WE <3 SOLAR

AFFORDABLE SOLAR 101

HAPPY VALENTINE'S DAY!

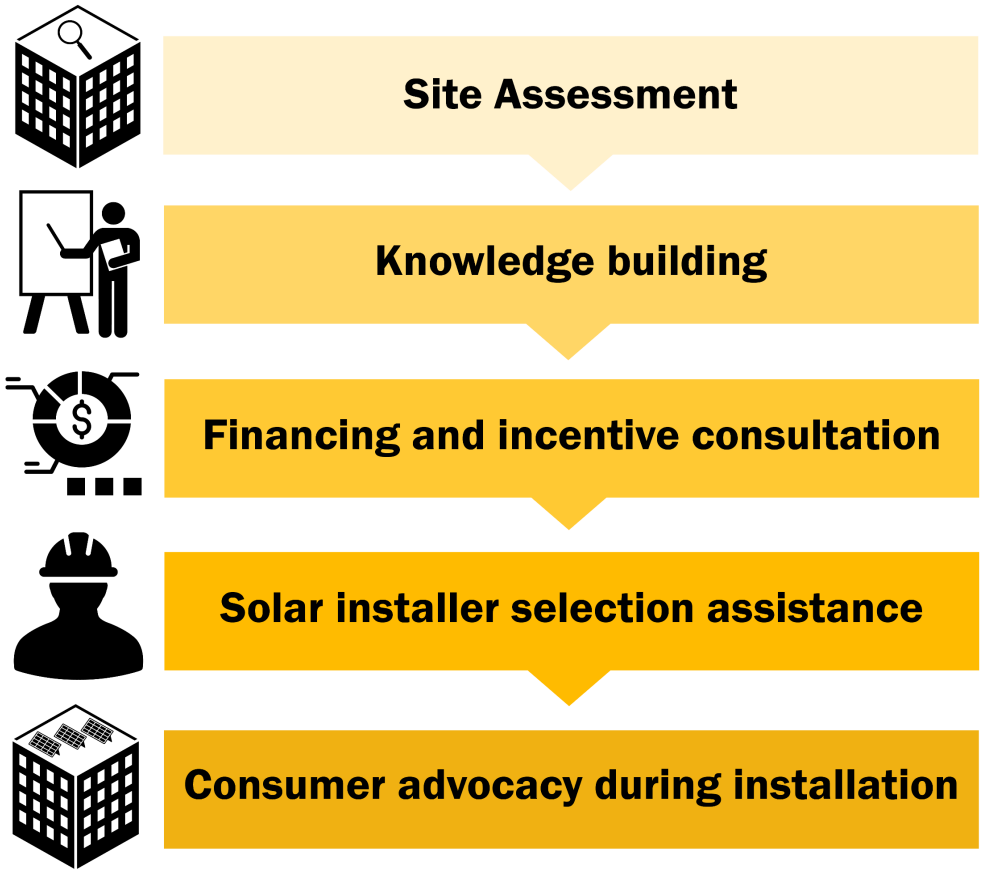
Agenda

1. Introductions
2. Solar 101 + New Incentives
3. Solar Where Feasible Updates & Resources
4. NYC Solar Policy
5. Q&A

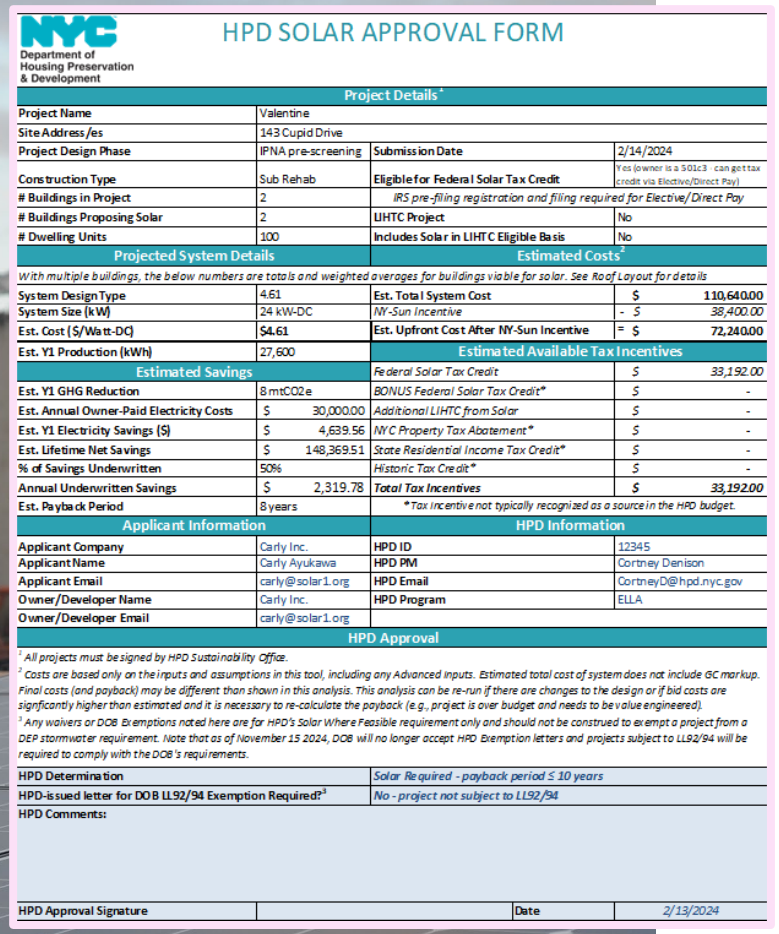
HERE COMES SOLAR

A PROJECT OF SOLAR ONE

- Here Comes Solar envisions a just, renewable, and resilient energy future where communities disproportionately impacted by social and environmental injustices have equitable access to the benefits of solar energy.
- We provide education and technical guidance to make solar accessible, collaborating with local communities to build an inclusive energy transition.



Solar Where Feasible



NYC Department of Housing Preservation & Development

HPD SOLAR APPROVAL FORM

Project Details[1]			
Project Name	Valentine		
Site Address/es	143 Cupid Drive		
Project Design Phase	IPNA pre-screening	Submission Date	2/14/2024
Construction Type	Sub Rehab	Eligible for Federal Solar Tax Credit	Yes (owner is a 501c3 - can get tax credit via Elective/Direct Pay)
# Buildings in Project	2	*IRS pre-filing registration and filing required for Elective/Direct Pay*	
# Buildings Proposing Solar	2	LIHTC Project	No
# Dwelling Units	100	Includes Solar in LIHTC Eligible Basis	No

Projected System Details		Estimated Costs[2]		
With multiple buildings, the below numbers are totals and weighted averages for buildings viable for solar. See Roof Layout for details				
System Design Type	4.61	Est. Total System Cost	$	110,640.00
System Size (kW)	24 kW-DC	*NY-Sun Incentive*	- $	*38,400.00*
Est. Cost ($/Watt-DC)	$4.61	Est. Upfront Cost After NY-Sun Incentive	= $	72,240.00
Est. Y1 Production (kWh)	27,600	**Estimated Available Tax Incentives**		
Estimated Savings		*Federal Solar Tax Credit*	$	*33,192.00*
Est. Y1 GHG Reduction	8 mtC02e	*BONUS Federal Solar Tax Credit**	$	-
Est. Annual Owner-Paid Electricity Costs	$ 30,000.00	*Additional LIHTC from Solar*	$	-
Est. Y1 Electricity Savings ($)	$ 4,639.56	*NYC Property Tax Abatement**	$	-
Est. Lifetime Net Savings	$ 148,369.51	*State Residential Income Tax Credit**	$	-
% of Savings Underwritten	50%	*Historic Tax Credit**	$	-
Annual Underwritten Savings	$ 2,319.78	***Total Tax Incentives***	$	***33,192.00***
Est. Payback Period	8 years	**Tax incentive not typically recognized as a source in the HPD budget.*		

Applicant Information		HPD Information	
Applicant Company	Carly Inc.	HPD ID	12345
Applicant Name	Carly Ayukawa	HPD PM	Cortney Denison
Applicant Email	carly@solar1.org	HPD Email	CortneyD@hpd.nyc.gov
Owner/Developer Name	Carly Inc.	HPD Program	ELLA
Owner/Developer Email	carly@solar1.org		

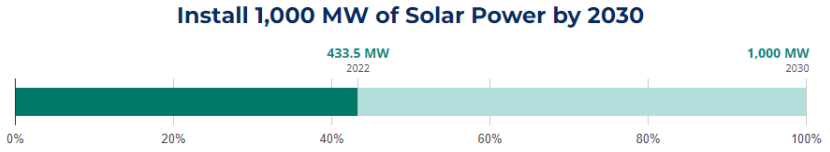
HPD Approval

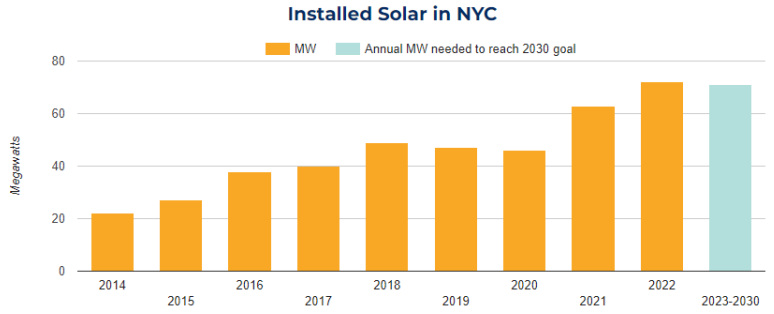
[1] *All projects must be signed by HPD Sustainability Office.*
[2] *Costs are based only on the inputs and assumptions in this tool, including any Advanced Inputs. Estimated total cost of system does not include GC markup. Final costs (and payback) may be different than shown in this analysis. This analysis can be re-run if there are changes to the design or if bid costs are signficantly higher than estimated and it is necessary to re-calculate the payback (e.g., project is over budget and needs to be value engineered).*
[3] *Any waivers or DOB Exemptions noted here are for HPD's Solar Where Feasible requirement only and should not be construed to exempt a project from a DEP stormwater requirement. Note that as of November 15 2024, DOB will no longer accept HPD Exemption letters and projects subject to LL92/94 will be required to comply with the DOB's requirements.*

HPD Determination	*Solar Required - payback period ≤ 10 years*
HPD-issued letter for DOB LL92/94 Exemption Required?[3]	*No - project not subject to LL92/94*
HPD Comments:	

HPD Approval Signature		Date	2/13/2024

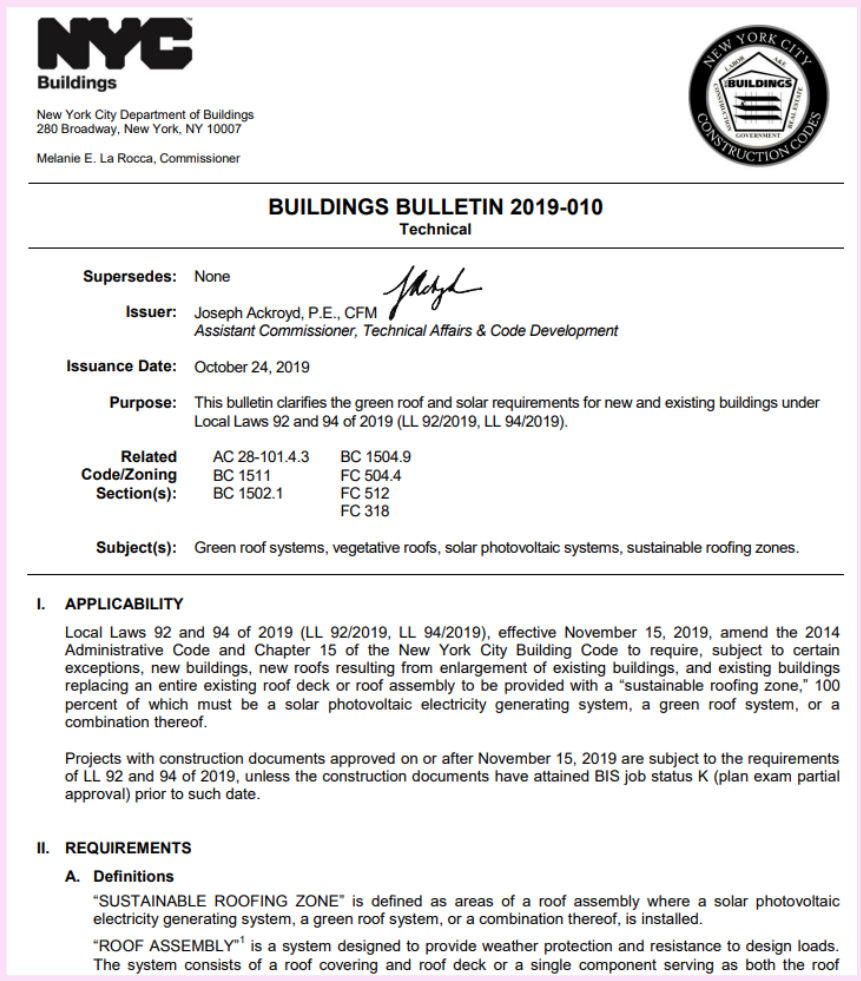
- HPD Solar Where Feasible Mandate requires Affordable Housing to go Solar only when it is financially beneficial to the building: with a payback of 10 years or less.
  - NYSERDA funded a partnership with Solar One & HPD for the Solar Where Feasible mandate to provide free services to HPD New Construction, Preservation, and Asset Management Programs
- Since 2020, HPD's Solar Where Feasible program has supported **over 12 MW of cost-effective solar** in 169 new buildings and 192 existing buildings. The buildings will save approximately **$1.9 million** on their annual electric bills and reduce **4,000 tons of CO_2** emissions each year.





Source: NYSERDA Statewide Solar Projects, https://www.nyserda.ny.gov/All-Programs/NY-Sun/Solar-Data-Maps/Statewide-Projects

Local Law 92 & 94



NYC Buildings

New York City Department of Buildings
280 Broadway, New York, NY 10007

Melanie E. La Rocca, Commissioner

BUILDINGS BULLETIN 2019-010
Technical

Supersedes: None

Issuer: Joseph Ackroyd, P.E., CFM
Assistant Commissioner, Technical Affairs & Code Development

Issuance Date: October 24, 2019

Purpose: This bulletin clarifies the green roof and solar requirements for new and existing buildings under Local Laws 92 and 94 of 2019 (LL 92/2019, LL 94/2019).

Related Code/Zoning Section(s): AC 28-101.4.3, BC 1511, BC 1502.1, BC 1504.9, FC 504.4, FC 512, FC 318

Subject(s): Green roof systems, vegetative roofs, solar photovoltaic systems, sustainable roofing zones.

I. APPLICABILITY

Local Laws 92 and 94 of 2019 (LL 92/2019, LL 94/2019), effective November 15, 2019, amend the 2014 Administrative Code and Chapter 15 of the New York City Building Code to require, subject to certain exceptions, new buildings, new roofs resulting from enlargement of existing buildings, and existing buildings replacing an entire existing roof deck or roof assembly to be provided with a "sustainable roofing zone," 100 percent of which must be a solar photovoltaic electricity generating system, a green roof system, or a combination thereof.

Projects with construction documents approved on or after November 15, 2019 are subject to the requirements of LL 92 and 94 of 2019, unless the construction documents have attained BIS job status K (plan exam partial approval) prior to such date.

II. REQUIREMENTS

A. Definitions

"SUSTAINABLE ROOFING ZONE" is defined as areas of a roof assembly where a solar photovoltaic electricity generating system, a green roof system, or a combination thereof, is installed.

"ROOF ASSEMBLY"[1] is a system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof

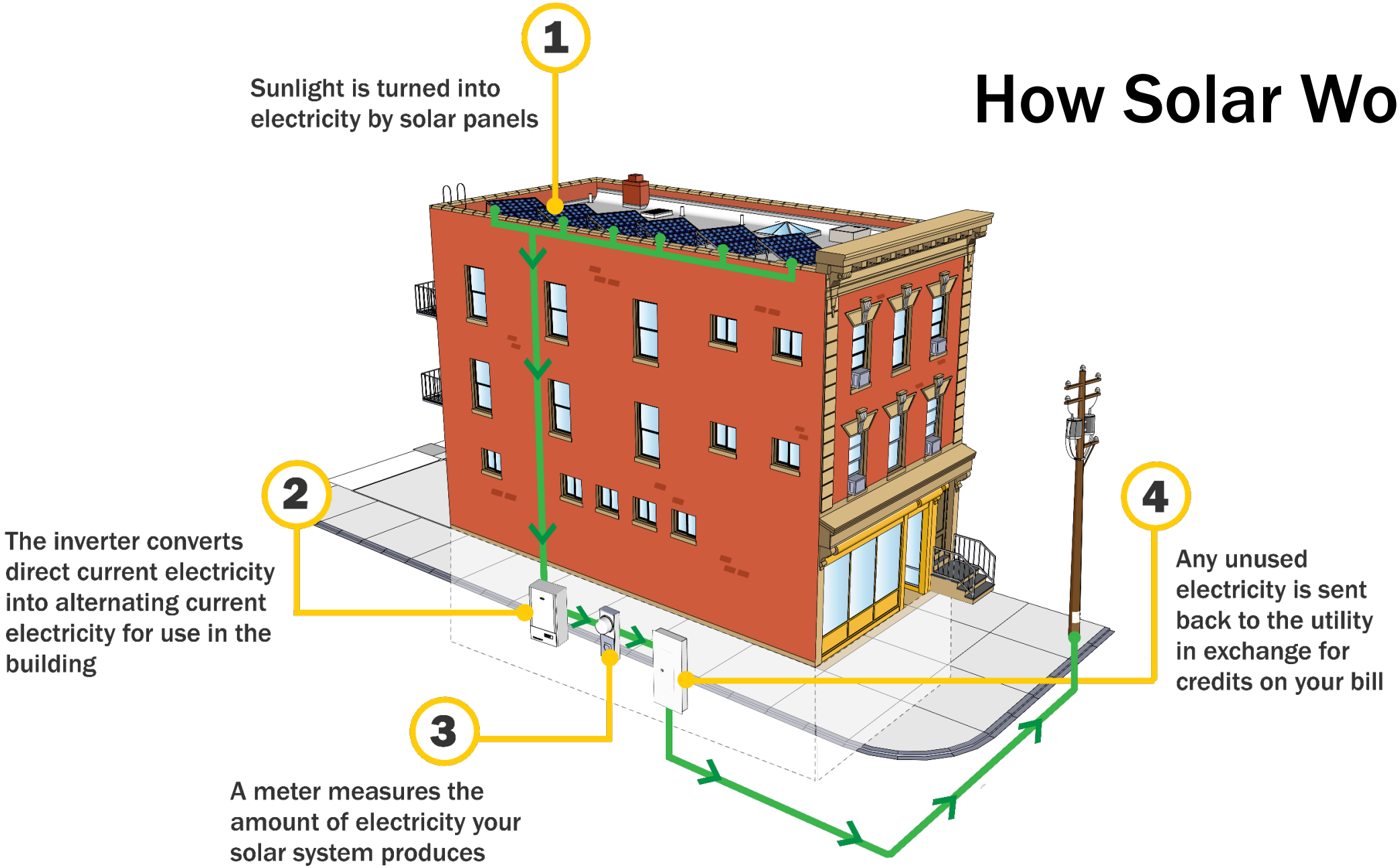
- Local Laws 92 and 94 of the Climate Mobilization Act require either green roofs or solar on all new roofs and new roof assemblies.
- Starting November 15 2024, the affordability exemption will no longer apply and all buildings subject to LL92/94 will need to comply with DOB's requirements

V. ALTERNATE COMPLIANCE TIMELINE FOR AFFORDABLE HOUSING

Until November 15, 2024, (i) buildings with one or more dwelling units for which occupancy or initial occupancy is restricted based upon the income of the occupant or prospective occupant as a condition of (A) a loan, grant, tax exemption or conveyance of property from any state or local governmental entity pursuant to the private housing finance law or the general municipal law, or (B) a tax exemption pursuant to section 420-c of the real property tax law, (ii) buildings subject to the alternative enforcement program pursuant to section 27-2153 of the administrative code of the city of New York, and (iii) buildings owned by the Department of Housing Preservation and Development (HPD), need only comply with the requirements of LL 92 and 94 of 2019 to the extent determined by HPD.

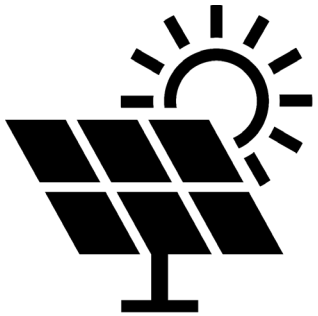
Solar 101

How Solar Works

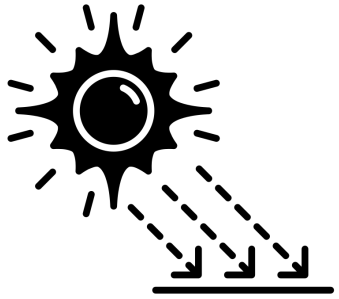


The Basics of Solar Technology

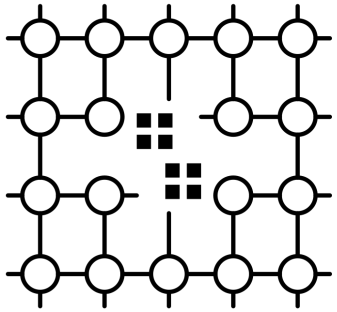
25+ Operating Life
best on new roofs



Almost No Maintenance
for solar arrays and inverters



Requires Direct Sunlight
free from shading from buildings and trees



Grid Connected
shuts off in a blackout

Three Types of Solar Installations in NYC

Ballasted

- Low profile
- Limited roof penetrations
- Least expensive, best on low buildings

Mechanically Attached

- More solar production
- No inter-row spacing
- Best for space-constrained roofs

Canopy

- Raised at least 9’ above roof
- Can cover entire roof area
- Most expensive, but has co-benefits

What makes a building viable for solar?

Not Viable? Sign up for Community Solar!

- Subscribe to local installation and save up to 10% on your electricity bill
- Free to sign up
- 12-month term
- Auto-renewal
- Moves with you if you move within NYC
- No cancellation fee
- Learn more by emailing enrollment@solar1.org
- Community Solar Info Hub

Solar Costs, Incentives, & Savings

What is included in the solar installer's price?

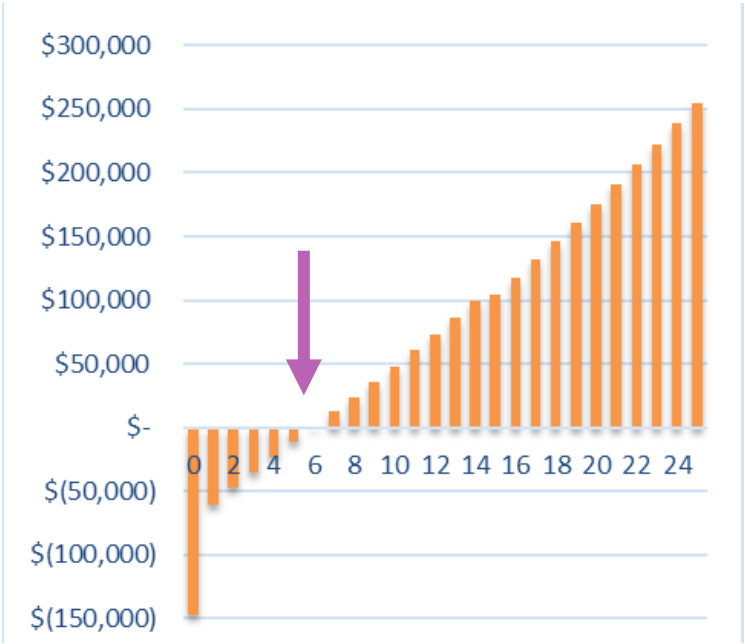
- Contract and Screening
  - Site Visit
  - Contract Creation & Signing
- Final Design and Application Submission
  - System Design, Structural Analysis & Engineering
  - ConEd, NYSERDA, FDNY, LPC submissions
- Permit Submission
  - NYC DOB and Electrical Permit submissions
  - Construction and Electrical Permit Approvals
- System Installation
  - Equipment Procurement & Delivery
  - Installation & ConEd Interconnection Approval
- Final Project Inspection and Sign-Off

- *Note: Solar installer's price does not include GC markup*

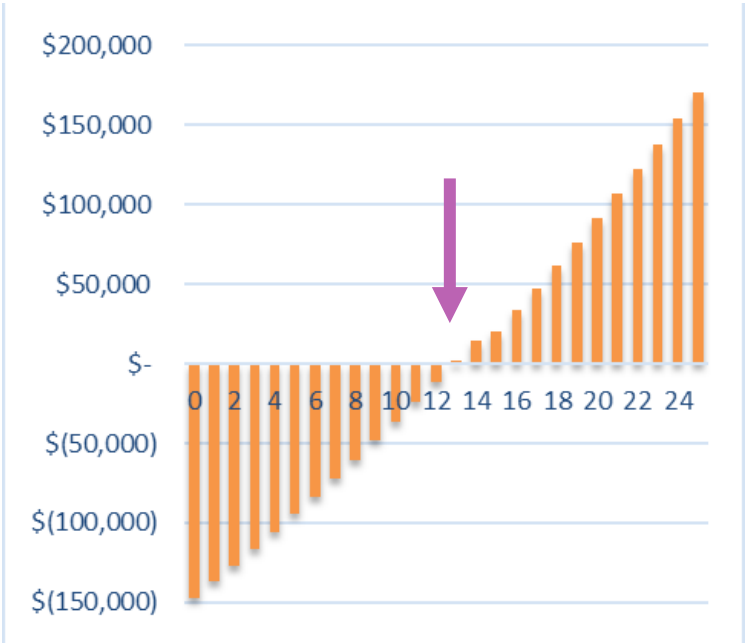
Saving Money with Solar

- Many multifamily solar projects in New York City typically have a 5-12 year payback period, depending on costs and incentive eligibility
- Solar Incentives can make a major impact in payback period
- Solar projects typically continue to provide electricity savings even after the 25 year period

With Solar Tax Incentives



No Solar Tax Incentives



Saving Money with Solar on Utility Bills

- Rooftop solar projects can directly and reliably reduce owner-paid electricity bills.
  - ~50% common area electricity usage offset for EL9
  - ~100% common area electricity usage offset for EL2
- Utility bill savings vary based on:
  - Owner-paid electricity rate - Large Commercial vs Small Commercial vs Master-Metered
  - Metering configuration
  - System size, which is based on usable roof space and annual electricity consumption

Solar Rebates and Tax Incentives

Building Type	NYSERDA NY-Sun Incentive ($1.60-$2/Watt-DC, paid directly to installer at project completion)	Federal Tax Credit* (30%+ of system cost)	State Tax Credit (25% of system cost, up to $5k per shareholder)	Accelerated Depreciation (80% Year 1 Bonus Depreciation)	NYC Solar Property Tax Abatement (PTA) (30% of system cost)
OWNER-OCCUPIED CO-OP/CONDO	Eligible for NY-Sun	Either distributed to shareholders or taken by the building entity, building must have tax liability	Must be distributed to shareholders, shareholders must have tax liability	N/A (businesses only)	Only eligible if taxes are owed, not compatible with some other abatements
FOR-PROFIT RENTAL	Eligible for NY-Sun	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
501c3 NON-PROFIT RENTAL	Eligible for NY-Sun	Non-profits can receive the tax credit as a direct payment via Elective Pay or can be taken by LIHTC investor for additional benefits	N/A (homeowners only)	N/A (businesses only)	No tax liability

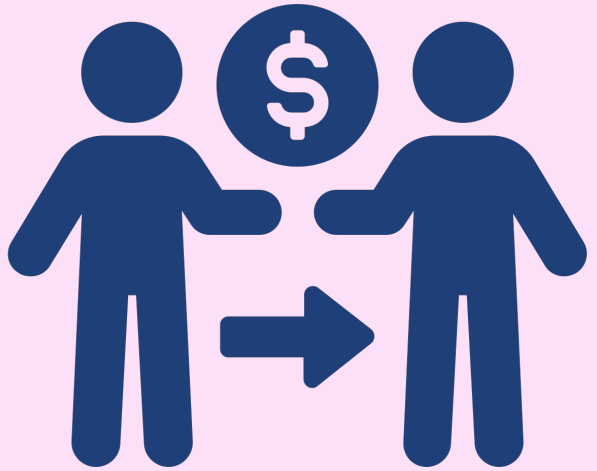
* Per the IRA, the federal tax credit is 30% + bonus credits for certain buildings in low-income census tracts or for projects benefitting low-income residents. Some taxpayers are eligible to sell tax credits through transferability. See Inflation Reduction Act IRS guidance.

Major Solar Incentives in the IRA

30% Federal Tax Credit + Bonuses

Elective Pay for 501(c)(3)s

Transferability of Tax Credits



Category 1: Located in a Low-Income Community (10% bonus)

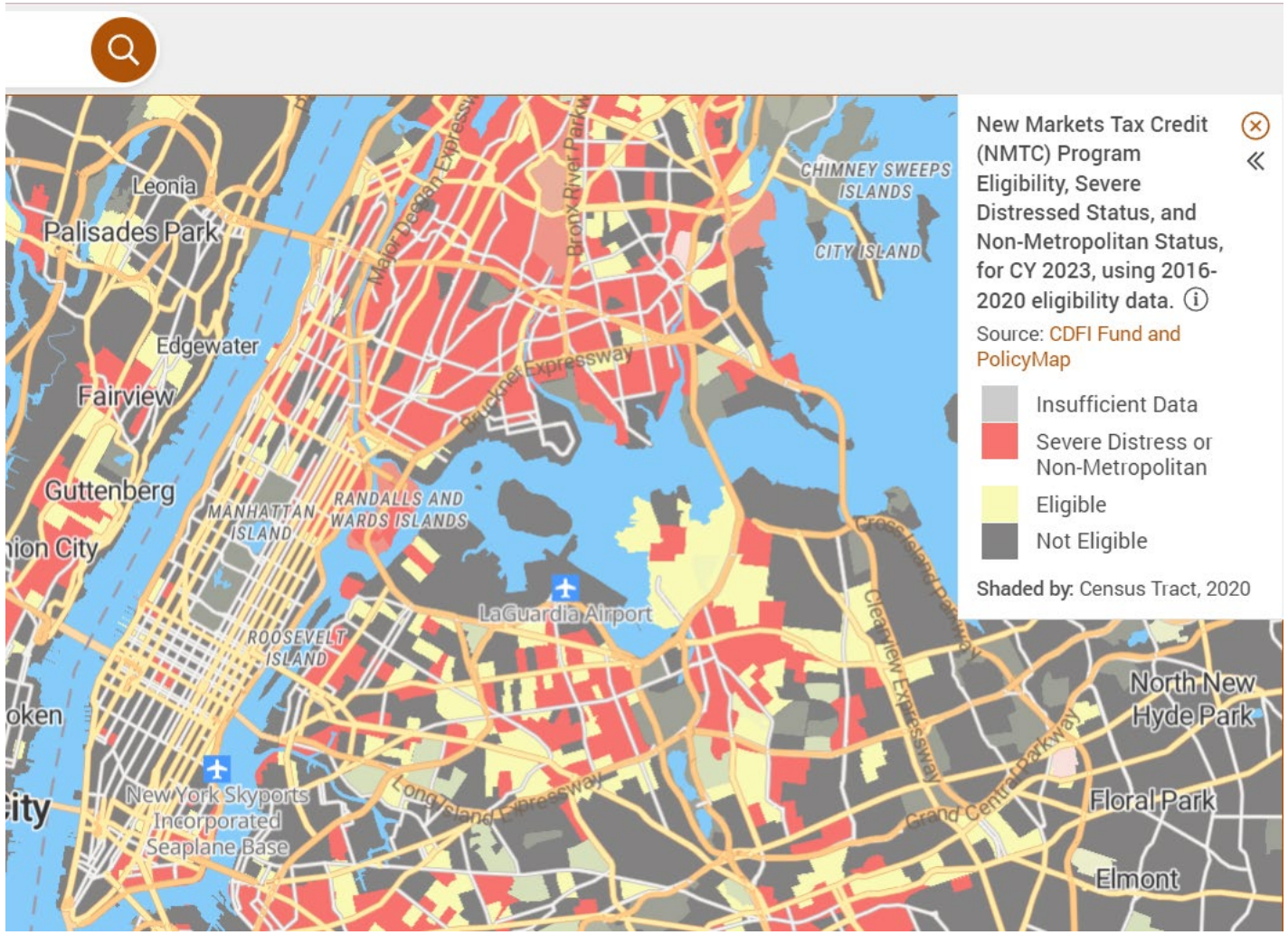
Eligibility:

- Solar facility located within a census tract determined by the New Market Tax Credit Map

Process:

- You must pre-apply, receive a capacity allocation, and then place your facility in service to claim this bonus.

Final guidance available here
Application platform here
DOE program overview here



Category 3: Qualified Low-Income Residential Building Project (20% bonus)

Eligibility:

- Solar facility on affordable housing with "financial benefits are distributed equitably to low-income tenants."

Process:

- You must pre-apply, receive a capacity allocation, and then place your facility in service to claim this bonus.

Final guidance available here
Application platform here
DOE program overview here

Elective Pay (AKA Direct Pay)

Applicable Entities:

- Tax-exempt organizations (501a, 501c, 501d), States, political subdivisions such as local governments, Indian tribal governments, rural electric co-operatives

Process:

- Pre-filing registration and filing required to make a valid elective payment election

FAQ here

User Guide & Instructions here

Elective Pay proposed rules here

Transferability proposed rules here

Transferability

Taxpayer eligible to transfer credits:

- One that is NOT an Elective Pay applicable entity, (e.g., co-ops)

Process:

- Pre-filing registration and filing required to make a valid transfer of credit election
- Sellers can list their projects - individually or bundled - on an open market platform
- The open market platform enables prospective credit buyers to express interest and conduct due diligence

Solar Where Feasible Updates

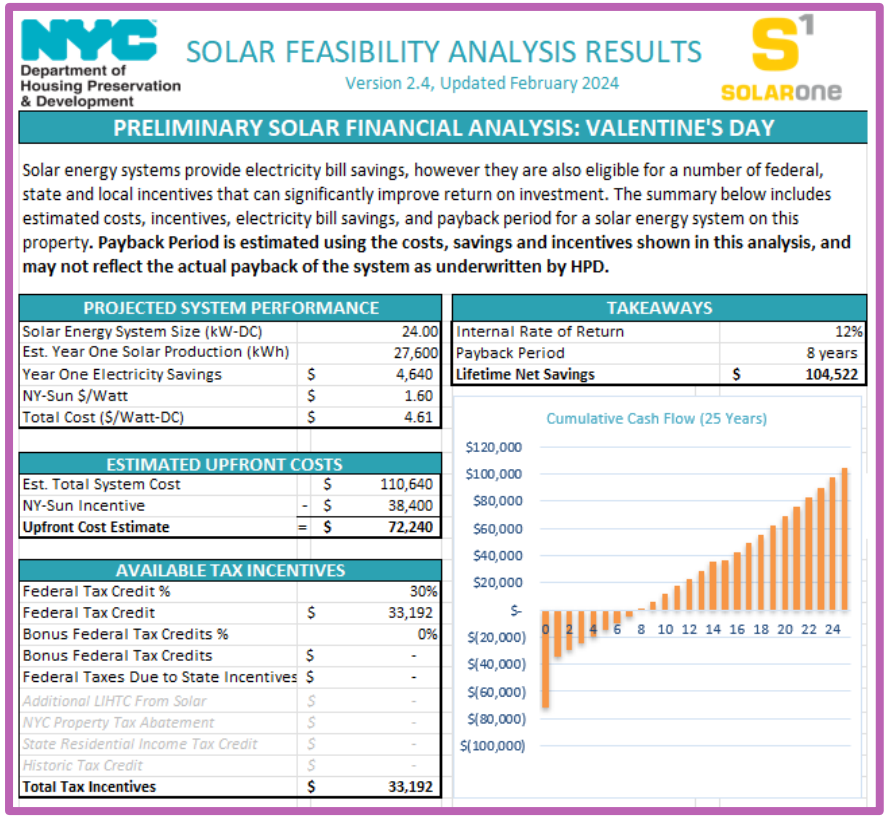
Updated Tool + Process

Version 2.4:

- Updated pricing and incentives, IRA bonus credits, multi-building projects

Updated Process:

- ALL HPD Approval Forms must be signed by the HPD Sustainability office
- As of July 1, 2024, SWF is **not required** for New Construction projects
  - Stay tuned for further guidance



NYC Department of Housing Preservation & Development — SOLAR FEASIBILITY ANALYSIS RESULTS — Version 2.4, Updated February 2024 — SOLARone

PRELIMINARY SOLAR FINANCIAL ANALYSIS: VALENTINE'S DAY

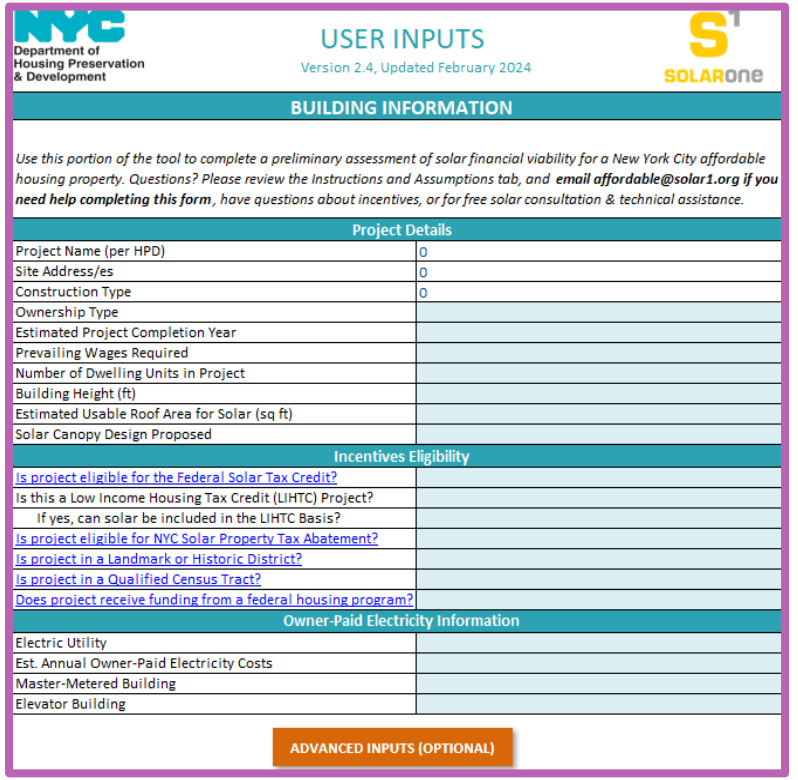
Solar energy systems provide electricity bill savings, however they are also eligible for a number of federal, state and local incentives that can significantly improve return on investment. The summary below includes estimated costs, incentives, electricity bill savings, and payback period for a solar energy system on this property. **Payback Period is estimated using the costs, savings and incentives shown in this analysis, and may not reflect the actual payback of the system as underwritten by HPD.**

PROJECTED SYSTEM PERFORMANCE		
Solar Energy System Size (kW-DC)		24.00
Est. Year One Solar Production (kWh)		27,600
Year One Electricity Savings	$	4,640
NY-Sun $/Watt	$	1.60
Total Cost ($/Watt-DC)	$	4.61

ESTIMATED UPFRONT COSTS			
Est. Total System Cost		$	110,640
NY-Sun Incentive	-	$	38,400
Upfront Cost Estimate	=	$	72,240

AVAILABLE TAX INCENTIVES		
Federal Tax Credit %		30%
Federal Tax Credit	$	33,192
Bonus Federal Tax Credits %		0%
Bonus Federal Tax Credits	$	-
Federal Taxes Due to State Incentives	$	-
Additional LIHTC From Solar	$	-
NYC Property Tax Abatement	$	-
State Residential Income Tax Credit	$	-
Historic Tax Credit	$	-
Total Tax Incentives	$	33,192

TAKEAWAYS		
Internal Rate of Return		12%
Payback Period		8 years
Lifetime Net Savings	$	104,522



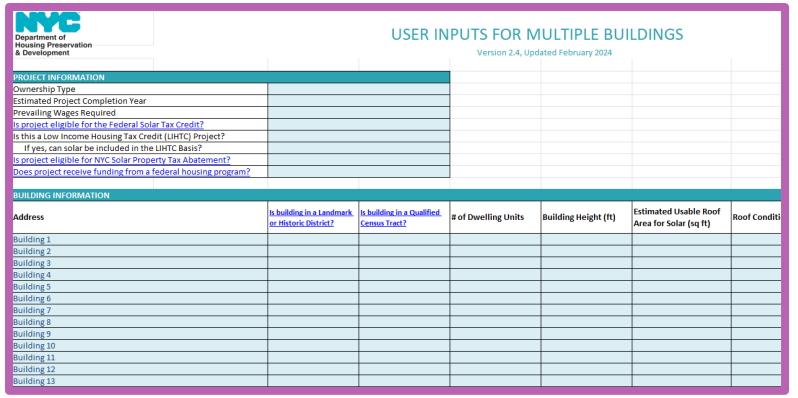
NYC Department of Housing Preservation & Development — USER INPUTS — Version 2.4, Updated February 2024 — SOLARone

BUILDING INFORMATION

*Use this portion of the tool to complete a preliminary assessment of solar financial viability for a New York City affordable housing property. Questions? Please review the Instructions and Assumptions tab, and **email affordable@solar1.org if you need help completing this form**, have questions about incentives, or for free solar consultation & technical assistance.*

Project Details	
Project Name (per HPD)	0
Site Address/es	0
Construction Type	0
Ownership Type	
Estimated Project Completion Year	
Prevailing Wages Required	
Number of Dwelling Units in Project	
Building Height (ft)	
Estimated Usable Roof Area for Solar (sq ft)	
Solar Canopy Design Proposed	
Incentives Eligibility	
Is project eligible for the Federal Solar Tax Credit?	
Is this a Low Income Housing Tax Credit (LIHTC) Project?	
If yes, can solar be included in the LIHTC Basis?	
Is project eligible for NYC Solar Property Tax Abatement?	
Is project in a Landmark or Historic District?	
Is project in a Qualified Census Tract?	
Does project receive funding from a federal housing program?	
Owner-Paid Electricity Information	
Electric Utility	
Est. Annual Owner-Paid Electricity Costs	
Master-Metered Building	
Elevator Building	

ADVANCED INPUTS (OPTIONAL)



NYC Department of Housing Preservation & Development — USER INPUTS FOR MULTIPLE BUILDINGS — Version 2.4, Updated February 2024

PROJECT INFORMATION	
Ownership Type	
Estimated Project Completion Year	
Prevailing Wages Required	
Is project eligible for the Federal Solar Tax Credit?	
Is this a Low Income Housing Tax Credit (LIHTC) Project?	
If yes, can solar be included in the LIHTC Basis?	
Is project eligible for NYC Solar Property Tax Abatement?	
Does project receive funding from a federal housing program?	

BUILDING INFORMATION						
Address	Is building in a Landmark or Historic District?	Is building in a Qualified Census Tract?	# of Dwelling Units	Building Height (ft)	Estimated Usable Roof Area for Solar (sq ft)	Roof Conditi
Building 1						
Building 2						
Building 3						
Building 4						
Building 5						
Building 6						
Building 7						
Building 8						
Building 9						
Building 10						
Building 11						
Building 12						
Building 13						

Updated Process

PRE-SUBMISSION GUIDANCE

- **Where applicable**: project teams should consider whether the project will need a green roof to satisfy the DEP's USWR requirement,
- **All project teams**: should consider how to optimize their roofs for solar
- **Rehabs only**: solar screenings developed as part of a project's IPNA if the IPNA are preliminary screening only for budgeting purposes. The project architect should submit an updated Solar Feasibility Analysis to ensure accuracy and reflect any changes to the scope or design, see SUBMISSION (#1) below.

SUBMISSION (prior to the HPD Design Consultation)

1.The applicant (typically the architect or green consultant) submits a Solar Feasibility Analysis, including a schematic roof plan, via the Solar Feasibility Analysis Intake Portal.

REVIEW & SIGN OFF

2. Solar One completes the Solar Feasibility Analysis.

3. After the Design Consultation, HPD Sustainability signs the Feasibility Analysis.

DESIGN

4. For projects where solar is required the architect will develop a Preliminary Design for solar that will be used for bidding purposes.

5. If the Preliminary Design is significantly different than the signed Solar Feasibility Analysis (e.g. different number of panels and/or different estimated production), the applicant should resubmit the Solar Feasibility Analysis, including the Preliminary Design, to Solar One to recalculate the cost and payback.

BIDDING, COST REVIEW & CONSTRUCTION

6. Solar bids must include the full installation cost and note the estimated NYSERDA NY-Sun incentive.

7. Solar One can assist architect/owner with the bidding process (for the solar portion only).

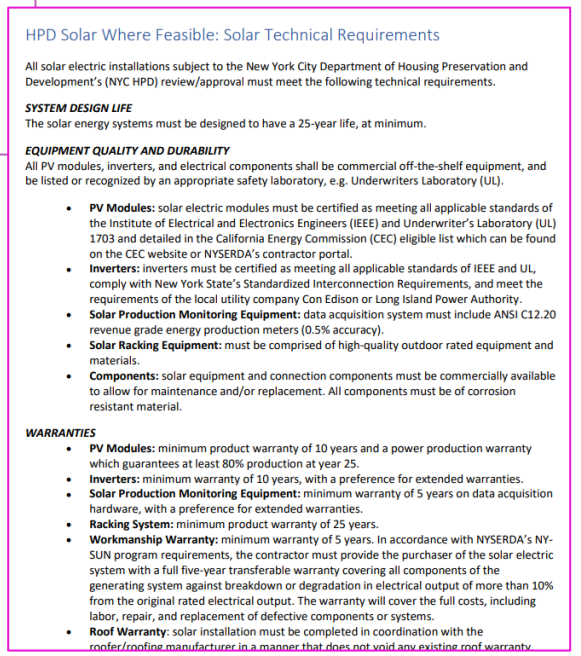
8. Solar One can assist project team during construction, closeout and completion, if necessary.

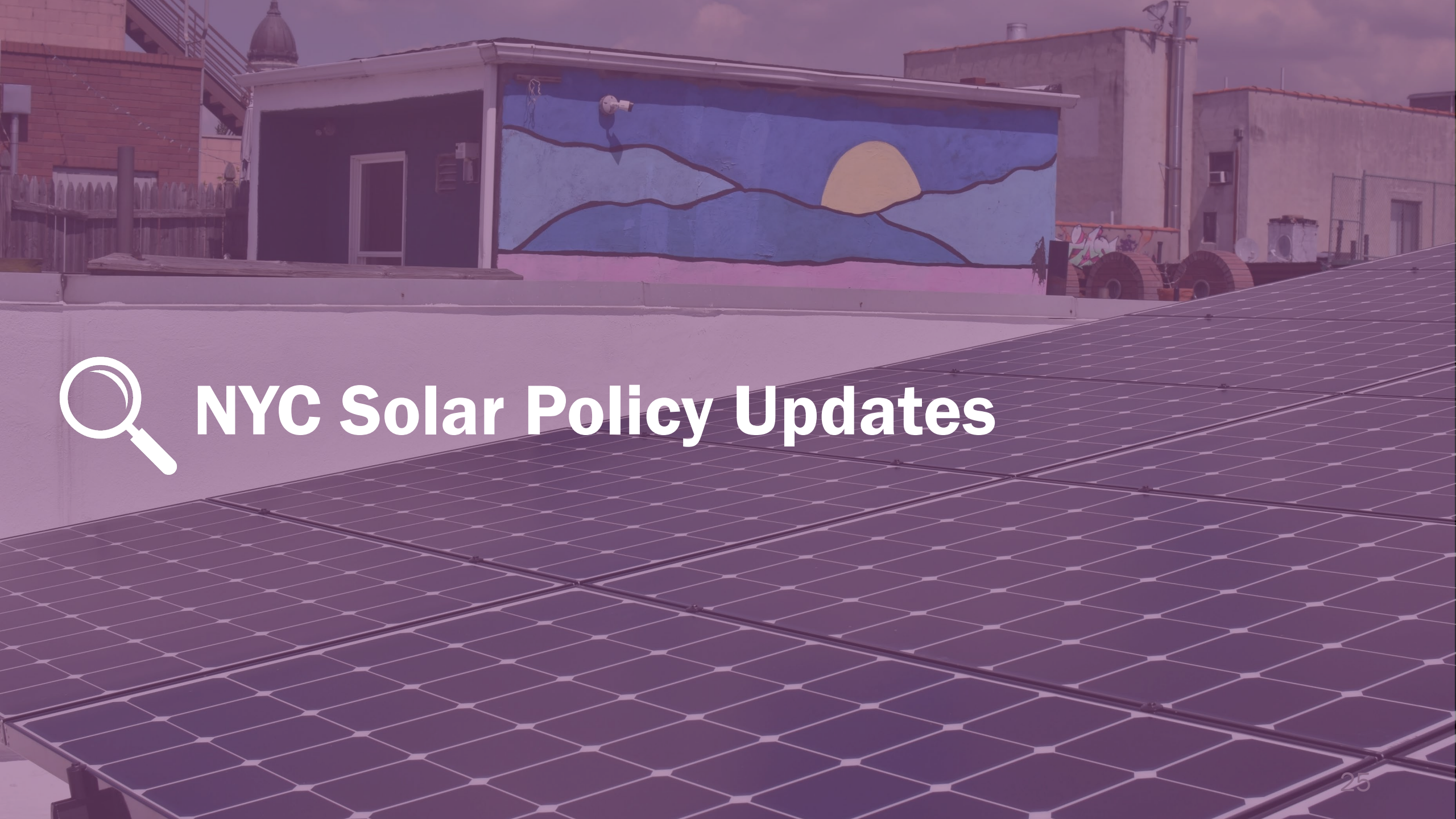
Have Questions? Contact affordable@solar1.org for free technical assistance.

Solar Resources for HPD Projects

Visit the HPD Solar Where Feasible Webpage for:

- Trainings
- Links to the Solar Feasibility Analysis Tool and the Intake Portal
- HPD's Solar Technical Requirements
- One pagers
- Coming soon...
  - Solar for Development Teams





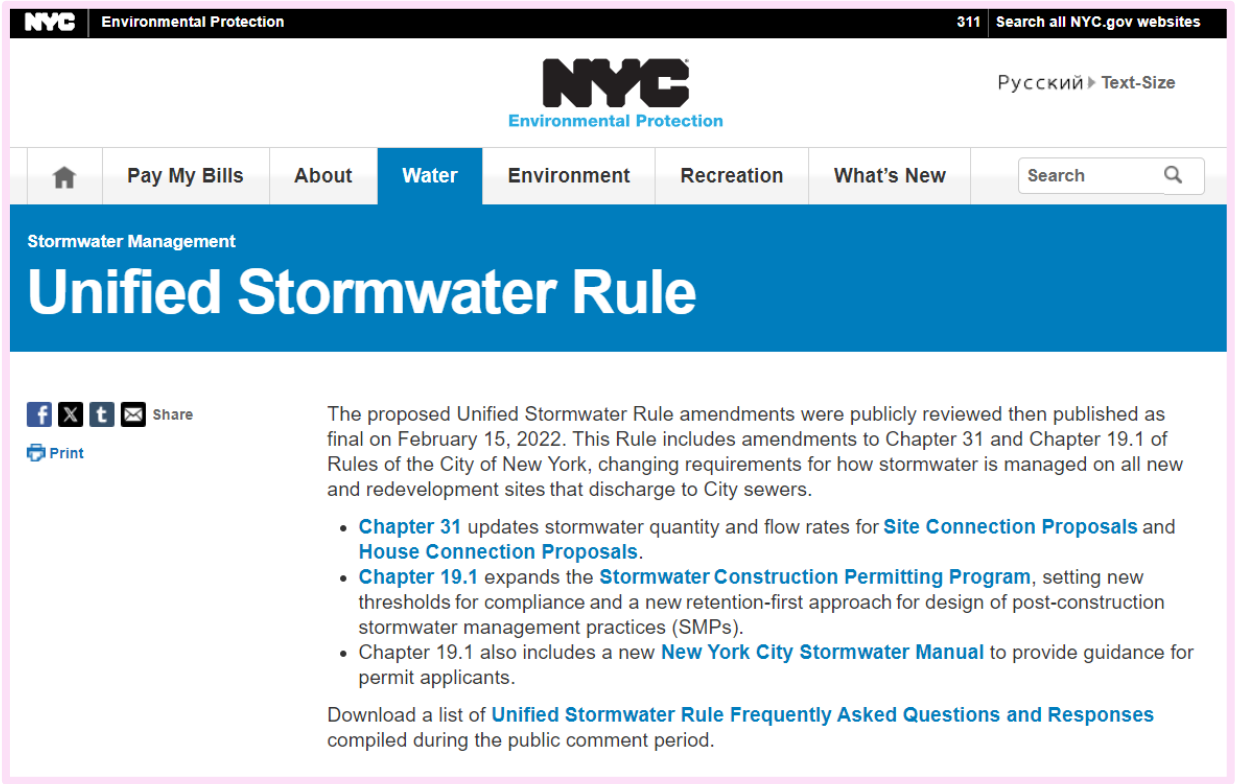
NYC Solar Policy Updates

DEP Unified Stormwater Rule

A project may require a DEP Stormwater Construction Permit if the project disturbs 20,000 sf of soil or creates 5,000 sf of new impervious surface. Projects should assess their DEP stormwater requirements before assessing for solar.

Note that USWR may require a green roof as part of stormwater management strategy. Buildings should assess this early as part of their roof strategy.

Any Solar Where Feasible waivers or DOB Exemptions noted are for HPD's Solar Where Feasible requirement only and should not be construed to exempt a project from a DEP stormwater requirement.

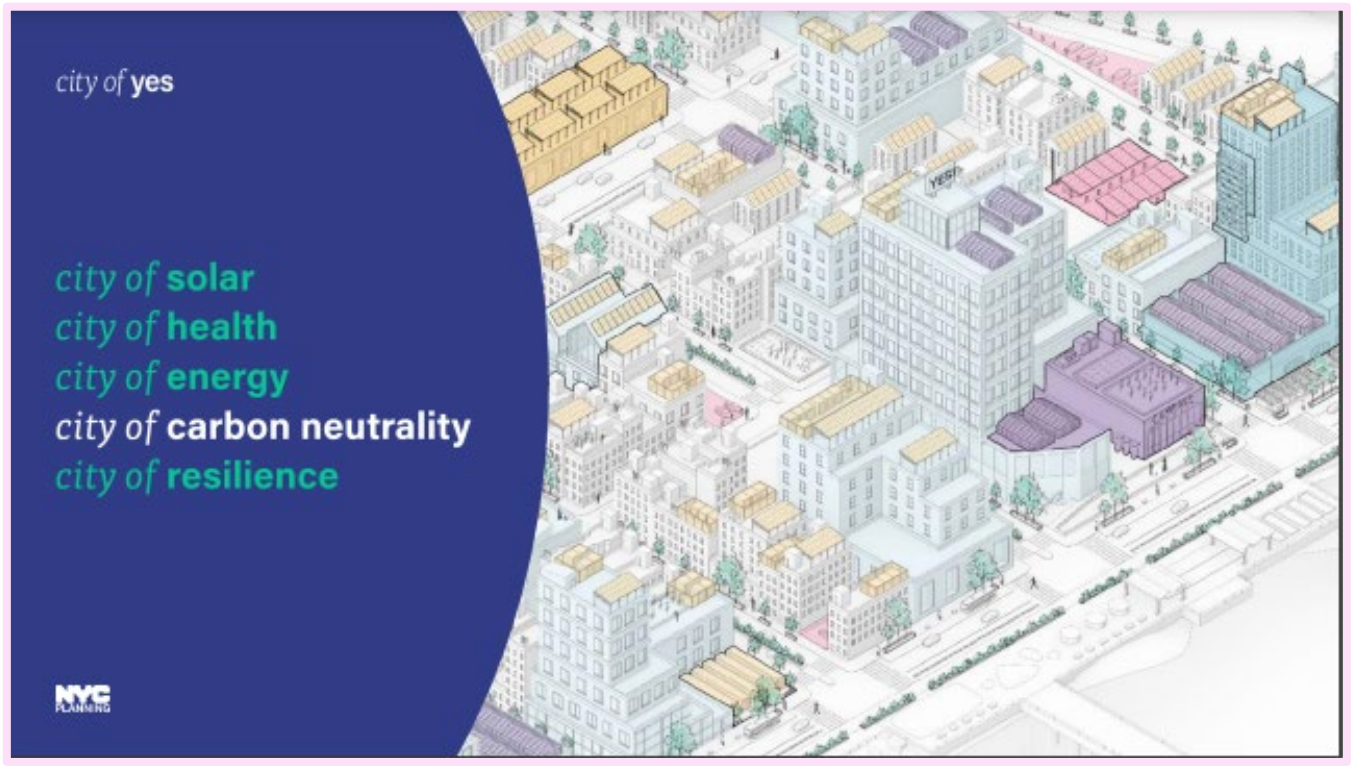


City of Yes

On December 6, 2023, NYC Council voted to pass the City of Yes for Carbon Neutrality Zoning Proposal.

Major changes for solar:

1. Removes coverage and setback requirements for solar canopies on flat roofs dictated by zoning
2. Provides greater flexibility for solar on pitched roofs
3. Permits standalone solar (i.e., community solar arrays) up to 10,000 square feet in residential zoning districts as-of-right.
4. Energy Storage systems up to 10,000 square feet are now permitted as-of-right in Residential Districts (as well as Commercial and Manufacturing districts).



Resources

- In depth project description
- Annotated zoning text amendment
- Powerpoint explaining changes

LL92/94 Alternative Compliance for Affordable Housing Ends

V. ALTERNATE COMPLIANCE TIMELINE FOR AFFORDABLE HOUSING

Until November 15, 2024, (i) buildings with one or more dwelling units for which occupancy or initial occupancy is restricted based upon the income of the occupant or prospective occupant as a condition of (A) a loan, grant, tax exemption or conveyance of property from any state or local governmental entity pursuant to the private housing finance law or the general municipal law, or (B) a tax exemption pursuant to section 420-c of the real property tax law, (ii) buildings subject to the alternative enforcement program pursuant to section 27-2153 of the administrative code of the city of New York, and (iii) buildings owned by the Department of Housing Preservation and Development (HPD), need only comply with the requirements of LL 92 and 94 of 2019 to the extent determined by HPD.

As of November 15 2024, DOB will no longer accept HPD Exemption letters and projects subject to LL92/94 will be required to comply with the DOB's requirements.

Resources

- DOB Bulletin

Questions? affordable@solar1.org

Coming soon…

- Solar for Development Teams (Resource Document)
- Trainings
  - How to Ace your Solar Feasibility Analysis