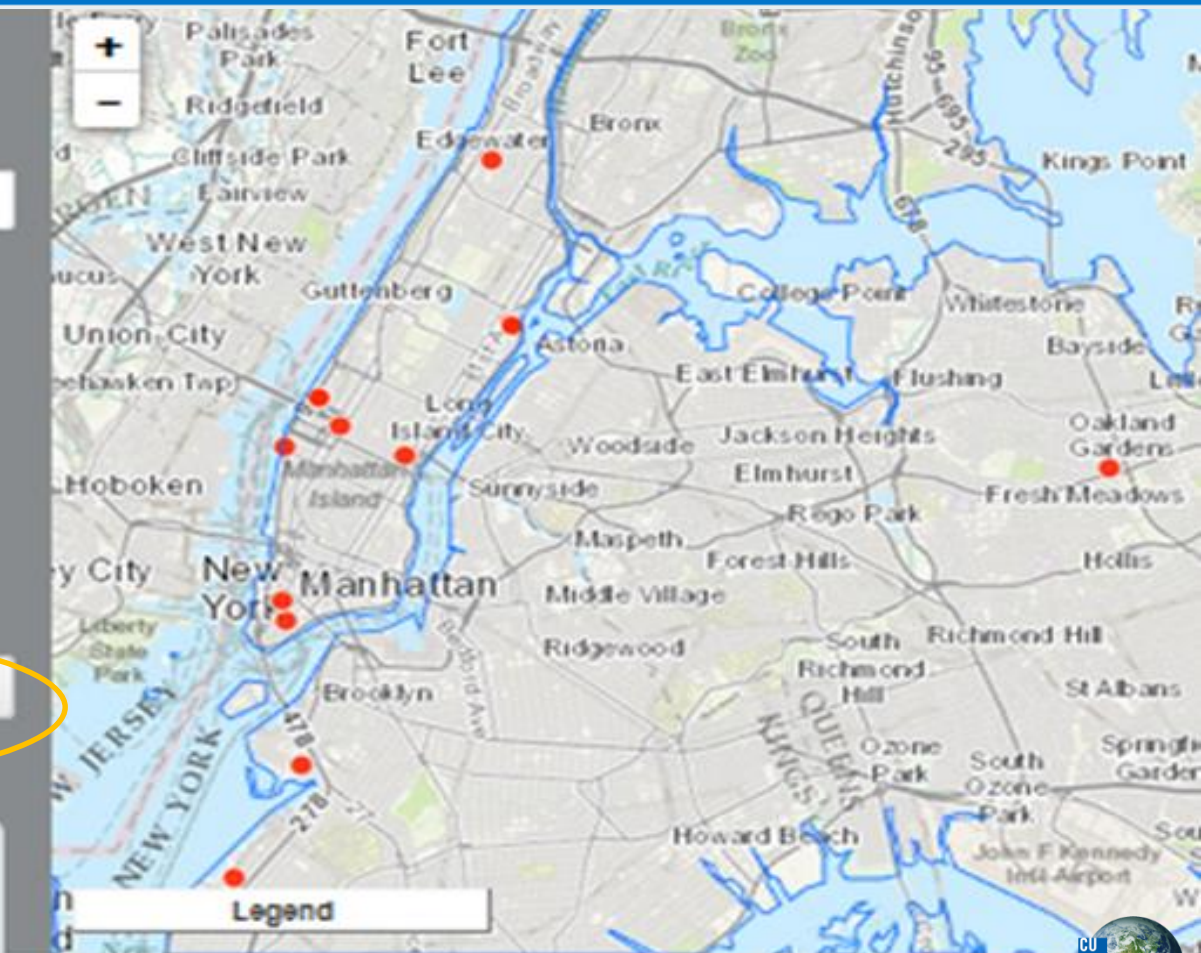
Solar Statistics



Calculator In Your Area



Advanced Tools

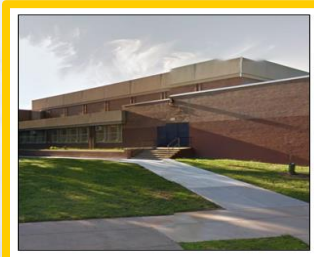


REPORTS

Resiliency Resources

- ✓ **Guidance Memo for Including Storage in Community Solarize Programs**
- ✓ **Economic and Resiliency Impact of PV and Storage on NY Critical Infrastructure**
- ✓ **Solar+Storage Retrofit Guidelines**
- ✓ **Solar+Storage and Microgrid Communications Fact Sheet**
- ✓ **Economics and Finance of Solar+Storage Fact Sheet**
- ✓ **Resilient Solar PV Systems Hardware Fact Sheet**
- ✓ **Solar and Storage Cost Survey**
- ✓ **Energy Storage Systems Permitting and Interconnection Process Guide for NYC**
- ✓ **NYC Solar+Storage Glossary**

Resilient PV Report



School



Fire Station



NYCHA

Evaluated Scenarios

1. PV + Storage (sized for economics)
2. PV + Storage (sized for outage)
3. Hybrid (sized for outage)
4. Generator (sized for outage)

All sites were analyzed with and without a resiliency value



Resilient PV Report

Finding: PV+Storage is NPV positive for systems at each site

School		
PV+Storage Sized for Economic Savings		
	Without Resiliency	With Resiliency
PV Size (kW-DC)	50	50
Battery Size (kWh)	74	74
Battery Size (kW)	35	35
Net Present Value	\$51,560	\$58,650

+7,090

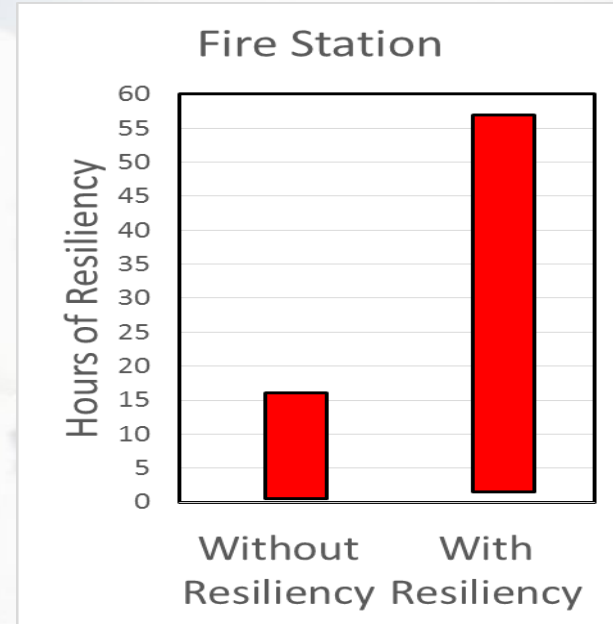
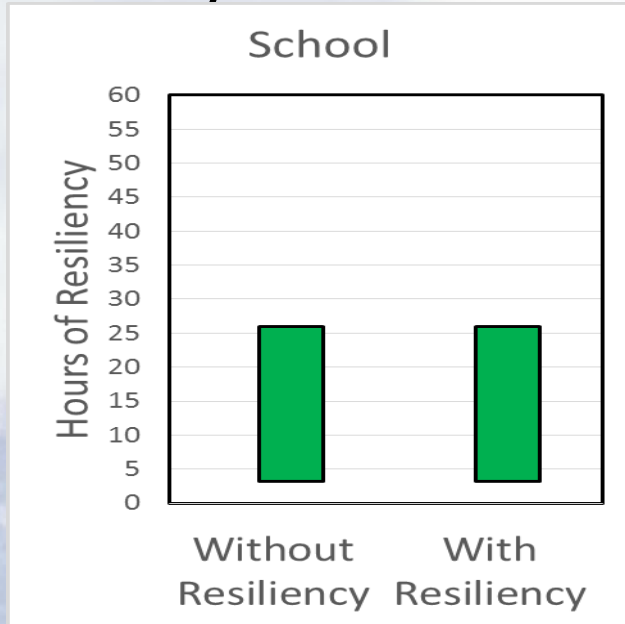
Fire Station		
	Without Resiliency	With Resiliency
PV Size (kW-DC)	10	10
Battery Size (kWh)	43	213
Battery Size (kW)	16	31
Net Present Value	\$22,365	\$324,250

+301,885



Resilient PV Report

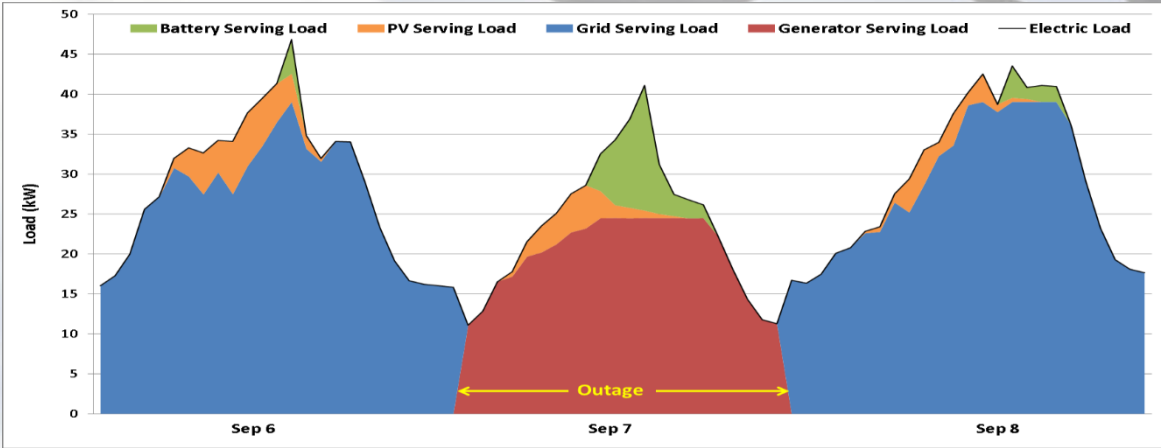
Finding: Adding storage to PV improves economics and gives “free resiliency”



Resilient PV Report

Fire Station				
Most Cost Effective Option for Outage Coverage				
	Short outage; without resiliency	Long outage; without resiliency	Short outage; with resiliency	Long outage; with resiliency
PV+Storage NPV	-\$12,070	-\$256,158	\$10,149	\$93,118
Hybrid NPV	\$0	-\$1,679	\$25,384	\$344,848
Generator Only NPV	-\$51,713	-\$51,713	-\$19,964	\$296,380

Finding: Hybrid and PV+Storage systems are better than stand alone generators



nysolarmap.com

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